

# **ESTRO**

ESTRO  
CONFERENCE

**#38**

PROGRAMME BOOK  
& EXHIBITION GUIDE

**26-30 April 2019**  
**Milan, Italy**

**Targeting  
optimal care,  
together**



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# **ESTRO**

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## **38**

**ESTRO**  
European Society  
for Radiotherapy & Oncology

Rue Martin V, 40  
1200 Brussels  
Belgium

**WWW.ESTRO.ORG**

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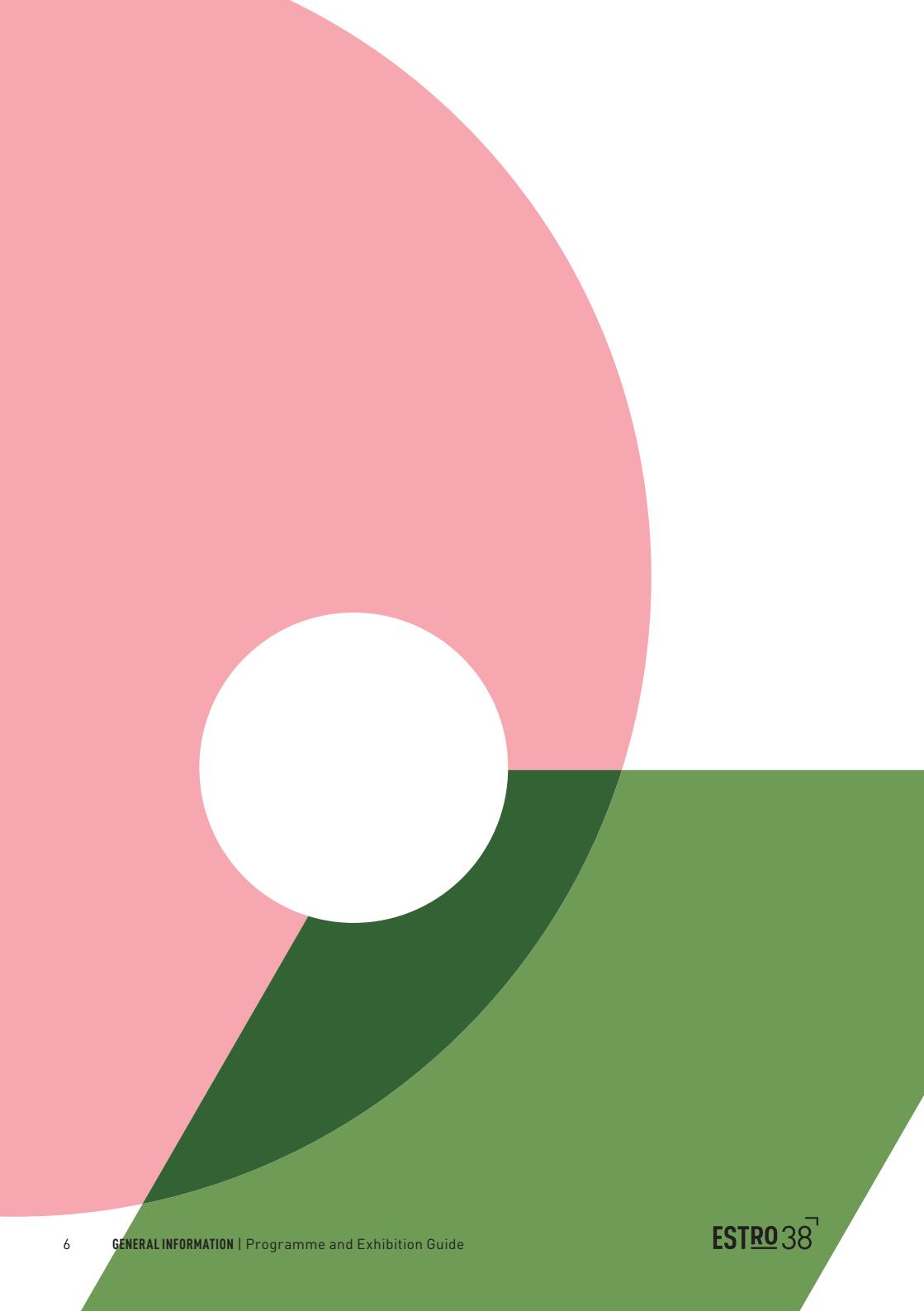
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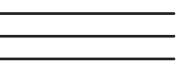
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# Welcome letter

On behalf of the Scientific Programme Committee, it is our honour and pleasure to welcome you to ESTRO 38.

ESTRO 38 will offer to us all, as professionals of oncology, the chance to share knowledge, practice and advances in the field, within the ever warm and dynamic environment of the ESTRO meetings.

'Targeting optimal care, together' will be the theme of ESTRO 38 and through these few, however impactful words, the Scientific and organising committees would like to put a spotlight on the multiprofessional and multidisciplinary aspect of our specialty. The theme also represents our strength: we are all working towards a common goal for improved patient outcomes, and this will be expressed throughout the scientific programme:

**Targeting:** the concept is inherent to the radiation oncology specialty, and certainly well in line with the modern concept of precision medicine.

**Optimal Care:** the value and the cost for radiotherapy are an inseparable part of the equation for optimal treatment. Although the clinical outcome of our patients is the priority in our daily practice, this cannot happen without common efforts to improve the access to treatment for all cancer patients.

**Together:** the radiation oncology community is a mosaic of various

stakeholders: medical and scientific communities, industry, national societies as well as oncology organisations, institutes, patients and advocates. We all join forces.

The interdisciplinary component of the scientific programme includes sessions on the following topics:

- Artificial Intelligence in radiation oncology: role and potential
- Radio-immunotherapy
- Adaptive RT guided by early response (adapting the adaptive!)
- Adaptive RT: reactive or proactive?
- MR machines and treatment adaptation
- Clinical trials for particle therapy: which ones to run and how?
- The DNA damage response with radiotherapy
- Radiotherapy biomarkers: a confluence of imaging, genetics and pathology
- Cardiac substructures and toxicity
- Predictive models of toxicity and big data, big open issues
- The role of hypofractionation in current radiotherapy and its impact in planning radiotherapy services
- Palliation in radiotherapy - How much is enough?
- Are adolescents and young adults (AYA) a specific patients' population?
- Plan of the day. General gains of performing
- Re-irradiation for breast cancer
- Extreme hypofractionation in the treatment of localised prostate cancer
- Radiotherapy in bladder cancer: standard of care and future perspectives



- Which is the best technique for the delivery of APBI?
- From discovery to cure
- Dose painting - what is the reality?
- Inflammatory environmental factors and radiation response
- Functional imaging in radiotherapy: from biology to guidance
- Role of ablative treatments in oligometastatic disease

With symposia, proffered papers sessions and debates, ESTRO 38 will offer ample opportunities to learn about cutting-edge research from leading scientists.

A strong educational platform will also feature worldwide experts who will give pre-meeting courses, teaching lectures, contouring workshops and multidisciplinary tumour boards during five days.

The Young Scientists Track has now become a not to be missed event within the congress with a one-day programme tailored to the young audience. On the agenda are: lectures, symposia and networking opportunities.

ESTRO's annual congresses feature the largest exhibition in radiation oncology in Europe with an increasing number of exhibitors year after year. Be there and get a chance to meet all the industry leaders show-casing the latest developments in the radiotherapy and oncology fields.

We welcome you in elegant and majestic Milan, where we hope you will join us to make ESTRO 38 a memorable event for the radiation oncology community.

With warm regards,

**Umberto Ricardi**  
**ESTRO 38 Chair**



# Scientific Programme Committee

## Chair of the congress

U. Ricardi (IT)

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# About ESTRO

## ESTRO 2030 VISION

The governance of ESTRO is pleased to share with you the 2030 vision that has been officially presented at ESTRO 37 in Barcelona last April.

### *Radiation Oncology. Optimal Health FOR ALL, Together.*

The 2030 vision will set the roadmap to follow for the further development of the discipline of radiation oncology.

## ESTRO MISSION

Founded in 1980, ESTRO is a non-profit scientific organisation whose role is to foster, in all its aspects, radiation oncology, clinical oncology and related subjects, including physics as applied to radiotherapy, radiation technology and radiobiology. To fulfil its purpose, ESTRO promotes education, science, research and advocate for access to radiotherapy through its teaching courses, workshops, meetings, publications and public affairs activities.

## ESTRO School

The ESTRO School has become an internationally recognised provider of high-quality education in radiotherapy and oncology and has developed a wide array of educational activities:

- Live teaching courses covering basic and continuing medical educational needs of all professionals working in the field of (radiation) oncology
- Pre-meeting teaching courses, workshops, teaching lectures and tumour boards during congresses
- Live and online workshops courses with FALCON (Fellowship in Anatomic deLineation and CONtouring), the online delineation programme
- Hands-on experience through mobility grants programme.

The ESTRO School promotes multidisciplinary education in oncology, basic science, physics and technology, imaging, and interdisciplinary oncology, with the objective of standardising knowledge and clinical practice, whilst recognising the diversity of radiation oncology practice in different parts of the world. In 2019, the ESTRO School is organising 37 live courses (31 in Europe and six outside Europe) and two undergraduate courses.

## ESTRO CONFERENCES

ESTRO next conference:

WCB (World Congress of Brachytherapy)

2-4 April 2020 | Vienna, Austria

The World Congress of Brachytherapy is an outstanding event for the brachytherapy community covering major indications and aspects of the discipline.



## ESTRO 39

3-7 April 2020 Vienna, Austria

ESTRO 39 will focus on the latest data in clinical oncology, radiation physics, radiation technology and patients' care, brachytherapy and radiobiology, all contributing to the goal: better patients' outcome in cancer treatment

## ESTRO MEMBERSHIP

The ESTRO memberships gathers 7,300 professionals of radiation oncology and its related fields, providing them with the resources and tools they need to successfully support their career development. ESTRO members can benefit from a host of advantages such as:

- Online subscription to *Radiotherapy & Oncology*, the Society's journal
- Reduced fees for attending ESTRO conferences, teaching courses and online workshops
- Online access to scientific material through the e-library (DOVE)
- Eligibility for grants, awards, faculties and governance positions.

A wide range of oncology professions are represented within the ESTRO community:

Radiation oncologists, clinical oncologists, medical physicists, radiobiologists, radiation therapists (RTTs), dosimetrists, radiotherapy nurses, medical oncologists, surgeons, industry representatives, organ specialists, other medical and non-medical professions, coming from more than 100 countries spread all over the world.

More information on [www.estro.org](http://www.estro.org).

## ESTRO Publications

### *Radiotherapy & Oncology*

*Radiotherapy & Oncology*, the *Green Journal*, is the flagship publication in ESTRO's family of journals. The Journal publishes original research articles and review articles on all aspects of radiation oncology and has a current impact factor of 4,328.

[www.thegreenjournal.com](http://www.thegreenjournal.com)

### *Open access journals*

ESTRO and Elsevier have launched more recently three new open access journals in order to provide specialised venues for the publication of ESTRO members' work:

- Clinical and Translational Radiation Oncology – ctRO, [www.ctro.science](http://www.ctro.science)
- Physics and Imaging for Radiation Oncology – phiRO, [www.phiro.science](http://www.phiro.science)
- Technical Innovations and Patient Support in Radiation Oncology – tipsRO, [www.tipsro.science](http://www.tipsro.science).



# Accreditation

"ESTRO 38, Milan, Italy, 26/04/2019 - 30/04/2019 has been accredited by the European Accreditation Council for Continuing Medical Education (EACCME®) with 24 European CME credits (ECMEC®s). Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity."

"Through an agreement between the Union Européenne des Médecins Spécialistes and the American Medical Association, physicians may convert EACCME® credits to an equivalent number of *AMA PRA Category 1 Credits™*.

Information on the process to convert EACCME® credit to AMA credit can be found at [www.ama-assn.org/education/earn-credit-participation-international-activities](http://www.ama-assn.org/education/earn-credit-participation-international-activities)."

"Live educational activities, occurring outside of Canada, recognised by the UEMS-EACCME® for ECMEC®s are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada."

# General Information



## Venue

MiCo  
Viale Ludovico Scarampo, Milan, Italy  
Fieramilanocity  
Main entrance: GATE 5  
Metro stop Portello

A limited number of posters will also be displayed in the poster area during the whole congress.

## Accommodation

For your hotel reservation in Milan, MiCo dmc is appointed as Official Housing Bureau of the 38th ESTRO Annual Meeting. For any information please contact:

MICODMC  
P.le Carlo Magno 1  
20149 Milan – Italy  
T. +39 02 87255050  
F. +39 02 43426274  
[estro2019.hotel@micodmc.it](mailto:estro2019.hotel@micodmc.it)

## Currency

The currency in Italy is the EUR.

## Official language

The official language of the congress is English. No simultaneous interpretation will be provided.

## Posters

Electronic poster stations will allow you to view the virtual displays at your leisure and to correspond with presenters or forward a presentation to a colleague or home office.

## Exhibition

An exhibition featuring equipment and medical publishers will be held in the Exhibition area. The exhibition will open on Friday evening with the Networking evening and will remain open from Saturday to Monday. Entrance is free for all registered participants. Companies and publishers who would like to participate in the exhibition may obtain more detailed information from the ESTRO Office.

## CONTACT PERSON

Hande Yilmaz  
Exhibition Administrator  
T: +32 2 7759018  
[hyilmaz@estro.org](mailto:hyilmaz@estro.org)

## Insurance

The European Society of Radiotherapy and Oncology (ESTRO) does not accept liability for individual medical, travel or personal insurance. In the event of unforeseen or serious circumstances beyond its control, ESTRO shall be entitled to cancel or modify the dates of the event. Delegates shall not be entitled to compensation for any costs or damages incurred as a consequence of such a cancellation or change. All delegates are urged to take personal travel insurance. ESTRO will not be liable for any theft or damage to property and/or persons



caused on site during the Congress, by any factor whatsoever, unless there has been a fault, intent or deliberate recklessness on the part of ESTRO. ESTRO shall not be held responsible in the event of poisoning or food intoxication during the Event.

### **Certificates of attendance**

We believe in sustainability!

Please note that ESTRO will no longer provide attendees with a printed certificate of attendance.

ESTRO will provide attendees with a direct link to a printable digital certificate.

### **Luncheons and refreshments**

The registration fee for the conference includes coffee breaks to all participants and company delegates wearing their conference badges. Lunch will be available for purchase in the exhibition area and is not included in the registration.

### **Opening ceremony and networking evening**

All participants and company delegates are invited to the official opening ceremony which will be held in the Gold Plenary room on Friday 26 April.

The opening ceremony will be followed by the Networking evening which will take place in the exhibition area.

### **Satellite Symposia**

Commercial satellite symposia will be held during lunch breaks. The programmes of the symposia will be published in the official programme book and on the ESTRO website.

For additional information, please do not hesitate to contact:

Hande Yilmaz  
Exhibition Administrator  
T: +32 2 7759018  
[hyilmaz@estro.org](mailto:hyilmaz@estro.org)

### **Social activities**

#### **Friday 26 April**

##### **Opening ceremony**

We can't wait to welcome you to Milan for a thrilling ESTRO 38, which will start on Friday 26 April 2019 with an opening ceremony.

##### **Friday 26 April 2019**

##### **Networking evening**

All registered participants and all company delegates are invited to the Networking evening which will take place in the exhibition area.

##### **Saturday 27 April 2019**

##### **Poster Awards ceremony**

All participants and company delegates are invited to the poster awards ceremony, which will be held in the poster area.



## **Saturday 27 April 2019**

### **Tweet-up**

Meet your Twitter friends and network at the Tweet up taking place on Saturday 27 April in the poster area. Let's Tweet-up there!

## **Sunday 28 April 2019 | 19:00 hrs**

### **Super Run**

The Super Run has now become a not-to-be-missed event at the ESTRO annual meetings. The initiative is a great occasion for all participants, sporty or not, to join in a common challenge.

Individual performance or collective effort? This year, you can decide. You will be able to choose to run on your own or to run a relay with teammates. So, don't forget to pack your running shoes and start training!

## **Monday 29 April 2019 | 21:30 hrs**

### **After dinner event**

All participants are invited to an after-dinner event which will take place in Alcatraz in Milan.

## **Tuesday 30 April | 13:45 hrs**

### **Post congress tour**

ESTRO will organize a post congress tour to the Fondazione CNAO (National Center of Oncological Hadrontherapy for the treatment of tumours) on 30 April.

Enter the bunker of the synchrotron, an 80 meters long particle accelerator, where carbon ions and protons travel, and be

amazed in front of the robotic system for positioning the patient in the treatment rooms of CNAO.

Physicists, engineers and technicians from CNAO will take you along a route of about 1 ½ hour.

Buses will leave from the MiCo at 13:45 hrs and will be back at around 16.45 hrs.

## **Sunday 28 April | 8:00 hrs - 17:00 hrs**

### **Young track**

The young scientists' sessions will take place from 8:00 hrs to 17:00 hrs.

## **How to reach Milan from the airport**

### **BY AIR**

#### **Linate**

Take bus no. 73 in the "National Arrivals Exit" area all the way to the terminal in Via Gonzaga / Piazza Diaz.

Go down into the Metro station "Duomo". Here take the Red Line 1 (Rho Fiera Milano direction).

- for the "viale Eginardo / viale Scarampolo" entrance: get off at the "Amendola" stop – 700 m from the Congress Centre, or at "Lotto" approx. 800 m.
- for the "piazzale Carlo Magno / via Gattamelata" entrance: get off at the "Cadorna" stop, exit the subway and go to the railroad station above: take the first train departing and get off at the "Domodossola" stop – just 600 m from the Congress Centre.



### *Malpensa*

The "MALPENSA EXPRESS" train service will take you directly from the airport to the centre of Milan in 40 minutes, arriving at the Ferrovie Nord "Cadorna" station. Here take the Red Metro Line 1 (Rho Fiera Milano direction).

- for the "viale Eginardo / viale Scarampo" entrance: get off at the "Amendola" stop – 700 m from the Congress Centre, or at "Lotto" approx. 800 m.
- or the "piazzale Carlo Magno / via Gattamelata" entrance: get off at the "Cadorna" stop, exit the subway and go to the railroad station above: take the first train departing and get off at the "Domodossola" stop – just 600 m from the Congress Centre.

### *Orio al Serio*

The "AUTOSTRADALE" or "AIR PULLMAN" bus service will take you directly from the airport to Milan Central Station in 60 minutes: then take the Metro Green Line 2 (Abbiategrasso direction) and get off at "Cadorna".

Here take the Red Line 1 (Rho Fiera Milano direction).

- for the "viale Eginardo / viale Scarampo" entrance: get off at the "Amendola" stop – 700 m from the Congress Centre, or at "Lotto" approx. 800 m.
- for the "piazzale Carlo Magno / via Gattamelata" entrance: get off at the "Cadorna" stop, exit the subway and go to the railroad station above: take the first train departing and get off at the "Domodossola" stop – just 600 m from the Congress Centre.

### BY TRAIN

#### *Central Station - Garibaldi Station*

Take the Metro Green Line 2 (Abbiategrasso direction) and get off at "Cadorna". Here take the Metro Red Line 1 (Rho Fiera Milano direction).

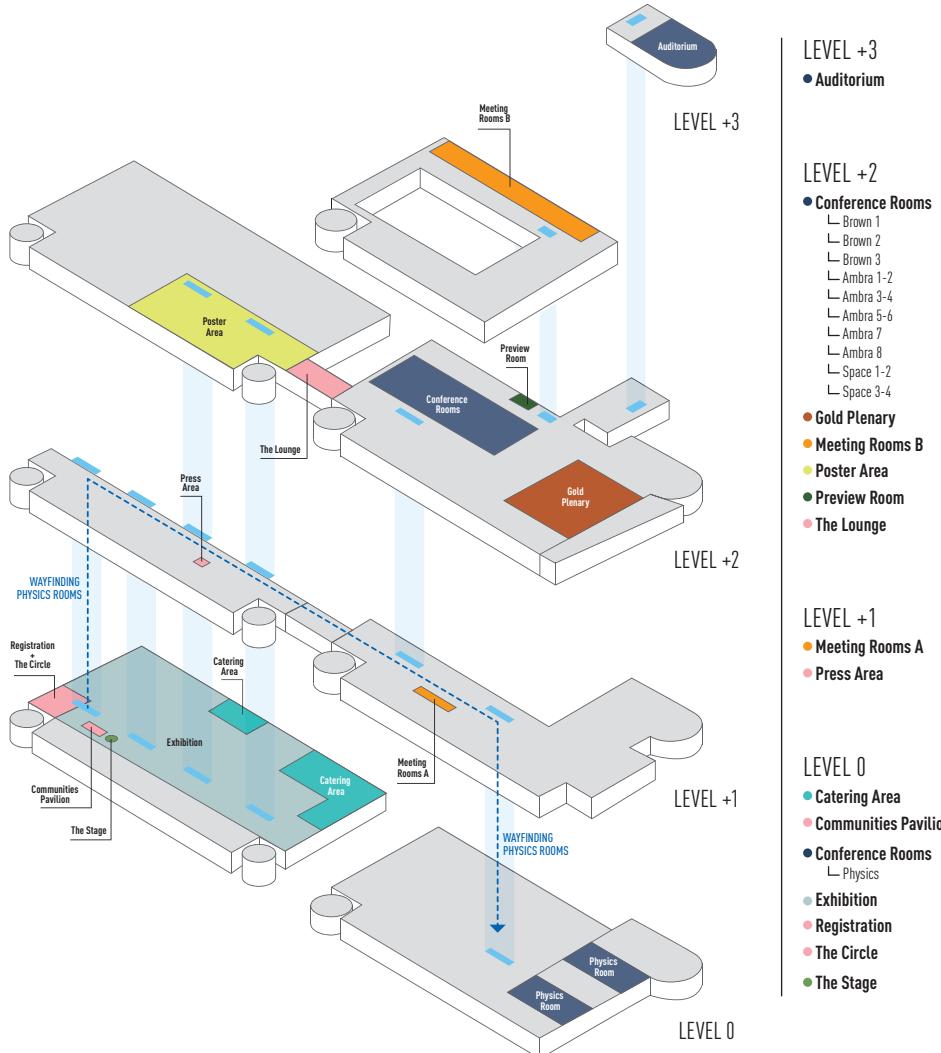
- for the "viale Eginardo / viale Scarampo" entrance: get off at the "Amendola" stop – 700 m from the Congress Centre, or at "Lotto" approx. 800 m.
- for the "piazzale Carlo Magno / via Gattamelata" entrance: get off at the "Cadorna" stop, exit the subway and go to the railroad station above: take the first train departing and get off at the "Domodossola" stop – just 600 m from the Congress Centre.

#### *Cadorna Station*

Here take the Metro Red Line 1 (Rho Fiera Milano direction).

- for the "viale Eginardo / viale Scarampo" entrance: get off at the "Amendola" stop – 700 m from the Congress Centre, or at "Lotto" approx. 800 m.
- for the "piazzale Carlo Magno / via Gattamelata" entrance: get off at the "Cadorna" stop, exit the subway and go to the railroad station above: take the first train departing and get off at the "Domodossola" stop – just 600 m from the congress centre.

# Floorplan





# New at ESTRO 38

## Selfie Corner

Pass by The Selfie Corner during your coffee and/or lunch breaks, take a selfie, get the chance to win a free registration at ESTRO 39 in Vienna.

On 2 May, we will announce the most liked picture as winner on ESTRO social media (Twitter, Facebook, Instagram, LinkedIn).

For further information, look for ESTRO staff onsite.

## Spin the wheel

What are your wishes and dreams in the field of radiation oncology? Spin the wheel and make a wish based on the options given by the wheel. Set free your imagination!

## Innovative Spaces

Don't forget ESTRO's innovative spaces: check out **The Stage** where the congress will introduce a new type of meeting room set-up. There, industry pitches and Meet & Greets will take place.

Also, take a look at **The Circle** and **The Lounge** to relax, chat with participants and discover what the Society can offer you.

## Join the game #1

First time at ESTRO Congress? This game is a 100% for newbies:  
You will have to collect 5 pins from Friday to Monday.  
You start at the registration area and end at The Lounge.

More information will be shared onsite!

# Not to be missed

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## 2019 ESTRO Communities Pavilion

At ESTRO 38, all delegates will be invited to the Communities Pavilion. Designed to foster exchanges about science, projects, collaborations, and why not, job opportunities, the Communities Pavilion provides a networking forum for the wide range of stakeholders in radiation oncology.

Launched in 2017, the Communities Pavilion welcomes institutions, national societies as well as patient associations, each represented within one booth. The ESTRO Communities Pavilion is open to all ESTRO 38 participants. The following organisations may participate as exhibitors:

- All institutes
- National societies
- International radiotherapy societies
- Patients associations
- Other oncology associations

### **Opening hours:**

Saturday 27 April to Monday 29 April, from 09:30- 17:00.

For more information, please contact:  
Gabriella Axelsson ([gaxelsson@estro.org](mailto:gaxelsson@estro.org))

## 2019 Start-Up Corner

Start-up companies will be invited to the Start-up Corner located in the exhibition area. The Start-up Corner is a dedicated area where start-up companies can present their new concepts and products and benefit from the visibility offered by our industrial exhibition.

The Start-up Corner is open to all ESTRO 38 participants.

### **Opening hours:**

Friday 26 April during the Networking evening and Saturday 27 April to Monday 29 April from 09:30 - 17:00.



# Acknowledgements

ESTRO would like to extend a special thank you to the chair of ESTRO 38 Umberto Ricardi and, the Chairs of the Scientific Advisory Groups, Claus Rödel, Catharine Clark, Marc Vooijs, Bartosz Bak and Bradley Pieters for having accepted the responsibility to develop the scientific programme.

A special thank you to all the members of the Scientific Advisory Groups and to the abstract reviewers for their valuable contribution to the conference.

## **ESTRO welcomes as special guests:**

AAPM – American Association of Physicists in Medicine

ASTRO – American Society for Radiation Oncology

CARO – Canadian Association of Radiation Oncology

EACR – European Association for Cancer Research

EFOMP – European Federation of Organisations for Medical Physics

EORTC – European Organisation for Research and Treatment of Cancer

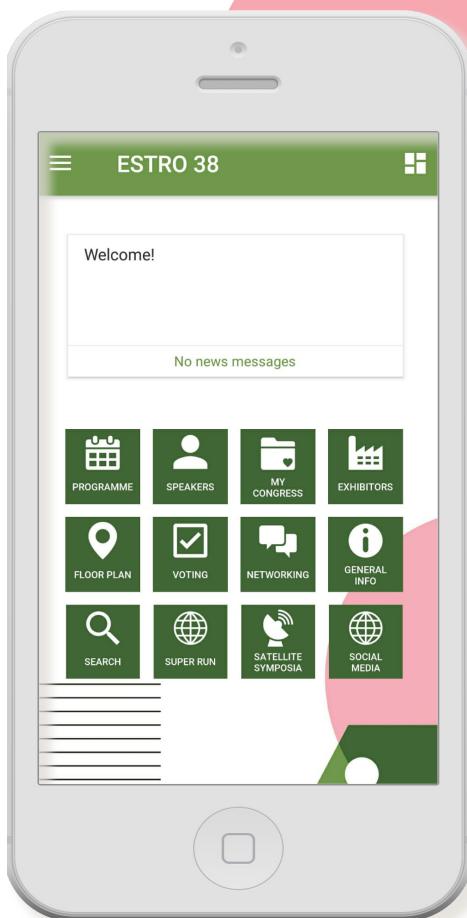
ESR – European Society for Radiology

IAEA – International Atomic Energy Agency

JASTRO – Japanese Society for Therapeutic Radiology and Oncology

RANZCR – The Royal Australian and New Zealand College of Radiologists

# Download the ESTRO app!



Find out about all the next ESTRO conferences, including ESTRO 38: essential information, networking opportunities and the latest news at your fingertips!

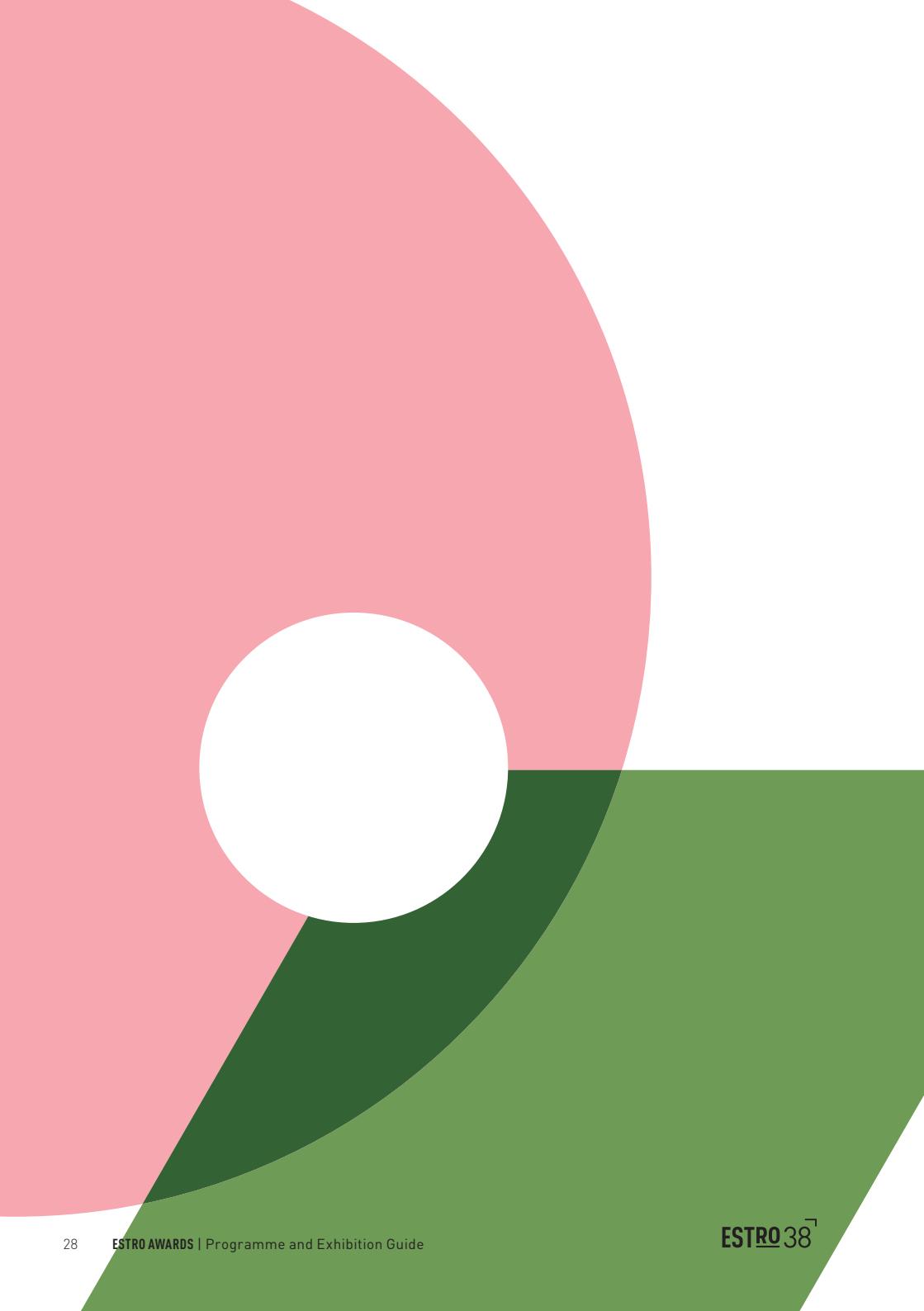
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# **ESTRO AWARDS**

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# Awards overview

## Lifetime Achievement Award

Gyorgy Kovacs

Riccardo Calandrino

Ekkehard Dikomey

Christian Carrie

Friday 26 April | 17:45-18:45 | Gold Plenary

## ESTRO Award Lectures and Academic Awards

- **Claudius Regaud award Lecture**

Is fractionation history?

*Dirk De Rysscher (The Netherlands)*

Sunday 28 April | from 12:30 to 13:00 | Gold Plenary

- **Klaus Breur Award Lecture**

A stroll in Rome together

*Vincenzo Valentini (Italy)*

Monday 29 April | from 12:00 to 12:30 | Gold Plenary

- **Emmanuel van der Schueren Award Lecture**

Learning from clinical practice: pushing quality forward

*Núria Jornet (Spain)*

Saturday 27 April | from 12:00 to 12:30 | Gold Plenary

- **Jens Overgaard Legacy Award**

Back to the future, a tale of volumes

*Philip Poortmans (France)*

Sunday 28 April | from 17:40-18:00 | Gold Plenary

- **GEC-ESTRO Iridium 192 Award**

The role of women in the brachytherapy field

*Christine Haie-Meder (France)*

Saturday 27 April | from 12:30 to 13:00 | Gold Plenary

- **Honorary Members award lectures**

Multidisciplinary approaches as the keys to defeat lung cancer

*Giorgio Scagliotti (Italy)*

Saturday 27 April | from 17:35 to 17:50 | Gold Plenary



- **Honorary Members award lectures**

Are radiation specialists good global cancer citizens?

*Julie Torode (Switzerland)*

Saturday 27 April | from 17:50 to 18:05 | Gold Plenary

- **Honorary Members award lectures**

Putting down the scalpel. The evolution of rectal cancer treatment.

*Angelita Habr-Gama (Brazil)*

Saturday 27 April | from 18:05-18:20 | Gold Plenary

- **Honorary Physicist Award Lecture**

Precision medicine – an opportunity for medical physics and radiation oncology

*Matthias Guckenberger (Switzerland)*

Sunday 28 April | from 18:00-18:20 | Gold Plenary

- **Donald Hollywood award lecture**

Stem cell sparing IMRT for head and neck cancer patients: a double-blind randomized controlled trial

*Roel Steenbakkers (The Netherlands)*

Monday 29 April | from 17:40 to 17:50 | Gold Plenary

- **Academic award: Jack Fowler University of Wisconsin Award**

First clinical real-time motion-including tumour dose reconstruction during radiotherapy delivery

*Simon Skouboe (Denmark)*

Monday 29 April | from 12:30 to 12:40 | Gold Plenary

# Awardees' biographies

## Lifetime Achievement Award



**György Kovács**

*University of Lübeck / UKSH-CL  
Lübeck, Germany*

György Kovács graduated from the Medical University of Szeged/Hungary in 1977 and became resident at the Municipal Centre of Radiotherapy in Budapest/Hungary. He went on to become research fellow from 1984-1987, at the Oncology Research Centre of the German Academy of Sciences in Berlin-Buch where he completed his academic thesis "Fast neutron treatment of salivary gland tumors". From 1989-1991 he took up a research fellowship with the Alexander von Humboldt Foundation at the Radiotherapy Clinic of the Westfälische Wilhelms University, Münster/Germany. Between 1991-2005 he received a full professorship in radiotherapy at the CAU Kiel/Germany and led the Interdisciplinary Brachytherapy Centre.

From 2005 to date, he is full Professor in radiotherapy at the University of Lübeck/Germany and leads the Interdisciplinary Brachytherapy Unit. He is additionally the Educational Programme Director of the Gemelli-INTERACTS, based at the Università Cattolica del Sacro Cuore, Rome/Italy, since 2017.

György was actively involved in several activities in ESTRO, including being GEC-

ESTRO Chair (2008-2010), leader of the GEC-ESTRO H&N and Skin WG (2010-2018), Director ESTRO-EAU Interdisciplinary Prostate Brachytherapy TC (1992-2012), ESTRO-ACROP committee member (2013-2018), ESTRO-APAC Executive Board Member (2016- date). He was the founding Chair of the DEGRO Brachytherapy Group (1990-2008).

He has received scientific prizes: "Strebler Medal" (German-, Swiss-, Austrian Radiotherapy Societies, 2003), "Iris Fischer Memorial Lecture Award" (Yale University/USA, 2009), "Samir Desai Oration Lecture Award" (Indian Brachytherapy Society, 2014), "Elis Berven Lecture Award" (Swedish Oncology Society, 2017). He is honorary member of the Hungarian- (2010), Belgian- (2011) and Pakistan Radiotherapy Societies, as well Honorary senator of the University of Szeged/Hungary (2014 to date).

György Kovács has published over 200 scientific works in peer-reviewed international journals and has an h-factor of 27.



## Lifetime Achievement Award



**Riccardo Calandrino**

*Istituto Ricovero e Cura a Carattere Scientifico Ospedale San Raffaele  
Milano, Italy*

Riccardo Calandrino was born in Milano in 1953. He obtained his degree in Physics in 1976 and became specialist in Medical Physics in 1981. He has been head of IRCCS San Raffaele Medical Physics Department since 1982.

He was Contract Professor at the Università Statale di Milano from 1988 to 1993; and from 1997 to 1999; Contract Professor at Università Vita e Salute San Raffaele from 2000 to 2006 and course coordinator for the Course Fisica e Tecnologie Mediche at the faculty of Medicine. He also served as Contract professor at the Università Vita e Salute since AA 2006 /2007 for the faculty of Physiotherapy up to 2008/2009.

Riccardo has authored and co-authored more than 50 published papers concerning the optimisation of radiotherapy and evaluation of its side effects (including 2nd Tumour induction); as well as radioprotection of staff and that of the environment in the management of medical cyclotrons.

## Lifetime Achievement Award



### **Ekkehard Dikomey**

*Laboratory of Radiobiology & Experimental Radiation oncology, University Hospital Hamburg-Eppendorf, Hamburg, Germany*

Ekkehard Dikomey studied physics at the University of Hamburg and completed his diploma in 1976. This was followed by a PhD at the Department of Biophysics and Radiobiology at the University Hospital of Hamburg-Eppendorf under Prof. Horst Jung. The topic of his research was 'Effect of hyperthermia on DNA repair'. He remained at this institute and became a group leader in 1985. His habilitation ended in 1996 with the research title 'Impact of DNA Repair on Cellular Radiosensitivity'. In 2000 he became interim Director of the institute which was converted into the Department of Radiobiology & Experimental Radiooncology. He was confirmed in the position in 2002. The topic of research of this department was 'Double-strand break repair in tumours: molecular mechanisms and targeting'.

He has to date published over 120 peer-reviewed papers and raised about 10M € for research. He retired from this position in 2015. Since then he is a guest professor at the Department of Radiotherapy and Radio Oncology at the University of Marburg headed by Prof. Rita Engenhart-Cabillic. He was a board member of several societies such as the IARR, DEGRO, DGDR,

GBS, where he was elected as a President from 2012 to 2014.

Ekkehard also worked in several scientific committees such as the organising committee of the Wolfsberg Meeting on Molecular Radiation Biology/Oncology from 1997 until 2015. At present he is the speaker of the German Competence Network for Radiation Research, which is an advisory board for the German Government.

## Lifetime Achievement Award



**Christian Carrie**

*Centre Leon Berard  
Lyon, France*

Christian Carrie started medical school in 1983 in Lyon and experienced some hesitation in choosing between hematology paediatrics and radiation oncology. After having met Professeur Jean Pierre Gerard he finally decided to become Radiation oncologist and became fellow at the Centre Leon Berard, Lyon, in 1987.

He was appointed full assistant professor in 1989 at Centre Leon Berard and got involved in paediatric radiation oncology, lung and genitourinary cancer.

He was elected head of the Department of radiation therapy at Centre Leon Berard in 1993 at the age of 35 years. He also served as Director of technical facilities from 1999 to 2009 and deputy Director from 2009 to 2014 at the Centre Leon Berard and is its director's counsellor to date.

Christian initiated the quality control for medulloblastoma treatment in 1993 first at national level first and later at a European level for the European SIOP (International Society of Paediatric Oncology) protocols.

He was one of the founders of PROS (Paediatric Radiation Oncology Society) in 2004 and president of PROS from 2005 to 2010; member of SIOP scientific committee since 2006; joined the ESTRO board from 2007 to 2010; and was president of the French paediatric radiotherapy group from 2016 to 2017.

Christian is 61 years old, married for 38 years, father of two boys and grandfather of one boy. He loves sailing, gardening, travelling and sport.

## Claudius Regaud Award



**Dirk De Ruysscher**

*Maastro clinic  
Maastricht, the Netherlands*

Dirk De Ruysscher earned his medical degree at the University of Leuven, Belgium, in 1986, and became Radiation Oncologist at the same university in 1991. In 1992, he obtained his PhD thesis at the University of Leuven on the influence of radiotherapy on immunity. He currently heads the Division Maastro Clinical Trials as well as Proton Therapy Research at ZON-PTC (Proton Therapy South-East Netherlands), is coordinator of the biobank project at Maastro Clinic, which includes now over 10000 patients and heads the Dutch Platform for Radiotherapy for Lung Cancer. He is full Professor of Respiratory Oncology/ Radiation Oncology at the Maastricht University Medical Center, Maastricht, The Netherlands.

He is specialised in lung cancer in which he pioneered the integration of molecular imaging in radiation treatment planning and individualised radiotherapy schedules. He has coordinated work packages in several academic international (EU), Dutch and Belgian research projects, as well as collaborations with industrial partners.

Dirk has supervised many PhD projects,

and was or is the study coordinator of 9 phase I studies, 22 phase II and 6 phase III trials, dealing with individualised radiation-dose escalation, combining targeted agents with radiotherapy, the development of new PET tracers, molecular pathways involved in radiation damage, individualised radiotherapy, proton therapy, meta-analyses, cost-effectiveness, immune therapy and PCI. He has published over 300 peer-reviewed Wi-1 papers and chapters in several scientific books.

## Klaas Breur Award



### Vincenzo Valentini

*Radiation Oncology Department, Fondazione Policlinico Universitario A.Gemelli IRCCS, Università Cattolica S.Cuore, Rome, Italy*

Vincenzo Valentini is full Professor in Radiation Oncology at Università Cattolica S.Cuore, Rome and Scientific Director, Fondazione San Giovanni Paolo II - Campobasso. He is furthermore, Director of the Diagnostic Imaging, Radiation Oncology and Hematology Department at Fondazione Policlinico Universitario A. Gemelli, Rome.

He is author of more than 450 publications in peer-reviewed international journals, publisher of monographs on intestinal neoplasms and on the applications of information technology in radiotherapy. He is editor of *Radiotherapy and Oncology* journal, and member of the editorial boards of other international journals.

In the last 30 years he has concentrated his interest in several fields: the optimisation of radiation treatments using advanced image techniques to define the volume of irradiation and delineation recommendations, publishing several international guidelines; the integration between radiotherapy and surgery, managing preoperative and intra-operative programs; the integration between radiotherapy and chemotherapy

in which he applied different plans for the treatment of locally advanced neoplasms, particularly in diseases of the rectum, pancreas, stomach, anal canal, lung, cervix and biliary tract.

He was Director of the ESTRO course on Evidence and Research on Rectal Cancer and is now Director of the courses on Imaging in Oncological Radiotherapy; and Neoplasms of the upper abdomen. Vincenzo was recipient of many European and International awards and is honorary member of ESSO, SEOR, AROI, JASTRO, DEGRO, PSRO and was awarded the ESTRO Physic Honorary Membership.

He served ESTRO as President from 2011 to 2014.

## Emmanuel van der Schueren Award



**Núria Jornet**

*Servei de Radiofísica i Radioprotecció, Hospital Sant Pau  
Barcelona, Spain*

Born in Barcelona in 1968, Núria Jornet graduated in Physics at the Universitat Autònoma de Barcelona in 1991. She received a grant from the Catalan Government to follow a Masters in Medical Physics at the University Paul Sabatier, Toulouse, and Paris IV. Back in Barcelona, she earned a permanent position at Sant Pau hospital as a clinical physicist in the Medical Physics Department. She simultaneously studied for a PhD on *in vivo* dosimetry with diodes for high energy x-ray beams.

From the very start of her career Núria has been closely linked to ESTRO. She has been a long-term member of the Education Council of ESTRO. She is current chair of the Physics Committee and member of the Scientific Council.

She has a strong commitment to teaching and is faculty member of the ESTRO school, and course director of the Quality management: Quality monitoring and Quality Improvement course. She has also taught on training courses organised by the IAEA. She was member and chair of several scientific committees for national and international scientific meetings

(ESTRO, IAEA, SEFM, ECCO, EFOMP).

Although Núria works at a clinical department, she has strong links with research groups at the Physics University (UB), BarcelonaTech (UPC), and Biology University (UAB) with whom is shared different research projects and teaching courses. Projects focus on *in vivo* dosimetry, dose calculation in heterogeneities for high energy x-ray beams, skin dose calculation and measurement and biological dosimetry. Other work is on image biomarkers of cardiac toxicity after radiotherapy in breast cancer. She has authored 25 papers in peer-reviewed journals, around 150 communications in meetings and 10 funded research projects. She is associate editor of *Physica Medica* and *phiRo* and reviewer of several scientific journals.

## Jens Overgaard Legacy Award



**Philip Poortmans**

*Institut Curie  
Paris, France*

After completion of his medical studies at the University of Antwerp, Belgium, Philip Poortmans trained in radiation oncology at the Middelheim and Vincentius Hospitals in Antwerp. After a short stay in Turnhout he started clinical activities in Tilburg, The Netherlands, in 1991. The multidisciplinary environment and the good infrastructure and organisation created an excellent matrix for his engagement in clinical research, especially within the framework of the EORTC. This led to wide recognition and further development of his educational skills and, in 2005 culminated into a PhD at the University of Maastricht on quality assurance in clinical trials in breast cancer.

After chairing the department of radiation oncology of the Radboud UMC, Nijmegen, for two and half years, he moved in March 2017 to the Institut Curie, Paris, France, to be fully engaged in the optimisation of the largest French radiation oncology department including its proton centre.

Philip took on leading roles in ESTRO from 2005 till 2008 as board member and from 2013 till 2017 as President. He is the current president of ECCO.

He has special interest in breast cancer, after investing also a lot in quality assurance in clinical trials, malignant lymphoma, urological cancers and rare tumours. He is course director of ESTRO's teaching courses "Multidisciplinary Management of Breast Cancer" and "Accelerated Partial Breast Irradiation". Apart from about 250 peer-reviewed articles, he co-edited with Seymour H. Levitt, James A. Purdy and Carlos A. Perez "Technical Basis of Radiation Therapy. Practical Clinical Implications" (Springer).

He is honorary member of BVRO/ABRO, ESSO, SEOR, AROI, BIGOSA and of JASTRO.



## GEC-ESTRO Iridium 192 Award



### Christine Haie-Meder

*Gustave Roussy Comprehensive Cancer Center  
Villejuif, France*

Christine Haie-Meder studied medicine at the faculty of Medicine in Poitiers. She trained in Radiation Oncology at the Institute Curie and at the Institut Gustave Roussy. She became board certified in Radiation Oncology at the University of Paris XII. Interested in all fields of brachytherapy, she worked in the Brachytherapy Unit of Gustave Roussy Cancer Center with Professors Daniel Chassagne and Andrée Dutreix and afterwards with Dr Alain Gerbaulet. She spent 6 months in Rochester New York at Philip Rubin's Department. She became Head of the Brachytherapy Unit in 1999 until 2016. She recently joined the Amethyst Radiation Oncology Group in March 2018. She has been active in the ESTRO society, being an ESTRO board member, GEC-ESTRO Chair and also taught in ESTRO teaching courses. She published more than 240 articles in international journals, more than 300 abstracts in radiation oncology and gynaecological meetings and had several contributions in books.

## Honorary Member Award



**Giorgio Scagliotti**

*University of Turin  
Turin, Italy*

Giorgio Scagliotti is Professor of Medical Oncology at the University of Torino in Italy. He is currently the Chief of the Medical Oncology Division at the S. Luigi Hospital, Orbassano, Torino, Italy and former Head of Department of Oncology at the same University. He earned his medical degree and completed his postgraduate training in respiratory medicine, internal medicine and medical oncology at the University of Torino.

His research interests have included experimental studies on basic and clinical applied research on lung cancer, including translational research. He has been or is currently the study coordinator of several international clinical trials.

Giorgio Scagliotti is a member of several scientific societies, including the Italian Association for Medical Oncology, European Respiratory Society (ERS), American Society of Clinical Oncology (ASCO), and International Association for the Study of Lung Cancer (IASLC). From 2003 to 2007 he served as Executive Board member of IASLC and is currently its President (2017-2019).



## Honorary Member Award



**Julie Torode**

*Union for International Cancer Control (UICC)  
Geneva, Switzerland*

Based in Geneva, Julie Torode is Director of Special Projects for the Union for International Cancer Control (UICC), currently seconded to World Health Organisation (WHO) supporting the global effort to eliminate cervical cancer, following the call to action by the Director General, Tedros Adhanom Ghebreyesus, in May 2018.

Julie likes to deliver results and work with purpose highlighted by key advocacy achievements across the spectrum of care with UICC and Noncommunicable Diseases (NCDs) Alliance detailed in the global commitments to cancer and NCDs in the global action plan 2013-2020, the Sustainable Development Goals which run to 2030 and the 2017 cancer resolution. She is also involved in the collaboration with WHO to update the cancer chapter of the WHO model essential medicines list and the first edition of the WHO list of priority medical devices for cancer management.

Key partnerships Julie set up for UICC are the Global Initiative for Cancer Registration, and the International Cancer Control Partnership. More

recently, her efforts have been focused on strengthening health systems for equitable access to cancer diagnosis, treatment and palliative care with a partnership on access to opioids with WHO and the United Nations Office on Drugs and Crime (UNODC), developing the City Cancer Challenge and Treatment for All campaigns.

Partnerships with UICC member organisations (1117 in 168 countries) are central to progress in global advocacy with the global Taskforce for radiotherapy in cancer control and the Global Impact of Radiotherapy in Oncology (GIRO) 2030 representing two examples directly working with ESTRO.

## Honorary Member Award



### Angelita Habr-Gama

*Angelita and Joaquim Gama Institute  
São Paulo, Brazil*

Angelita Habr-Gama was born to a family of Lebanese immigrants in northern Brazil and grew up in São Paulo where she went to Medical School, completed her training in surgery, and still practices. Angelita excelled in medical school and became the first female surgery resident in Brazil, the first of many firsts. She became first female fellow in coloproctology at the renowned Saint Mark's Hospital in London and on her return to the University of São Paulo, she dedicated herself to her academic calling. There she went on to be become the first female professor of surgery in Latin America, the Head of the Department of Surgery of the Colon, Rectum and Anus and finally the Head of the Gastroenterological Department of the University of São Paulo Medical School.

Her contributions in coloproctology are numerous and her dedication to research, education, and practice in coloproctology throughout her career are unparalleled and are evidenced in her body of work as well as in her trainees and pupils. Of note is her research in rectal cancer – the proposal to not operate patients that have a complete response to neoadjuvant chemoradiation therapy. This began as an

observation in a handful of patients in the 1990's and over the course of nearly three decades translated into a paradigm shift in rectal cancer management. This tenacity is emblematic of all of her pursuits.

In recognition of her contributions she has received numerous national and international prizes and awards and has been honored as Honorary Fellow of most surgical societies worldwide.

## Honorary Member Award



**Matthias Guckenberger**

*Department of Radiation Oncology, University Hospital Zurich,  
University of Zurich, Zurich, Switzerland*

Matthias Guckenberger was trained as Radiation Oncologist at the Department of Radiation Oncology (Prof. M. Flentje), University Hospital Würzburg, Germany. After a research fellowship at the Institute of Cancer Research UK and the Royal Marsden Hospital London under Prof. M. Brada. He was promoted to Associate Professor (W2 Professor) in 2010 and became Vice-Chairman of the Department of Radiation Oncology, at the University Hospital Würzburg. In 2014, he was appointed as Chair of the Department of Radiation Oncology, University Hospital Zurich and Full Professor at the University of Zurich (Switzerland). He is currently Chair of the Imaging Department of the University Hospital Zurich and is Vice Dean for the Master of Medicine at the University of Zurich.

His research is located at the interface of medical-physics and clinical research: development, implementation and clinical evaluation of advanced radiotherapy technologies. Areas of interest are from a physics perspective image-guided adaptive radiotherapy, radiomics & outcome modelling and stereotactic radiotherapy, and from a clinical

perspective: lung cancer, prostate cancer and oligometastatic disease. He has published in more than 230 PubMed listed manuscripts with an h-index of 42.

Within ESTRO, he served for many years as teacher in the ESTRO school courses "Image guidance" and "Advanced technologies", as course-director of the "Stereotactic Body Radiotherapy" course, member of the task group on quality management, member of the *GreenJournal* Editorial board and member of the ESTRO Board and Scientific Council. He enjoys his free time with his wife Christine and their three children, Jan, Lea and Mia, mostly doing sports activities.

## Donal Hollywood Award



**Roel Steenbakkers**

*University Medical Centre Groningen  
Groningen, The Netherlands*

Roel Steenbakkers is a radiation oncologist specialised in radiotherapy of head and neck cancer, skin cancer and benign disease. From 2000 to 2009 he worked at the Netherlands Cancer Institute, Antoni van Leeuwenhoek Hospital (NKI-AvL) in Amsterdam. He obtained his PhD at the NKI-AvL in 2007 on the topic 'Optimising Target Definition for Radiotherapy'. He received his medical degree as a radiation oncologist in 2009. Since then and to date he works at the University Medical Centre Groningen (UMCG) in The Netherlands.

At the UMCG Roel is involved in daily patient care. He is an active member of the implementation team for proton therapy for head and neck cancer. Furthermore, he is responsible for the research of several projects in head and neck cancer and benign disease plus supervising several PhD-students. For head and neck cancer, his main research topic is radiation induced side effects with the emphasis on xerostomia. This includes xerostomia modelling, imaging, prevention, stem cell sparing radiotherapy techniques (photons and protons) and stem cell therapy. For benign disease, his main research topic is Ledderhose disease.

## Jack Fowler University of Wisconsin Award



**Simon Skouboe**

*Department of Oncology, Aarhus University Hospital  
Aarhus, Denmark*

Simon Skouboe was born in 1990 in Denmark. He studied for his bachelor in technical physics and subsequently his master's degree in physics at the Department Physics and Astronomy at Aarhus University in Denmark. During his studies, he discovered medical physics and went on to follow his master's thesis in this field, as he found it even more interesting than nuclear and solid-state physics. The master's thesis involved real-time motion including dose reconstructions in phantoms including experiments as verifications, along with the ground work for expanding the program to handle patient anatomy.

The work during his master's thesis was successful, and he started a PhD project as a direct continuation of the work, under the supervision of Prof Per Poulsen, medical physicist Thomas Ravkilde and Prof Morten Høyer. His focus of interest was on development of software tools and its clinical application thereof. The real-time motion-including dose reconstructions were implemented in the clinic for liver SBRT patients in 2018 during his PhD. He intends to make use of the developed system in a prostate

study before submitting his PhD thesis at the end of 2019.

Currently in the third and final year of his PhD, Simon hopes to get funding for a post-doc focused on treatment adaptation based on delivered dose.

# **ESTRO** **meets** **ASIA**

## **2019**

**ESTRO  
CONFERENCE**

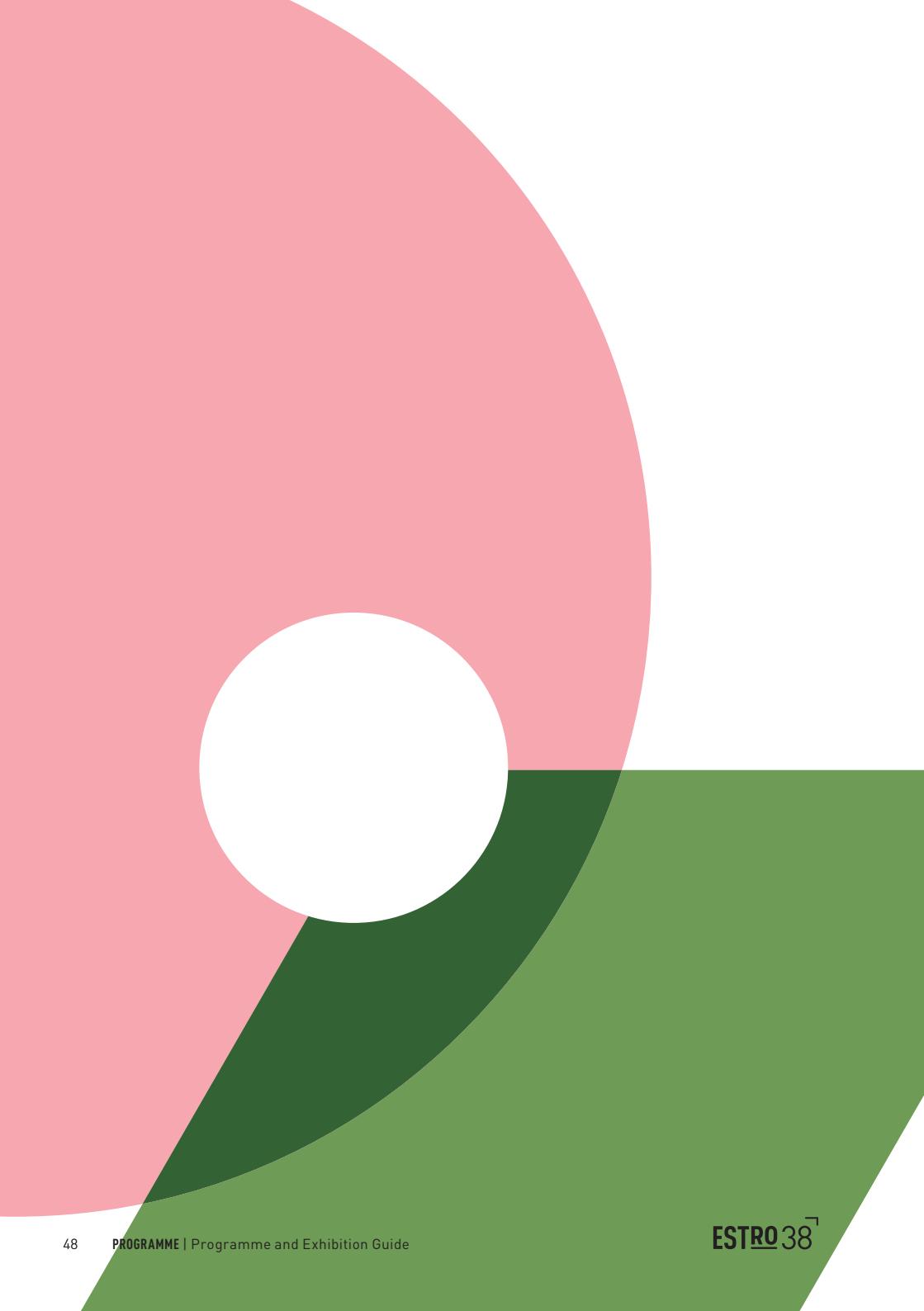
**6-8 December 2019**  
**Singapore**

### **DEADLINES**

**Abstract submission: 12 June**

**Early registration: 31 July**

**Late registration: 5 November**



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# PROGRAMME

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Multidisciplinary tumour board sessions	70

# Young Programme

Sunday 28 April 2019 from 8:00-17:30 | Ambra 3-4

- 
- 08:00-08:40 > **Teaching lecture**  
Precision medicine and systems biology - transforming cancer research in the 21st century  
*Chair: M-I Bittner (DE)*  
*Speaker: W. Kolch (IE)*
- 08:45-10:00 > **Symposium**  
Combining research and (clinical/ professional) training/ practice  
*Chair: C. Chargari (FR)*  
*Co-chair: G. Reggiori (IT)*
- Taking time off for full-time research - is it worth it?  
*A. Levy (FR)*
- Why do we need and pitfalls to be trained in statistics?  
*A. Escande (FR)*
- Research and training in medical physics  
*S. Petit (NL)*
- Clinical vs lab research for clinicians  
*D. Milanovic (UK)*
- Lessons learnt from a young head of department  
*R. Baumann (DE)*
- 10:00-11:45 > **Coffee break & Speed Dating**  
*Chair: M-I Bittner (UK) and C. Chargari (FR)*
- 13:00 – 14:30 > **Young Lunch symposium**  
How to prevent burnout?  
*Chair: J-E Bibault (FR)*  
*Co-chair: J. Bertholet (UK)*
- Perspectives on burnout in the medical professions  
*P. Franco (IT)*
- OC-0327 The PRO BONO survey (PROject on Burn-Out in RadiatioN Oncology)  
*P. Franco (IT)*



Science slam:

1. Report back from ESTRO mobility grants clinical: SRS & SBRT in the management of oligometastatic disease

*I. Zumbadze (GE)*

2. Report back from ESTRO mobility grants physics: Modelling Head and Neck Radiotherapy outcomes using radiomics biomarkers

*P. Kalendralis (NL)*

3. Science slam: To breathe or not to breathe. ESTRO Mobility Grant report

*S. Prcic (SL)*

14:30-15:45 >

### **Symposium**

**Stronger together - news and projects in the young national societies**

*Chair: N. Ebert (DE)*

*Co-chair: O. Kaidar-Person (IL)*

Perspective of an established young society: the Spanish Young Society

*V. Morillo (ES)*

An emerging young society: Young Romanian Radiotherapists and Oncolo-gists Group (YRROG)

*M. Zerbea (RO)*

Creating a new young radiation oncology society - the case of Poland

*M. Spalek (PL)*

Working together across borders: YROG

*C. Ostheimer (DE)*

Panel discussion - Speakers and session chairs

16:00 – 17:00 >

### **The Stage**

**Quiz and Young networking cocktail**

*Chair: L. Dubois (NL)*

# Pre-meeting courses

## CLINICAL PRE-MEETING COURSE

### MR guided radiotherapy for clinicians

Friday 26 April 2019 | 08:30-17:00 | room Brown 3

*Course directors: B. Slotman (NL) and C. Gani (DE)*

*Course teachers: R. Botman (NL), A. Bruynzeel (NL), C. D. Fuller (US), M. Guckenberger (CH), I. Jürgenliemk-Schulz (NL), S. Klüter (DE), M. Ladd (DE), T. Nyholm (SE), B. Raaymakers (NL), A. Tree (UK), V. Valentini (IT), U. van der Heide (NL)*

#### Course aim

To provide an overview of the current and potential role of external beam MRI-guided radiotherapy for clinicians.

#### Learning objectives

- To obtain an overview on MRI guided systems for external beam radiotherapy
- To assess the clinical benefits of MRI-guided radiotherapy for various tumour sites
- To identify limitations of MRI guided radiotherapy
- To become engaged in this new field within radiotherapy
- To get an overview of the potential of MR hybrid devices as a research tool.

#### Target audience

Everyone interested in the exciting new field of MRI-guided adaptive radiotherapy. The program will target clinicians and physicists, but RTT's with special interest in MRI-guided radiotherapy will also benefit from the course.

## **Programme**

08:30-09:00	>	Introduction to MRI-guided radiotherapy <i>B. Slotman (NL)/C. Gani (DE)</i>
09:00-09:30	>	MRI basics for clinicians <i>Uulke van der Heide (N)</i>
09:30-10:00	>	Beyond T2 and 3T: New MRI-techniques for clinicians <i>Mark Ladd (DE)</i>
10:00-10:30	>	MRI-based treatment planning <i>Tufve Nyholm (SE)</i>
<hr/>		
10:30-11:00	>	COFFEE BREAK
<hr/>		
11:00-11:30	>	The MRI-linac concept (Elekta) <i>Bas Raaymakers (NL)</i>
11:30-12:00	>	The MRI-linac concept (ViewRay) <i>Sebastian Klüter (DE)</i>
12:00-12:30	>	RTT perspective on MRI-guided workflow <i>Robin Botman (NL)</i>
<hr/>		
12:30-14:00	>	LUNCH
<hr/>		
14:00-14:20	>	Head and neck cancer: Functional MR imaging <i>Clifton David Fuller (US)</i>
14:20-14:40	>	Pancreatic cancer: Dose escalation <i>Anna Bruynzeel (NL)</i>
14:40-15:00	>	Prostate cancer – advantages and disadvantages of MR-guided RT <i>Alison Tree (UK)</i>
15:00-15:20	>	Individual lymph nodes: See it and zap it <i>Ina Jürgenliemk-Schulz (NL)</i>
15:20-15:40	>	Renal cell cancer: A new indication <i>Matthias Guckenberger (CH)</i>
<hr/>		
15:40-16:10	>	COFFEE BREAK
<hr/>		
16:10-16:40	>	Rectal cancer: MRgBioBoost <i>Vincenzo Valentini (IT)</i>
16:40-17:00	>	Panel discussion <i>B. Slotman (NL)/C. Gani (DE)</i>
17:00	>	Close of pre-meeting



## RADIOBIOLOGY PRE-MEETING COURSE

### Radiation induced cell death (the good and the ugly)

Friday 26 April 2019 | 08:15-17:30 | room Brown 1

Course directors: F. Paris (FR) and R. Coppes (NL)

Course teachers: M. Demaria (NL), U. Gaipl (DE), C. Herskind (DE), J.L. Perfettini (FR), I. Orhon (NL), R. Syljuasen (NO), M. Vooijs (NL)

#### Course aim

To provide insight in cellular processes leading the response to radiation.

#### Learning objectives

Participant will obtain knowledge on cellular and molecular processes that are resulting from irradiation on a cellular and tissue level, the interaction of these cells with the environment and vice versa eventually resulting in a tumour and normal tissue response.

#### Target audience

Radiobiologists, Clinicians, Physicists, RTTs.

## **Programme**

08:15-09:00 > Clonogenic cell death triggered by misrepaired of DNA damage  
*Randi Syljuasen (NO)*

09:00-09:45 > Apoptosis  
*Carsten Herskind (DE)*

09:45-10:30 > Immune death  
*Udo Gaapl (DE)*

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10:30-11:00 > COFFEE BREAK

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11:00-11:45 > Senescence  
*Marco Demaria (NL)*

11:45-12:30 > Autophagy  
*Idil Orhon (NL)*

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12:30-14:00 > LUNCH

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14:00-14:45 > Non-cell-autonomous death and Radiation  
*Jean Luc Perfettini (FR)*

14:45-15:30 > Cell signaling induced death  
*Marc Vooijs (NL)*

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15:30-16:00 > COFFEE BREAK

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16:00-16:45 > Death program induced independently of DNA damage  
*François Paris (FR)*

16:45-17:30 > Integrated models of cell death  
*Rob Coppes (NL)*

17:30 > Close of pre-meeting

# INTERDISCIPLINARY PRE-MEETING COURSE

## Conservative treatment in early rectal cancer

Friday 26 April 2019 | 08:30-17:30 | room Ambra 5

Course directors: N. Gambacorta (IT) and A. Appelt (UK)

Course teachers: G. Beets (NL), R. Beets-Tan (NL), R. de Jong (NL), E.I Fokas (DE),

K. Haustermans (BE), F. Peters (NL), N.Scott (UK), D. Sebag-Montefiore (UK), A. Sun Myint (UK)

### Course aim

To provide an overview of alternatives to radical surgery in the management in early rectal cancer, including patient selection, imaging, pathology and radiotherapy techniques.

### Learning objectives

- To be able to identify patients who might benefit from non-surgical management of early rectal cancer
- To understand the role of different imaging modalities in selection, assessment and follow-up of patients with early rectal cancer treated without radical surgery
- To understand the pathology risk factors to identify different risk classes of early tumour
- To understand the potentials of treatment intensification.
- To gain knowledge of the characteristics and limitations of different radiotherapy treatment modalities, including external beam treatment, brachytherapy and contact X-ray

### Target audience

Radiation oncologists and senior residents; lower GI radiologists who support a radiotherapy service; medical physicists who are involved in rectal cancer radiotherapy.

### Programme

- 08:30 > Pre-meeting starts
- 08:30-08:45 > Clinical rationale for conservative management of early cancer  
*David Sebag-Montefiore (UK)*
- 08:45-09:00 > Patient selection – clinical factors and biomarkers  
*Karin Haustermans (BE)*
- 09:00-09:40 > Imaging for staging, patient selection, response assessment and follow-up  
*Regina Beets-Tan (NL)*

09:40-10:00	>	Surgical alternatives to TME <i>Geerard Beets (NL)*</i>
10:00-10:30	>	Discussion
<hr/>		
10:30-11:00	>	COFFEE BREAK
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11:00-11:20	>	Pathology assessment of the specimen after local excision <i>Nigel Scott (UK)</i>
11:20-11:40	>	Intensification strategies: the role of concomitant chemotherapy <i>Emmanouil Fokas (DE)</i>
11:40-12:00	>	External beam radiotherapy – treatment targets and organs at risk <i>Femke Peters (NL)</i>
12:00-12:20	>	Dose escalation – rationale and techniques <i>Ane Appelt (UK)</i>
12:20-12:30	>	Discussion
<hr/>		
12:30-14:00	>	LUNCH
<hr/>		
14:00-14:20	>	Image guidance and adaptive strategies for external beam radiotherapy <i>Rianne de Jong (NL)</i>
14:00-14:20	>	Brachytherapy <i>Femke Peters (NL)</i>
14:20-14:40	>	Contact X-ray treatment / Papillon <i>Arthur Sun Myint (UK)</i>
14:40-15:00	>	Imaging for response assessment and follow-up <i>Regina Beets-Tan (NL)</i>
15:00-15:20	>	Regrowth or recurrence: assessment and salvage management <i>Geerard Beets (NL)</i>
15:20-15:30	>	Discussion
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15:30-16:00	>	COFFEE BREAK
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16:00-16:20	>	Quality of life and functional outcome after conservative management <i>Geerard Beets (NL)</i>
16:20-16:40	>	Published studies of conservative treatment <i>Netta Gambacorta (IT)</i>
16:40-17:00	>	Ongoing and planned clinical trials <i>David Sebag-Montefiore (UK)</i>
17:00-17:20	>	New horizons – emerging modalities <i>Netta Gambacorta (IT)</i>
17:20-17:30	>	Discussion and close of pre-meeting

## **Management of high-risk prostate cancer**

Friday 26 April 2019 | 09:00-17:15 | room Ambra 8

Course directors: A. Bossi (FR) and G. De Meerleer (BE)

Course teachers: A. Briganti (IT), C. Cozzarini (IT), V. Fonteyne (BE), P. Hoskin (UK), S. Joniau (BE), R. Renard-Penna (FR)

### **Course aim**

To provide an up-date of the current challenges related to the diagnosis and management of High Risk prostate cancer patients with specific emphasis on the role of EBRT and brachytherapy, whether or not within a multimodality approach.

### **Learning objectives**

The most important learning objective will be to recognise the need of a fully multidisciplinary approach in the diagnosis and treatment of patients diagnosed with High Risk Prostate cancer.

In details, after participating to this course attendees will be able:

- to summarise the current evidences related to the recent definition and diagnosis of High Risk disease
- to discuss the modern treatment options
- to explain the rapidly changing paradigm in the association between drugs and irradiation
- to identify the most frequent toxicity related to the different management options
- to discuss the current and future treatment approaches.

### **Target audience**

Radiation oncologists, surgeons with a special interest in urology, medical oncologists, RT physicists, RTTs and RT nurses.

### **Programme**

- |             |   |  |
|-------------|---|--|
| 09:00       | > | Pre-meeting starts   |
| 09:00-09:30 | > | The definition of HRPCa in 2019<br><i>S. Joniau (BE)</i>                           |
| 09:30-10:00 | > | Local and distant staging of HRPCa: the role of MRI<br><i>R. Renard-Penna (FR)</i> |
| 10:00-10:30 | > | Beyond Gleason score and PSA<br><i>A. Briganti (IT)</i>                            |

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10:30-11:00 > COFFEE BREAK

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- 11:00-11:15 > External Beam RT  
*V. Fonteyne (BE)*
- 11:15-11:30 > Surgery  
*S. Joniau (BE)*
- 11:30-11:45 > Brachytherapy  
*P. Hoskin (UK)*
- 11:45-12:00 > Alternative fractionations  
*C. Cozzarini (IT)*
- 12:00-12:15 > Discussion
- 12:15-12:30 > Clinical cases discussion  
*G. De Meerleer (BE) / A. Bossi (FR)*

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12:30-14:00 > LUNCH

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- 14:00-14:20 > Imaging for the relapsing patient  
*R. Renard-Penna (FR)*
- 14:20-14:40 > Post-op RT  
*C. Cozzarini (IT)*
- 14:40-15:00 > Salvage surgery  
*A. Briganti (IT)*
- 15:00-15:20 > Salvage brachytherapy  
*P. Hoskin (UK)*

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15:30-16:00 > COFFEE BREAK

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- 16:00-16:15 > The oligometastatic disease: what are we talking about?  
*A. Briganti (IT)*
- 16:15-16:30 > State of the art of RT in the oligometastatic setting  
*V. Fonteyne (BE)*
- 16:30-16:45 > Treatment of Up-front M+ disease  
*S. Joniau (BE) and C. Cozzarini (IT)*
- 16:45-17:00 > Discussion
- 17:00-17:15 > Clinical cases discussion  
*G. De Meerleer (BE) / A. Bossi (FR)*
- 17:15 > Close of pre-meeting  
*G. De Meerleer (BE) / A. Bossi (FR)*

# PHYSICS PRE-MEETING COURSE

## Machine Learning for Physicists

Friday 26 April 2019 | 08:45-17:15 | room Ambra 1-2

*Course directors: B. Heijmen (NL) and D. Verellen (BE)*

*Course teachers: I. El Naqa (USA), J. Dhont (BE), S. Gulliford (UK), F. Maes (BE)*

### Course aim

To provide basic knowledge on machine learning and its application. On the one hand there is a focus on a true understanding of the methodology, on the other hand practical approaches for getting started with machine learning will be discussed, e.g. using open source software. The course aims at enabling medical physicists to understand and critically evaluate clinical applications from a user point of view. For investigators and developers the course may be helpful in getting started in the field. The course assumes that the participants have no knowledge on the subject.

### Learning objectives

After following this course the participants will be able to:

- understand the fundamental basics of machine learning
- describe and explain the most common algorithms, methods and approaches related to machine learning
- understand concepts such as artificial intelligence, machine learning, deep learning, supervised and unsupervised learning
- understand for what type of problems machine learning is most suited and for what problems other approaches/algorithms are better
- identify advantages and disadvantages of different approaches of machine learning in relation to applications in radiation oncology
- explore existing tutorials and sources for open source software to start up a program.

### Target audience

Medical physicists with no or little prior knowledge that want to understand the basics of machine learning in order to implement and use existing applications safely in a clinical workflow. The course also provides a starting point for those physicists that are interested in learning how to develop their own applications.

## **Programme**

- 08:45-09.00 > Introduction to the course  
*Ben Heijmen (NL) / Dirk Verellen (BE)*
- 09:00-09:45 > Introduction to artificial intelligence in radiotherapy  
*Issam El Naqa (USA)*
- 09:45-10:30 > Overview of machine learning algorithms and practical considerations  
*Issam El Naqa (USA)*
- 
- 10:30-11:00 > COFFEE BREAK
- 
- 11:00-11:45 > Conventional machine learning techniques  
*Sarah Gulliford (UK)*
- 11:45-12:30 > Deep learning techniques  
*Frederik Maes (BE)*
- 
- 12:30-14:00 > LUNCH
- 
- 14:00-14:45 > Deep learning for head and neck segmentation  
*Frederik Maes (BE)*
- 14:45-15:30 > Current and future clinical applications of machine learning in radiotherapy  
*Sarah Gulliford (UK)*
- 
- 15:30-16:00 > COFFEE BREAK
- 
- 16:00-16:45 > Commissioning and QA of Machine Learning Algorithms for clinical use  
*Issam El Naqa (US)*
- 16:45-17:30 > How to start a machine learning project – a practical example  
*Jennifer Dhont (BE)*
- 17:30 > Closure of pre-meeting  
*Ben Heijmen (NL) / Dirk Verellen (BE)*

## **Basic course brachytherapy treatment**

Friday 26 April 2019 | 08:30-17:30 | room Brown 2

Course directors: R. Schokker (NL) and B. Wisgrill (AT)

Course teachers: S. Abdollahi (IR), D. Berger (AT), R. Farrell (UK), S. Goncalves (PT), N. Ritt (AT), J. Steenhuijsen (NL), N. Tsvelis (DE), L. Van den Berghe (BE)

### **Course aim**

Radiation Therapist (RTTs), dosimetrists and RT nurses have several tasks in the brachytherapy treatment. To get to a more uniform level of knowledge, this course will provide with the basic principles of brachytherapy. Next, to these basic principles, there will be different hospitals from various European countries presenting their workflow. It will be an interactive program, where participants can share their experiences.

### **Learning objectives**

The participants will:

- Gain knowledge of the basic physiological and biological aspects of brachytherapy
- Gain knowledge in assisting during the brachytherapy treatment
- Understand the strengths and limitations of the described techniques
- Understand the role of the RTTs, dosimetrists and RT nurses
- Be able to expand the role of nurses, dosimetrists and RTTs in their brachytherapy department.

### **Target audience**

The course is aimed at radiation therapists (RTTs), RT nurses, and dosimetrists who want to improve their basic knowledge of brachytherapy. It will also be very helpful to physicians and physicists who want the RT nurses, dosimetrists or RTTs from their department to be more involved in brachytherapy.

## **Programme**

- 08:30-08.40 > Introduction "new horizons in brachytherapy for RTT's, nurses and dosimetrists  
*Course directors*
- 08.40-09.10 > Clinical rationale for brachytherapy (should we still do brachytherapy?)  
*Nikolaos Tselis (DE)*
- 09.10-09.35 > Brachytherapy what is it about? (principles and physics ("old school brachytherapy"))  
*Daniel Berger (AT)*
- 09.35-10.00 > Brachytherapy in the current era and the future  
*Rogier Schokker (NL)*
- 10.00-10.30 > Brachytherapy safety  
*Jacco Steenhuisen (NL)*
- 
- 10:30-11:00 > COFFEE BREAK
- 
- 11.00-11.30 > Role for RTT's in brachytherapy  
*Natalie Ritt (AT)*
- 11.30-12.00 > Role for nurses in brachytherapy  
*Ludwig Van den Berghe (BE)*
- 12.00-12.30 > Role for dosimetrists in brachytherapy  
*Susana Goncalves (PT)*
- 
- 12:30-14:00 > LUNCH
- 
- 14.00-14.25 > Education and training in brachytherapy  
*Rosaleen Farrell (UK)*
- 14.25-14.30 > Introduction breakout sessions  
*Course directors*
- 14.30-15.30 > Breakout session expanding the role of nurses/RTT's and dosimetrists  
*Rogier Schokker (NL) and Bernd Wisgrill (AT)*
- 
- 15:30-16:00 > COFFEE BREAK
- 
- 16.00-16.30 > Results breakout session  
*Course directors*
- 16.30-17.20 > Debate: only with a RTT / brachynurse /dosimetrist the brachytherapy team is complete OR who is best suited in the brachytherapy team RTT or dosimetrist  
*Sara Abdollahi (IR) and Daniel Berger (AT)*
- 17.20-17.30 > Close of pre-meeting

## EDUCATION PRE-MEETING COURSE

### Academic Entrepreneurship and Technology Transfer in Radiation Oncology: Dream or Reality?

Friday 26 April 2019 | 09:00-17:00 | room Ambra 6

*Course directors: P. Lambin (NL) and K. Tanderup (DK)*

*Course teachers: J. W. Doosje (NL), D. Gibon (FR), Y. Lievens (BE), J. Löf (SE), R. Mackie (US), S. Jafari (UK), S. Singh (US), S. Walsh (BE)*

#### Course aim

Radiotherapy is a discipline involving a high degree of technology and using various discipline (imaging, biology, computer sciences, clinic, physics...). This course is meant as a workshop to stimulate collaboration between academia and industry and technology transfer which is essential for new technology to bridge the “second translational gap” and reach the patients.

#### Learning objectives

To provide understanding of:

- Business models
- Product development
- Patents and technology transfer
- Rules and regulations
- Funding opportunities.

To facilitate:

- Networks between academia and industry
- Networks between researchers working with innovation.
- To stimulate technology-oriented consortia which can apply for joint EC funding.
- To promote European radiation oncology industry.

#### Target audience

- Radiation oncologists, medical physicists, RTTs, and radiation biologists
- Engineers/physicists/biologists from knowledge-based companies, start-ups, spin-offs.

#### Topics

- Welcome and round of presentation
- Technology Transfer or Academic entrepreneurship (AE): what is it? and why should we do it?
- The path of AE: a helicopter view
- Intellectual Property: the first step
- The Business Plan: the second step
- (Pre-)seed funding
- Grants for Technology Transfer
- AE for hardware
- AE for software
- AE for biomarkers (SNP, gene signatures...)
- AE for service
- AE for drugs
- The issue of Potential Conflict of Interest.

## **Programme**

- 09.00-09.10 > Welcome and round of presentation  
*All teachers*
- 09.10-09.30 > Technology Transfer or Academic entrepreneurship (AE): what is it?  
and why should we do it?  
*P. Lambin*
- 09.30-09.50 > From research to value for patients: value for money  
*Y. Lievens*
- 09.50-10.10 > The path of AE: a helicopter view  
*R. Mackie*
- 10.10-10.30 > Discussion
- 
- 10.30-11.00 > COFFEE BREAK
- 
- 11.00-11.20 > Intellectual Property: the first step  
*R. Mackie*
- 11.20-11.40 > The Business Plan: the second step  
*D. Gibon*
- 11.40-12.00 > (Pre-)seed funding and grants for Technology Transfer  
*S. Walsh*
- 12.00-12.20 > Personal experience: from idea to start-up  
*S. Jafari*
- 
- 12.30-13.30 > LUNCH
- 
- 13.30-13.50 > AE for hardware  
*R. Mackie*
- 13.50-14.10 > AE for software  
*J. Löf*
- 14.10-14.30 > AE for biomarkers  
*S. Walsh*
- 14.30-14.50 > The point of view of the early investor  
*J.W. Doosje*
- 
- 15.00-15.30 > COFFEE BREAK
- 
- 15.30-15.50 > The issue of potential conflict management  
*R. Mackie*
- 15.50-16.10 > The point of view of the large company: when and why do they buy startups?  
*S. Singh*
- 16.10 > Quiz and Conclusion

# EDUCATION PRE-MEETING COURSE

## Foundations of Leadership in Radiation Oncology

Friday 26 April 2019 and 2 lunch meetings | room Ambra 3-4

Joint ESTRO-CARO-RANZCR

Course directors: K. Benstead (UK), M. Giuliani (CA), S. Turner (AU)

Course teachers: A. Cortese (BE), M. Leech (IE), B-A. Millar (CA), L. Morris (AU)



The Royal Australian and New Zealand  
College of Radiologists

### Course aim

This course, run for the first time in 2018, introduces foundation principles of effective leadership as they apply to senior trainees and junior practitioners in the radiation oncology professions. Feedback from the first fully subscribed course has been very positive. The course aims to equip participants with the knowledge, skills and attributes viewed as the building blocks for effective leadership. The course is directed at professionals interested in developing expertise in leading teams for quality improvement, advocacy and in all situations where they might positively influence the future of our discipline within both local and inter-national settings. The course links to a specific radiation oncology competency knowledge and skill-set developed through Delphi consensus process. ([dx.doi.org/10.1016/j.radonc.2017.04.009](https://dx.doi.org/10.1016/j.radonc.2017.04.009)).

### Learning objectives

Upon completion of the course, successful learners will be able to:

- Examine and reflect on their own behaviour, reactions and interactions with team members
- Describe basic leadership theory and styles as they might apply to practical situations
- Describe the foundations of effective change, management and negotiation
- Explore strategies to establish and lead effective teams
- Apply basic quality improvement tools to approach an improvement process.

### Target audience

The target group consists of senior trainees or junior practitioners (approximately first five years after training) in the radiation oncology professions, including radiation or clinical oncologists, radiation physicists, radiation therapists/technologists, nurses and scientists.

### Content

This course consists of a blended learning programme of two months' duration including on-line and face to face components. All sections of the programme will

be highly interactive and will highlight their practical relevance to the workplace and facilitating improvements within our discipline.

The on-line components will start on 26 March 2019 and consist of an introductory 90-minute tutorial with the participants and teachers followed by on-line exercises and compulsory electronic learning modules to be completed prior to the ESTRO 38 conference. Live sessions will take place during ESTRO 38 in Milan.

An on-line community network of participants will be established at the completion of the programme.

On-line and live course topics include:

- An introduction to leadership – what it means and why it is our responsibility
- Basics of leadership theory and styles - how to apply these
- Self-awareness, personality and emotional intelligence – how they link to leadership
- Leading and managing change
- Tools and strategies for leading quality improvement processes
- Team building and engagement – including basics of negotiation
- Creating and communicating a vision for change.

## **Programme**

### INTERACTIVE PREMEETING ONLINE

26-27 March

- Introductions and objectives
- What is Leadership and why does it matter?
- Intro Tools for Quality Improvement
- Introduce Homework: Identify a local process/ problem for improvement
- Introduction to difficult conversations
- Introduce on-line resources/pre- reading

### ON-LINE MODULES AND HOMEWORK

During this period: email access for queries/support

#### Insights Discovery on-line completion

- Quality Improvement - project and IHI videos
- PMH modules - Negotiation, Conflict resolution, Leadership Styles and Running a meeting
- Selected reading

### LIVE COURSE AND LUNCH SESSIONS

26 April 2019 @ ESTRO38

08.30-09.15 > Introductions faculty and participants - Recap objectives  
*S. Turner/All*

09.15- 09.45 > Basics of leadership theory & styles | *S. Turner*



09.45-10.30	>	Insights Part 1   <i>B.A. Millar and S. Turner</i>
10.30-11.00	>	COFFEE BREAK
11.00-12.30	>	Insights Part 2   <i>B.A. Millar and S. Turner</i>
12.30-13.45	>	LUNCH
13.45-14.35	>	Building effective teams   <i>M. Giuliani and S. Turner</i>
14.35-15.30	>	Leading change   <i>A. Cortese, M. Leech</i>
15.30-15.50	>	COFFEE BREAK
15.50-16.45	>	Conflict: A primer for emerging leaders   <i>M. Giuliani, B.A. Millar</i>
16.45-17.00	>	Plan for alumni event and lunchtime sessions/close   <i>S. Turner/All</i>

Lunch meeting 1 @ ESTRO 38

Leading a quality improvement process | *K. Benstead, B.A. Millar, L. Morris*

Lunch meeting 2 @ ESTRO 38

Creating and Communicating a Vision | *S. Turner, L. Morris, M. Leech*

# Contouring Workshops

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26 - 30 April 2019 | Ambra 7

## OAR on Head and Neck Cancer

Friday 26 April 2019 from 08:00-10:00 (repeated Saturday 27 April from 14:30-16:30)

*Chair: J Cacicudo (SP)*

*Panellist: AR Lopes Simões (UK)*

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## Rectal Cancer

Friday 26 April 2019 from 10:30-12:30 (repeated Sunday 28 April from 14:30-16:30)

*Chair : C Valentini (DE)*

*Panellists : V Chiloiro (IT) and V Plodeck (DE)*

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## Lung SBRT

Friday 26 April 2019 from 13:30-15:30 (repeated Monday 29 April from 14:30-16:30)

*Chair: M Dahele (NL)*

*Panellist: M Guckenberger (CH)*

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## Primary Vaginal Cancer

Friday 26 April 2019 from 16:00-18:00 (repeated Tuesday 30 April from 09:15 – 11:15)

*Chairs: L Fokdal (DK) and H Westerveld (NL)*

*Panellists: M Schmid (AU) and C Chargari (FR)*

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### Target audience

These contouring workshops are aimed at junior clinical or radiation oncologists who want to improve their delineation skills or at more senior specialists who want to refresh and validate their knowledge and skills in this field. The OAR case is especially targeted to radiation therapists (RTTs) and dosimetrists.

### Structure of the workshops

- Presentation of the clinical case and the delineation exercise
- Explanation of the contouring software

- The first delineation on site
- Presentation of the delineation guidelines
- The second delineation on site
- Discussion between experts and participants.

### Practical arrangements

- Participants should bring their own laptops
- Wifi and wired connection will be available
- Participants will be limited to 70 per workshop to keep a strong interactivity in the group

# Multidisciplinary Tumour Board Sessions

## Multidisciplinary tumour board on Soft Tissue Sarcomas

Saturday, 27 April 2019 | 14:30-15:45

Room: Ambra 5-6

*Chair: Rick Haas, NL*

*Panellists: yESTRO: Mateusz Spalek (PL) | Medical Oncologist: Paolo Casali (IT) | Surgeon: Alessandro Gronchi (IT) | Radiation Oncologist: Falk Roeder (DE) | Pathologist: Angelo Paolo Dei Tos (IT)*

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## Multidisciplinary tumour board on Prostate Cancer

Sunday, 28 April 2019 from 14:30-15:45

Room: Ambra 5-6

*Chair: Vincent Khoo (UK)*

*Panellists: yESTRO: Simon Buus (DK) | Medical Oncologist: Marcello Tucci (IT) | Radiation Oncologist: Gert de Meerleer (BE) | Urologist: Alberto Briganti (IT) | Diagnostic radiologist: Giuseppe Petralia (IT)*

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## Multidisciplinary tumour board on Bladder Cancer

Monday, 29 April 2019 from 14:30-15:45

Room: Brown 2

*Chair: Maarten Hulshof (NL)*

*Panellists: yESTRO: Giulia Marvaso | Medical Oncologist: Daniele Raggi (IT) | Urologist: Ettore Ditrapani (IT) | Radiation Oncologist: Anne Kiltie (UK) | Pathologist: Carlo Patriarca (IT)*

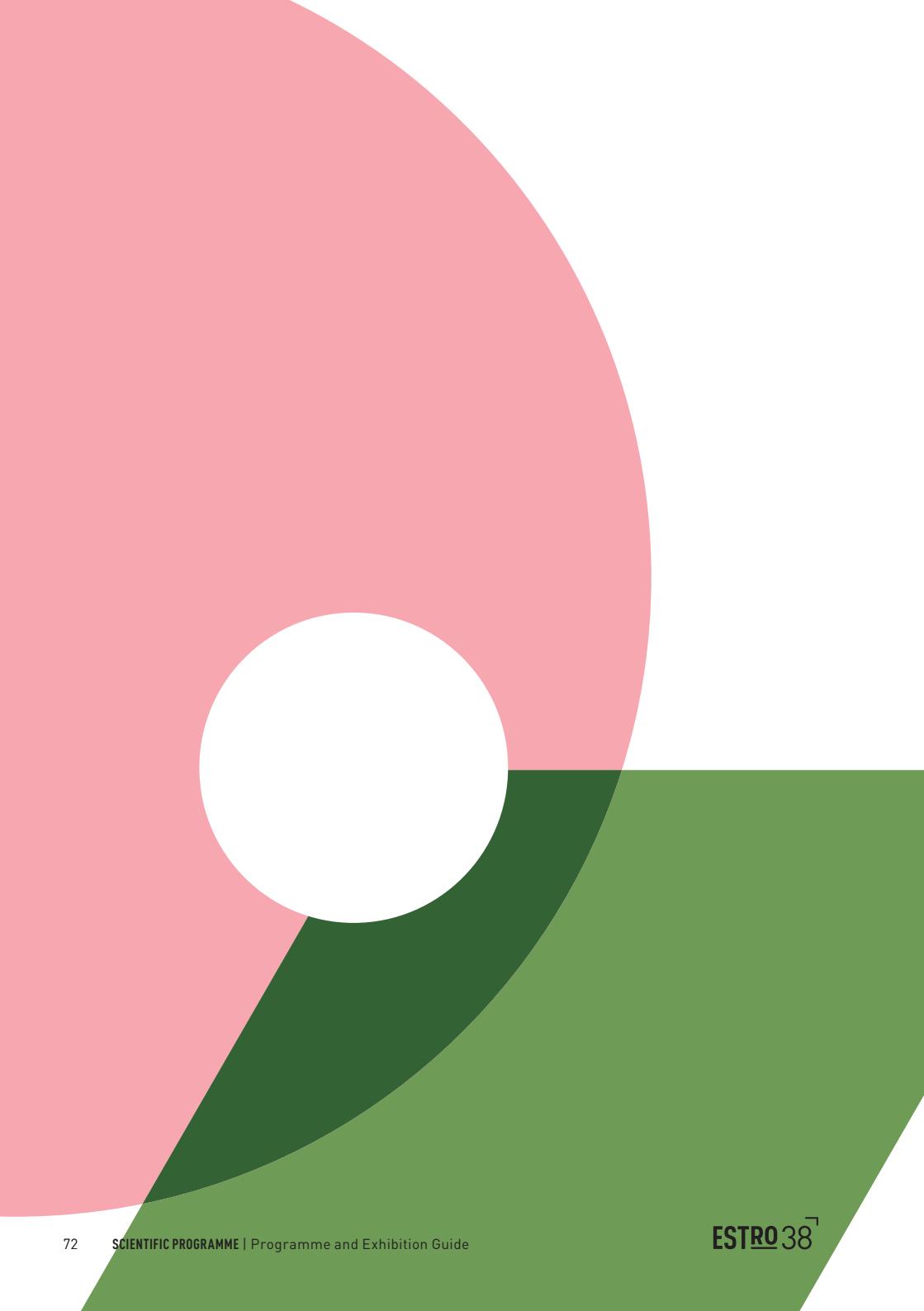
# ESTRO

ESTRO  
CONFERENCE

#39

# Translating research and partnership into optimal health

3-7 April 2020  
Vienna, Austria



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# **SCIENTIFIC PROGRAMME**

Saturday 27 April 2019	74
Sunday 28 April 2019	106
Monday 29 April 2019	144
Tuesday 30 April 2019	178

# Saturday 27 April 2019

## ● TEACHING LECTURE

### **Artificial Intelligence Applications in Radiation Oncology**

**08:00 - 08:40 | Auditorium**

*Chair: R. Copes (The Netherlands)*

08:00 > Artificial Intelligence Applications in Radiation Oncology  
*Speaker: N. Dinapoli (Italy)*

SP-0001

## ● TEACHING LECTURE

### **Using mice to model normal tissue responses to thoracic radiation**

**08:00 - 08:40 | Brown 1**

*Chair: B.S. Sørensen (Denmark)*

08:00 > Using mice to model normal tissue responses to thoracic radiation  
*Speaker: A. Ryan (United Kingdom)*

SP-0002

## ● TEACHING LECTURE

### **State of the art in definitive treatment of locally advanced NSCLC**

**08:00 - 08:40 | Gold Plenary**

*Chair: S. Ramella (Italy)*

08:00 > State of the art in definitive treatment of locally advanced NSCLC  
*Speaker: C. Faivre-Finn (United Kingdom)*

SP-0003

## ● TEACHING LECTURE

### **New ILROG radiotherapy guidelines for haematological malignancies**

**08:00 - 08:40 | Brown 3**

*Chair: H.T. Eich (Germany)*

08:00 > New ILROG radiotherapy guidelines for haematological malignancies  
*Speaker: L. Specht (Denmark)*

SP-0004

● TEACHING LECTURE

**The role of postoperative radiotherapy in endometrial cancer: what have we learned of the PORTEC trials?**

**08:00 - 08:40 | Brown 2**

*Chair: R. Nout (The Netherlands)*

08:00 > The role of postoperative radiotherapy in endometrial cancer: what have we learned of the PORTEC trials?

*Speaker: C. Creutzberg (The Netherlands)*

SP-0005

● TEACHING LECTURE

**Gating and breath-hold techniques in Radiation Therapy**

**08:00 - 08:40 | Space 1-2**

*Chair: M. Tenhunen (Finland)*

08:00 > Gating and breath-hold techniques in Radiation Therapy

*Speaker: M. Aznar (United Kingdom)*

SP-0006

● TEACHING LECTURE

**Technology for precision small animal radiotherapy research: Optimal use and challenges**

**08:00 - 08:40 | Space 3-4**

*Chair: S. Chiavassa (France)*

08:00 > Technology for precision small animal radiotherapy research: Optimal use and challenges

*Speaker: F. Verhaegen, A. Vaniqui, S. Van Hoof, I.P. Almeida, B. van der Heyden, P. Granton, J. Theys, M. Vooijis, L. Dubois (The Netherlands)*

SP-0007

● TEACHING LECTURE

**Ensuring Quality in an Image Guidance Era**

**08:00 - 08:40 | Ambra 1-2**

*Chair: C. Dickie (Canada)*

08:00 > Ensuring Quality in an Image Guidance Era

*Speaker: E. Miles (United Kingdom)*

SP-0008



● SYMPOSIUM

**Artificial intelligence in Radiation Oncology**

**08:45 - 10:00 | Auditorium**

*Chair: S. Magrini (Italy)*

*Co-chair: P. Meyer (France)*

- 08:45 > Clinical applications of AI for Radiation Oncology  
*Speaker: J. Bibault (France)*

**SP-0009**

- 09:03 > Acceptance, commissioning, introduction, regulatory aspects and QA of AI  
*Speaker: W. Verbakel (The Netherlands)*

**SP-0010**

- 09:21 > Unified radiogenomic prediction of late radiotherapy toxicities  
*Speaker: J. Coates, (United Kingdom)*

**SP-0011**

- 09:39 > Impact of AI and automation on practice  
*Speaker: L. Tagliaferri (Italy)*

**SP-0012**

● SYMPOSIUM

**Mouse models: Animal models the next step for RT**

**08:45 - 10:00 | Brown 1**

During the symposium on 'Mouse models', Verena Jendrossek will elaborate on the dual face of immune-mediated systemic effects of radiation using preclinical thoracic normal tissue complication models. Anne Kiltie will explain how to avoid small intestine toxicity using small animal radiation research platforms for radiosensitization of orthotopic bladder cancer. Christian Karger will discuss whether the proton RBE of 1.1 should be changed into a LET-dependent model and if preclinical studies may answer this question. Leila Akkari will show how the tumor microenvironment of glioblastoma post radiotherapy changes and what the benefits are of targeting macrophages in combination with radiotherapy.

*Chair: B. Cornelissen (United Kingdom)*

*Co-chair: L. Dubois (The Netherlands)*

- 08:45 > Linking radiation-induced damage to systemic effects: what can we learn from preclinical models of normal tissue complications  
*Speaker: V. Jendrossek (Germany)*

**SP-0013**

- 09:03 > New developments in small animal image guided radiotherapy: Bladder cancer  
*Speaker: A. Kiltie (United Kingdom)*

**SP-0014**

- 09:21 > RBE of protons: what can we learn from preclinical models?  
*C.P. Karger (Germany)*

SP-0015

- 09:39 > Dynamics changes in immune cells during glioblastoma response to treatment: macrophages at play  
*Speaker: L. Akkari (The Netherlands)*

SP-0016

● SYMPOSIUM

**Optimal management of patients with unresectable stage 3 NSCLC**

**08:45 - 10:00 | Gold Plenary**

*Chair: U. Nestle (Germany)*

*Co-chair: C. Ostheimer (Germany)*

- 08:45 > Standard of care in 2019  
*Speaker: F. McDonald (United Kingdom)*

SP-0017

- 09:03 > Optimal management of patients with unresectable stage III NSCLC: areas of controversy and ongoing research  
*Speaker: R. Dziadziszko (Poland)*

SP-0018

- 09:21 > Active management of patient's comorbidities (including respiratory and cardiac comorbidities)  
*Speaker: V. Westeel (France)*

SP-0019

- 09:39 > Role of patient reported outcome in patients follow-up  
*Speaker: Y. Lievens (Belgium)*

SP-0020

● SYMPOSIUM

**Combined modality treatment vs chemotherapy alone in lymphoma patients?**

**08:45 - 10:00 | Brown 3**

The session will consist of two main parts – in the first one, speakers will deliver lectures regarding the current state of art and the role of radiation therapy in Hodgkin lymphomas (Prof. Eich) and indolent lymphomas (Prof. Yahalom).

The second part of the session will discuss the role of combined modality treatment versus chemotherapy alone in the treatment of aggressive lymphomas (DLBCL) from a radiation oncologist view (Prof. Mikhael) and a haematologist view (Prof. Vitolo). After the lectures time for audience discussion (15 minutes) is also provided.

*Chair: U. Ricardi (Italy)*

*Co-chair: B. Tomasik (Poland)*



08:45 > The role of radiotherapy in Hodgkin Lymphoma - results from the German Hodgkin Study Group (GHSG) <i>Speaker: H.T. Eich (Germany)</i>	SP-0021
09:00 > State of the art for indolent lymphoma <i>Speaker: J. Yahalom (USA)</i>	SP-0022
09:15 > Aggressive Lymphoma (DLBCL); when does addition of RT make a difference? <i>Speaker: G. Mikhaeel (United Kingdom)</i>	SP-0023
09:30 > Aggressive Lymphoma (DLBCL) - when does addition of RT doesn't make a difference? <i>Speaker: U. Vitolo (Italy)</i>	SP-0024
09:45 > Discussion	

● SYMPOSIUM

**Image guided adaptive brachytherapy (IGABT) for primary vaginal cancer in Europe and North America**

**08:45 - 10:00 | Brown 2**

Vaginal cancer is a rare tumour that accounts for less than 3% of all gynaecological malignancies.

The main treatment includes definitive radiotherapy with combined chemotherapy and brachytherapy (BT). Studies in BT of vaginal cancer are mainly small retrospective series that can be divided in older studies using 2-dimensional BT and more recent studies using 3-dimensional image guided adaptive brachytherapy (IGABT).

During the session European and North American experiences in IGABT of vaginal cancer will be discussed. Furthermore, an adaptive target concept for IGABT in vaginal cancer based on clinical findings and imaging (MRI) will be introduced. Finally, differences in dose planning of IGABT in vaginal cancer among institutions will be discussed.

*Chair: L.U. Fokdal (Denmark)*

*Co-chair: C. Chargari (France)*

08:45 > Evidence for image guided adaptive brachytherapy in primary vaginal cancer <i>Speaker: H. Westerveld (The Netherlands)</i>	SP-0025
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- 09:00 > GYN GEC-ESTRO Recommendations for IGABT target delineation in primary vaginal cancer  
*Speaker: M. Schmid (Austria)* SP-0026
- 09:15 > Brachytherapy for primary vaginal cancer – North American experiences  
*Speaker: M. Kamrava (USA)* SP-0027
- 09:30 > Dose planning for primary vaginal cancer – a multicentre comparison  
*Speaker: N. Nesvacil (Austria)* SP-0028
- 09:45 > Discussion

● JOINT SYMPOSIUM

**ESTRO-AAPM: QA of online adaptive radiotherapy**

**08:45 - 10:00 | Space 1-2**

The session looks into the challenges of on-line adaptive radiotherapy QA. After a short overview of the on-line adaptive radiotherapy process and QA needs by the chair, the first speaker will focus on QA of contour propagation from geometry and dosimetry point of view including dose accumulation. The second talk will give an overview on QA aspect of deformable image registration following AAPM TG 132 report. The last two presentations will discuss the practical QA based on clinical experience of on-line adaptive radiotherapy performed using two different platforms.

*Chair: E. Gershkevitsh (Estonia)*

*Chair: S. Mutic (USA)*

- 08:45 > Setting the scene  
*Speaker: S. Mutic (USA)* SP-0029
- 08:53 > QA of contour segmentation  
*Speaker: E.M. Vasquez Osorio (United Kingdom)* SP-0030
- 09:09 > QA of deformable image registration  
*Speaker: M. Kessler (USA)* SP-0031
- 09:25 > QA of on-line adaptive radiotherapy: Experience of The Royal Marsden Hospital  
*Speaker: S. Nill (United Kingdom)* SP-0032
- 09:41 > QA of on-line Adaptive Radiotherapy: Washington University Experience  
*Speaker: S. Mutic (USA)* SP-0033



● SYMPOSIUM

**Beyond Physical dose**

**08:45 - 10:00 | Space 3-4**

*Chair: M. Merchant (Gibraltar)*

*Co-chair: P. Mancosu (Italy)*

- 08:45 > Mathematical modelling of radiation response in proton therapy

*Speaker: K. Kirkby (United Kingdom)*

**SP-0034**

- 09:03 > Developing metrology support for biologically relevant dosimetry

*Speaker: H. Rabus (Germany)*

**SP-0035**

- 09:21 > Understanding biological response

*Speaker: B.S. Sørensen (Denmark)*

**SP-0036**

- 09:39 > Implementation of nanodosimetric based radiobiological models in treatment planning systems

*Speaker: F. Villegas (Sweden)*

**SP-0037**

● JOINT SYMPOSIUM

**Quality in an IGRT**

**08:45 - 10:00 | Ambra 1-2**

*Chair: M. Rossi (The Netherlands)*

*Co-chair: E. Forde (Ireland)*

- 08:45 > Continuous quality improvement strategies to support volumetric IGRT

*Speaker: W. Li (Canada)*

**SP-0038**

- 09:10 > Development of standardised image guidance registration in the MR-Linac era

*Speaker: H. de Boer (The Netherlands)*

**SP-0039**

- 09:35 > Exploiting IGRT to calculate delivered dose for normal tissue sparing

*Speaker: L. Shelley (United Kingdom)*

**SP-0040**

● POSTER VIEWING

**Poster viewing 1: Breast and skin**

**08:45 - 10:00 | Poster area**

*Chair: Y. Kirova (France)*

*Chair: N. Tselis (Germany)*

- > Randomized therapeutic trial of combined pentoclo versus placebo in radiation-induced plexopathy  
*S. Delanian* (France), T. Maisonobe, T. Lenglet, D. Psimaras, M. Resche-Rigon, P. Pradat
- PV-0041
- > Radiation related lymphopenia as a predictor of locoregional recurrence in early breast cancer  
*O. Cho* (Korea Republic of), Y. Oh, M. Chun, O.K. Noh, J. Heo
- PV-0042
- > ESTRO guidelines for volume delineation for RT after immediate implant-based reconstruction  
*O. Kaidar-Person* (Israel), P. Poortmans, B.V. Offersen
- PV-0043
- > Mastectomy or breast-conserving therapy for early breast cancer: outcome comparison of 7565 cases  
*S. Corradini* (Germany), M. Pazos, D. Reitz, S. Schönecker, M. Niyazi, U. Ganswindt, F. Alongi, M. Braun, N. Harbeck, C. Belka
- PV-0044
- > Is proton therapy a "pro" for breast cancer? A comparison of proton vs. non-proton RT using the NCDB  
*M. Chowdhary* (USA), A. Lee, S. Gao, P. Barry, R. Diaz, N. Bagadiya, H. Park, J. Yu, L. Wilson, M. Moran, S. Higgins, C. Knowlton, K. Patel
- PV-0045
- > Patient selection for proton therapy of early breast cancer – the DBCG phase II study strategy  
*L.B. Stick* (Denmark), E.L. Lorenzen, E.S. Yates, C. Anandadas, K. Andersen, C. Aristei, O. Byrne, S. Hol, I. Jensen, A. Kirby, Y.M. Kirova, L. Marrazzo, A. Matías-Pérez, M.M.B. Nielsen, H.D. Nissen, S. Oliveros, K. Verhoeven, J. Vikström, B.V. Offersen
- PV-0046
- > IMRT versus VMAT for elderly patients with breast cancer: comparison of acute and late toxicities  
*F. Alongi, E. Gregucci* (Italy), A. Fiorentino, R. Mazzola, V. Figlia, F. Ricchetti, G. Sicignano, N. Giaj-Levra, S. Naccarato, A. Massocco, S. Corradini, R. Ruggieri
- PV-0047
- > The Radiosensitivity Index (RSI) predicts for outcomes in triple negative breast cancer  
*C. Liveringhouse* (USA), N.B. Figura, K.A. Ahmed, G.D. Grass, P. Blumencranz, K. Allen, C. Laronga, M.C. Lee, L.B. Harrison, T.J. Robinson, J.F. Torres-Roca, R. Diaz
- PV-0048
- > Merkel cell polyoma viral load predicts overall survival in patients with Merkel cell carcinoma  
*J. Mueller-von der Gruen* (Germany), R. Winkelmann, M. Meissner, U. Wieland, S. Silling, D. Martin, E. Fokas, C. Rödel, F. Rödel, P. Balermpas
- PV-0049



● SYMPOSIUM

## Challenging dose painting: Are we really painting what we aim to or the better outcome is only linked to higher dose spots within the CTV?

**10:30 - 11:45 | Auditorium**

Molecular imaging opens the possibility of defining areas within the GTV which due to a higher tumour burden or hypoxia would benefit from a higher radiation dose. Different trials on dose painting by volumes or numbers have been designed. At the same time interesting work on grid therapy, treating with high heterogeneous dose, has shown better outcomes in lung cancer.

During this symposium, the different speakers will present:

- Preclinical studies on dose painting. In particular comparison between dose escalation and dose redistribution based on FDG uptake in rat rhabdomyosarcoma model.
- Evaluation of loco-regional control and toxicity of a prospective clinical trial with adaptive dose-painting-by-numbers for head-and-neck cancer.
- Heterogeneous dose adaptation of treatments, based on treatment response for cervix cancer patients.
- The role of multi-modal imaging and its sensitivity and specificity to prescribe the optimal dose using simultaneous integrated boost or dose painting.

*Chair: N. Jornet (Spain)*

*Co-chair: E. Troost (Germany)*

10:30 > What is left from dose painting when adding all uncertainties  
*Speaker: M. Alber (Germany)*

SP-0050

10:48 > What are the limitations on dose escalation to sub-volumes in head and neck cancer: experience from dose painting  
*Speaker: F. Duprez (Belgium)*

SP-0051

11:06 > Heterogeneous dose adapted to treatment response during radiotherapy: clinical experience from cervix cancer IGABT  
*Speaker: I. Jürgenliemk-Schulz (The Netherlands)*

SP-0052

11:24 > Exploiting low drug uptake volume for dose painting  
*Speaker: A. Yaromina (The Netherlands)*

SP-0053

● PROFFERED PAPERS

**RB 1: Proffered papers: Proffered papers: Pre-clinical models is the next step for radiotherapy**

**10:30 - 11:45 | Brown 1**

*Chair: W. Mansour (Germany)*

*Chair: T. Schmid (Germany)*

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|---|----------------|
| 10:30 > Tumor reoxygenation and image-guided SBRT for the treatment of murine colorectal liver metastases<br><i>F. Tschanz (Switzerland)</i>  | <b>OC-0054</b> |
| 10:45 > Zebrafish model to study the use of nanoparticles as a radiosensitizer in low Z target beams<br><i>M. Ha (Canada), O. Piccolo, N. Melong, J. Lincoln, D. Parsons, A. Detappe, O. Tillement, R. Berbeco, J. Berman, J. Robar</i> | <b>OC-0055</b> |
| 11:00 > Multiple strategies for resolving radiation-induced neurocognitive dysfunction<br><i>C. Limoli (USA), M.C. Vozenin, M. Acharya</i>  | <b>OC-0056</b> |
| 11:15 > Probing spatiotemporal fractionation on the preclinical level<br><i>I. Telarovic (Switzerland), M. Pruschy, I. Grgic, J. Krayenbuehl, M. Guckenberger, J. Unkelbach</i>   | <b>OC-0057</b> |
| 11:30 > Dose-volume effects in the central nervous system and sparing in microbeam/minibeams radiation<br><i>E. Bahn (Germany), M. Alber</i>  | <b>OC-0058</b> |

● PROFFERED PAPERS

**CL 1: Proffered papers: Lung**

**10:30 - 11:45 | Gold Plenary**

*Chair: R. Dziadziszko (Poland)*

*Chair: P. Borghetti (Italy)*

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|--|----------------|
| 10:30 > Stereotactic radiotherapy for oligoprogressive NSCLC: clinical scenarios affecting survival<br><i>S. Kroese (Switzerland), C. Fritz, D. Kaul, O. Blanck, K.H. Kahl, F. Roeder, S. Siva, J. Verhoeff, A. Grosu, M. Schymalla, M. Glatzer, M. Szücs, M. Geier, S. Mose, I. Sackerer, F. Lohaus, F. Eckert, M. Guckenberger</i> | <b>OC-0059</b> |
| 10:40 > I-SABR induces local and abscopal responses in metastatic patients after failure to ICI treatment<br><i>R. Chicas Set (Spain), I. Morales-Orue, J.F. Castilla-Martinez, J. Blanco, A. Kannemann, J. Zafra, M. Zajac, M. Lloret, P.C. Lara</i>  | <b>OC-0060</b> |

10:50 > EORTC 22113-8113 Lungtech trial on SBRT of central lung tumors <i>S. Adebahr (Germany), Y. Liu, S. Colette, C. Faivre-Finn, S. Ahmad, M. Ahmed, J. Belderbos, N. Andratschke, K. Franks, X. Geets, M. Guckenberger, K. Konopa, M. Lambrecht, V. Lewitzki, Y. Lievens, N. Pourel, D. De Ruysscher, R. Dziadziszko, C. Fortpied, F. McDonald, H. Peulen, A. Grosu, C. Hurkmans, C. Le Pechoux, U. Nestle</i>	<b>OC-0061</b>
11:00 > Development & validation of prognostic and predictive models in limited-stage small-cell lung cancer <i>A. Salem (United Kingdom), H. Mistry, S. Falk, G. Price, C. Faivre-Finn</i>	<b>OC-0062</b>
11:10 > CREO Project: exploratory radiomics for predicting adaptive radiotherapy in NSCLC <i>M. Fiore (Italy), C. Greco, E. Ippolito, E. Molfese, P. Trecca, M. Miele, E. Cordelli, R. Sicilia, P. Soda, R.M. D'Angelillo, L. Trodella, S. Ramella</i>	<b>OC-0063</b>
11:20 > Reducing radiotherapy dose to involved lymph nodes in locally advanced NSCLC: efficacy and toxicity <i>J. Van Diessen (The Netherlands), M. Kwint, J. Sonke, I. Walraven, B. Stam, J. De Langen, J. Belderbos</i>	<b>OC-0064</b>
11:30 > Cardiac dose and survival in lung cancer: which cardiac sub-structures matters most? <i>A. McWilliam (United Kingdom), J. Khalifa, E. Vasquez Osorio, A. Abravan, A. Marianne, C. Faivre-Finn, M. Van Herk</i>	<b>OC-0065</b>

● PROFFERED PAPERS

**CL 2: Proffered papers: Haematology, Sarcoma and oligometastases**

**10:30 - 11:45 | Brown 3**

*Chair: G. Mikhaeel (United Kingdom)*

*Chair: J. Nixon (United Kingdom)*

10:30 > Effectiveness of radiotherapy for patients not in metabolic remission after chemotherapy for DLBCL <i>J. Brady (United Kingdom), N.G. Mikhaeel</i>	<b>OC-0066</b>
10:40 > Continuous Positive Airway Pressure (CPAP): an innovative respiratory gating in lymphoma patients <i>M. Lewis (Italy), P. Solidoro, S. Bartoncini, E. Gallio, F.R. Giglioli, V. De Luca, L. Focaccio, C. Cavallin, G.C. Iorio, R. Parise, C. Palladino, V. Di Martino, G. Furfaro, G. Rovere, A. Mattei, R. Ragona, U. Ricardi</i>	<b>OC-0067</b>
10:50 > MR-guided adaptive radiotherapy for intra-abdominal lymphoma <i>F. Spoelstra (The Netherlands), P. Cobussen, M. Palacios, A. Bruynzeel, F. Lagerwaard, B. Slotman, S. Senan</i>	<b>OC-0068</b>

- 11:00 > 5x5 Gy with chemotherapy in borderline resectable soft tissue sarcomas: early results of a trial

*M. Spalek (Poland), H. Koseła-Paterczyk, A. Borkowska, M. Wągrodzki, A. Szumera-Cieckiewicz, A. Cieszanowski, P. Castaneda-Wysocka, T. Świtaj, M. Dudzisz-Śledź, A. Czarnecka, E. Dąbrowska-Szewczyk, P. Rutkowski*

OC-0069

- 11:10 > Radiation Therapy for Retroperitoneal Liposarcoma – a report from TARPSWG

*R. Haas (The Netherlands), S. Bonvalot, R. Miceli, D. Strauss, C. Swallow, P. Hohenberger, F. Van Coevorden, P. Rutkowski, D. Callegaro, A. Hayes, C. Honoré, M. Fairweather, R. Gladdy, J. Jakob, M. Szacht, M. Fiore, P. Chung, W. Van Houdt, C. Raut, A. Gronchi*

OC-0070

- 11:20 > Stereotactic radiotherapy for nodal recurrences: an interim analysis from two phase I trials

*F. Deodato (Italy), S. Cilla, A. Ianiro, V. Picardi, M. Ferro, M. Boccardi, G. Tolento, R. Cardano, S. Cammelli, P. Assalone, M. Buwenge, G.C. Mattiucci, V. Valentini, A.G. Morganti, G. Macchia*

OC-0071

- 11:30 > Clinical outcomes of stereotactic MR-guided adaptive radiation therapy for adrenal oligo-metastases

*P. Cobussen (The Netherlands), M.A. Palacios, F.O.B. Spoelstra, I. Bahce, A.M.E. Bruynzeel, S.M.S. Hashemi, A. Becker – Commissaris, N.J. Haasbeek, B.J. Slotman, F.J. Lagerwaard, S. Senan*

OC-0072

## ● PROFFERED PAPERS

### BT 1: Proffered papers: Treatment verification

10:30 - 11:45 | Brown 2

Chair: T. Major (Hungary)

Chair: J. Johansen (Denmark)

- 10:30 > BrachyView: A Real-time In-body HDR Source Tracking System with Simultaneous TRUS Image Fusion

*S. Alnaghy (Australia), D. Cutajar, M. M. Safavi-Naeini, G. Stuart, H. Andrew, A. Bece, J. Jakubek, S. Pospíšil, M. Lerch, M. Petasecca, A. Rosenfeld*

OC-0073

- 10:40 > Accuracy of an integrated EMT/BT system for dwell-position detection in pelvic BT

*L. Van Heerden (The Netherlands), J. Schiphof-Godart, M. Christianen, J. Mens, M. Franckena, M. Maenhout, R. Rijnsdorp, L. Luthart, M. Hoogeman, I. Kolkman-Deurloo*

OC-0074

- 10:50 > Error detection using an electromagnetic tracking system in multicatheter interstitial brachytherapy

*S. Masitha (Germany), K. Kallis, V. Strnad, R. Fietkau, C. Bert*

OC-0075



11:00 > Real time treatment verification in HDR brachytherapy: an in-phantom proof of principle <i>M. Hanlon (Australia), R. Smith, V. Panettieri, J. Millar, R. Franich</i>	<b>OC-0076</b>
11:10 > Reconstruction of delivered dose based on <i>in vivo</i> dosimetry in prostate brachytherapy <i>E. Jørgensen (Denmark), S. Rylander, S. Buus, L. Bentzen, S.B. Hokland, A.K.M. With, G. Kertzscher, K. Tanderup, J.G. Johansen</i>	<b>OC-0077</b>
11:20 > Error detection thresholds for routine real time <i>in vivo</i> dosimetry in HDR prostate brachytherapy <i>J. Mason (United Kingdom), A. Henry, P. Bownes</i>	<b>OC-0078</b>
11:30 > Expanding Calibration Service for LDR Brachytherapy Seeds by Photon Fluence Determination <i>T. Schneider (Germany)</i>	<b>OC-0079</b>

### ● PROFFERED PAPERS

#### PH 1: Proffered papers: Adaptive radiotherapy: tools and technologies

**10:30 - 11:45 | Space 1-2**

*Chair: G. Meijer (The Netherlands)*

*Chair: E.M. Vasquez Osorio (United Kingdom)*

10:30 > Comprehensive commissioning of MR-Linac online adaptive radiotherapy QA <i>O. Green (USA), A. Price, B. Cai, J. Cammin, V. Rodriguez, J. Park, S. Mutic, D. Yang</i>	<b>OC-0080</b>
10:40 > Plan-library supported automated replanning for online- adaptive IMPT of cervical cancer <i>T. Jagt (The Netherlands), S. Breedveld, R. Van Haveren, R. Nout, E. Astreinidou, M. Staring, B. Heijmen, M. Hoogeman</i>	<b>OC-0081</b>
10:50 > A biomechanical model to generate a library of cervix CTVs <i>C. Beekman (The Netherlands), S. Van Beek, J. Stam, J. Sonke, P. Remeijer</i>	<b>OC-0082</b>
11:00 > MRI guided set-up corrections for esophageal cancer: what margin do we need? <i>M. Boekhoff (The Netherlands), S. Mook, A. Borggreve, L. Goense, P. Van Rossum, N. Takahashi, A. Van Lier, A. Kotte, J. Lagendijk, G. Meijer</i>	<b>OC-0083</b>
11:10 > Baseline shifts towards the heart after IGRT are linked to overall survival in lung SABR patients <i>C. Johnson-Hart (United Kingdom), G. Price, E. Vasquez Osorio, C. Faivre-Finn, M. Van Herk</i>	<b>OC-0084</b>

- 11:20 > Correcting CBCT images for dose calculation using a U-shaped deep convolutional neural network

*G. Landry (Germany), D. Hansen, F. Kamp, M. Li, B. Hoyle, J. Weller, K. Parodi, C. Belka, C. Kurz*

OC-0085

- 11:30 > Probabilistic Dose Accumulation Based Evaluation of Head and Neck Intensity Modulated Proton Therapy

*D. Wagenaar (The Netherlands), R.G.J. Kierkels, A. Van der Schaaf, M. Rodrigues Reis, A. Meijers, D. Scandurra, M. Sijtsema, E. Korevaar, A. Knopf, A. Van den Hoek, J.A. Langendijk, S. Both*

OC-0086

● PROFFERED PAPERS

**PH 2: Proffered papers: Applications of dose modelling and calculation**

**10:30 - 11:45 | Space 3-4**

*Chair: B. McClean (Ireland)*

*Chair: C. Bert (Germany)*

- 10:30 > A new method for modelling the tongue-and-groove in treatment planning systems

*V. Hernandez (Spain), J.A. Vera-Sánchez, L. Vieillevigne, C. Khamphan, J. Saez*

OC-0087

- 10:40 > A pilot study on the sensitivity of common beam modeling parameters in Eclipse

*M. Glenn (USA), D. Followill, R. Howell, J. Pollard-Larkin, S. Zhou, S. Kry*

OC-0088

- 10:50 > Mitigating inherent noise in Monte-Carlo dose distributions using UNet

*U. Javaid (Belgium), J. Lee, K. Souris, S. Huang, J. Madrigal*

OC-0089

- 11:00 > Use of a realistic breathing lung phantom to verify 4D Monte Carlo dose calculations

*S. Gholampourkashi (Canada), J. Cygler, B. Lavigne, E. Heath*

OC-0090

- 11:10 > Patterns of failures among Imaging and Radiation Oncology Core lung and spine phantom irradiations

*S. Edward (USA), H.A. Molineu, P.E. Alvarez, D. Followill, S.F. Kry*

OC-0091

- 11:20 > Portal dosimetry of small unflattened beams

*A. Torres Valderrama (The Netherlands), I. Olaciregui-Ruiz, P. González, A. Mans*

OC-0092

- 11:30 > Microcavities in the lung affect the dose distribution in microbeam radiation therapy

*G. Hombrink (Germany), J. Wilkens, S.E. Combs, S. Bartzsch*

OC-0093



● PROFFERED PAPERS

**RTT 1: Proffered papers: Motion management and adaptive strategies**

**10:30 - 11:45 | Ambra 1-2**

*Chair: M. Kearney (Ireland)*

*Chair: H. McNair (United Kingdom)*

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|---------|---|----------------|
| 10:30 > | Retrospective evaluation of motion effects in robotic radiosurgery treatments of lung cancer<br><i>S. Trivellato (Italy), E. Rondi, S. Vigorito, E. Miglietta, F. Castellini, G. Piperno, A. Ferrari, B.A. Jereczek-Fossa, F. Cattani</i> | <b>OC-0094</b> |
| 10:45 > | Intrafraction motion management in VMAT breast radiotherapy with AlignRT system: comparison of ROIs<br><i>V. Favrel (France), O. Ruiz Abrard, F. Chabbert, C. Garcia, L. Gonzague Casabianca, H. Mailleux</i>                             | <b>OC-0095</b> |
| 11:00 > | Implementation of DIBH for gated IMRT of left sided breast cancer using optical surface guidance<br><i>N. Gomes (Portugal), A.M. Furtado, M.D.G. Coelho, M. Possanzini, J. Morales, C. Greco</i>  | <b>OC-0096</b> |
| 11:15 > | Detection of GoldAnchor markers implanted in the liver during robotic radiosurgery in the CK system<br><i>K. Szczepanik (Poland), M. Stapo-Fudzinska, B. Jochymek, D. Bodusz, L. Kleszyk, E. Telka, M. Kijonka</i>                        | <b>OC-0097</b> |
| 11:30 > | Gated vs coached DIBH treatment in left sided breast cancer radiotherapy: a single centre study<br><i>K. Crowther (United Kingdom), S. Osman, S. O'Hare, S. Gray, D. Holland, H. Vennard, G. Hanna</i>                                    | <b>OC-0098</b> |

● POSTER VIEWING

**Poster viewing 2: Advanced technologies**

**10:30 - 11:45 | Poster area**

*Chair: M. Hoogeman (The Netherlands)*

*Chair: E. Cagni (Italy)*

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|---|---|---------------|
| > | MC simulations and dose measurements of a patient-specific 3D range-modulator for proton therapy<br><i>Y. Simeonov (Germany), U. Weber, C. Schuy, K. Zink</i>   | <b>PV-099</b> |
| > | Development of plan quality through EBRT dummy run in the EMBRACE-II study for cervical cancer<br><i>Y. Seppenwoolde (Austria), M. Sanggaard Assenholt, D. Georg, R. Nout, L.T. Tan, T. Rumpold, A. De Leeuw, I. Jürgenliemk-Schulz, C. Kirisits, R. Pötter, J.C. Lindegaard, K. Tanderup, T.E. Collaborative Group</i> | <b>PV-100</b> |

- > Clinical implementation of a dedicated brain treatment planning optimizer for stereotactic treatment  
*T. Gevaert (Belgium), A. Girardi, B. Engels, M. Boussaer, C. El Aisati, M. De Ridder* PV-101
- > A prediction of intrinsic uncertainties in radiotherapy treatment planning systems  
*K. Kiers (The Netherlands), P. Van Horssen, J.T. Trinks, P.R. Pronk, A. Mans, C.J. Schneider, E.M.F. Damen, T.M. Janssen* PV-102
- > Linking ACROP guidelines to ICRU91: a multicentre study in lung SBRT on prescription and reporting  
*E. De Jong (The Netherlands), M. Guckenberger, N. Andratschke, K. Dieckmann, M.S. Hoogeman, M. Milder, D. Sloth Moller, T. Bisballe Nyeng, S. Tanadini-Lang, E. Lartigau, T. Lacornerie, A. Mendez Romero, W. Verbakel, D. Verellen, G. De Kerf, C.W. Hurkmans* PV-103
- > Out of field dose for three imaging modalities in case of image guided prostate cancer radiotherapy  
*C. Le Deroff (France), R. Lefevre, J. Bouvier, R. De Crevoisier, C. Lafond* PV-104
- > Ga-PSMA PET/CT for quantitative evaluation of radiotherapy-induced cell loss in salivary glands  
*V. Mohan (The Netherlands), N. Bruin, J. Van de Kamer, J. Sonke, A. Al-Mamgani, W. Vogel* PV-105
- > An optimized compact microbeam source for preclinical studies  
*F. Treibel (Germany), J.J. Wilkens, S. Bartzsch, S.E. Combs* PV-106
- > *In vitro* study of CIEDs malfunctions by direct exposure at doses $\geq$ 2Gy  
*M.D. Falco (Italy), E. Di Girolamo, C. Di Carlo, N. Adorante, G. Caravaggio, S. Marcucci, D. Genovesi* PV-107

● AWARD LECTURE

**Emmanuel van der Schueren Award Lecture**

**12:00 - 12:30 | Gold Plenary**

12:00 > Chair: Y. Lievens (Belgium)

12:05 > Learning from clinical practice: pushing quality forward  
*Speaker: N. Jornet (Spain)* SP-0108


● AWARD LECTURE

**Iridium Award Lecture  
12:30 - 13:00 | Gold Plenary**

12:30 > Chair: R. Pötter (Austria)

12:35 > The role of women in the brachytherapy field  
*Speaker: C. Haie-Meder (France)*

SP-0109

● SYMPOSIUM

**MR-guided radiation therapy: hybrid machines and treatment adaptation  
14:30 - 15:45 | Auditorium**

This session will describe the state of art of MR-guided radiation therapy approaches (MRgRT).

The description of the innovative adaptive workflow will start from the experimental animal setting, discussing its feasibility for glioblastoma in rat models.

The major MRI technical aspects of the hybrid irradiation of humans, such as tissue contrast and motion management during delivery, will be then addressed with particular emphasis on the correlations among anatomical changes, dose accumulation and treatment adaptation solutions.

Finally, initial clinical experiences of a MRgRT program will be discussed together with associated research strategies and selected clinical examples.

*Chair: D. Thorwarth (Germany)*

*Co-chair: L. Boldrini (Italy)*

14:30 > Magnetic resonance based small animal radiotherapy in neuro-oncology

*Speaker: C. Vanhove (Belgium), B. Descamps, J. Bolcaen, K. Deblaere, M. Acou, F. De Vos, T. Boterberg, C. De Wagter, J. Kalala, H. Giorgio, C. Van Den Broecke, L. Leybaert, E. Decrock, A. Vral, S. Vandenberghe, R. Van Holen, I. Goethals*

SP-0110

14:50 > On-line MRI-guidance for dose accumulation and plan adaptation

*Speaker: B. Raaymakers (The Netherlands)*

SP-0111

15:10 > First clinical experience and future directions of MR-guided radiation therapy

*Speaker: D. Zips (Germany)*

SP-0112

15:30 > MRI artifact simulation for clinically relevant MR sequences for guidance of HDR brachytherapy

*E. Beld (The Netherlands), M.A. Moerland, M.A. Viergever, J.J.W. Lagendijk, P.R. Seevinck*

OC-0113

● SYMPOSIUM

**How to exploit Immunogenic cell death Mechanism in Radiotherapy**

14:30 - 15:45 | Brown 1

*Chair: J. Perfettini (France)*

*Co-chair: V. Olivo Pimentel (The Netherlands)*

14:30 > Immunogenic versus Non-Immunogenic Cell Death in Cancer

*Speaker: A. Garg (Belgium), L. Vandenbergk, S. Fang, P. De Witte, P. Salven, P. Agostinis*

SP-0114

14:48 > Immunogenic tumor cell death induced by chemoradiotherapy: a clinical point of view

*Speaker: K. Mimura (Japan), K. Kono*

SP-0115

15:06 > Mechanisms of Radiotherapy Induced Inflammatory Signaling

*Speaker: S. Harding (Canada)*

SP-0116

15:24 > Radiotherapy and immunotherapy: Immunocytokines and/or immune checkpoint inhibitors?

*Speaker: L. Dubois (The Netherlands)*

SP-0117

● SYMPOSIUM

**Oligometastatic prostate cancer – shedding light in a quickly emerging field**

14:30 - 15:45 | Gold Plenary

Oligometastatic prostate cancer is a disease concept characterised by a state of limited systemic metastatic burden for which metastasis-directed therapies (MDT) could be used to eradicate the disease or postpone systemic treatments. Modern imaging techniques such as PSMA PET have increased the number of patients diagnosed with oligometastases at different stages of disease evolution (de novo and recurrent setting and during the castration-resistant phase). Aim of this session is to provide an overview on the possible clinical goals achievable with MDT strategies. The role of imaging, the optimal MDT volumes for oligorecurrent nodal disease and the optimal sequencing of ablative and systemic treatments will be analyzed and discussed.

*Chair: B.A. Jereczek-Fossa (Italy)*

*Co-chair: T. Zilli (Switzerland)*



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| <p>14:30 &gt; What are realistic clinical goals in radical radiotherapy for oligometastatic prostate cancer?<br/>Speaker: <i>T. Hölscher (Germany)</i></p> <p>14:48 &gt; What is the optimal staging for oligometastatic prostate cancer?<br/>Speaker: <i>L. Miszczyk (Poland), A. Napieralska, M. Miszczyk</i></p> <p>15:06 &gt; What is the optimal target volume concept in radiotherapy for oligometastatic pelvic lymph nodes after radical prostatectomy?<br/>Speaker: <i>T. Zilli (Switzerland)</i></p> <p>15:24 &gt; What is the optimal sequencing of local and systemic treatment in oligometastatic prostate cancer?<br/>Speaker: <i>G. De Meerleer (Belgium)</i></p> | <b>SP-0118</b><br><b>SP-0119</b><br><b>SP-0120</b><br><b>SP-0121</b> |
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● SYMPOSIUM

**New developments in gynaecological cancers**

**14:30 - 15:45 | Brown 3**

In the last few years we have achieved a lot of new developments in gynaecological cancers. This session will address background of current risk stratified approach for adjuvant therapy in endometrial cancer, update on the role of molecular prognostic factors in endometrial cancer and finally the question can we use molecular prognostic factors in risk stratification for adjuvant therapy? The second speaker will tell us about threshold in high-risk locally advanced cervical cancer with dose escalation strategy, with very high local control rates but still frequent metastatic events. Various strategies are being employed or tested, including prophylactic para-aortic radiotherapy, laparoscopic lymph node staging to guide radiotherapy volumes, and systemic intensification.

*Chair: C. Marijnissen (The Netherlands)*

*Co-chair: B. Urbanski (Poland)*

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| <p>14:30 &gt; Integration of molecular prognostic factors in the management of endometrial cancer<br/>Speaker: <i>R. Nout (The Netherlands)</i></p> <p>14:55 &gt; Improving outcomes in high-risk locally advanced cervical cancer: extended field RT, adjuvant chemotherapy or immunotherapy?<br/>Speaker: <i>C. Chargari (France), C. Haie-Meder, S. Gouy, E. Deutsch</i></p> <p>15:20 &gt; Chemo-radiation in Vulvar Cancer: recent developments in (neo) adjuvant and primary therapy<br/>Speaker: <i>S. Marnitz-Schulze (Germany)</i></p> | <b>SP-0122</b><br><b>SP-0123</b><br><b>SP-0124</b> |
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● SYMPOSIUM

**Real time navigation technologies in brachytherapy**

**14:30 - 15:45 | Brown 2**

During this symposium the speakers will describe future technologies for brachytherapy such as real time navigation in gynaecologic brachytherapy with technical description even for difficult patients (tumour extending lateral to the pelvic or far from the vaginal surface and phantom example, 3D printed templates for steering of needles with workflow description, examples and clinical results and finally multi-modality image registration both rigid and deformable, methods for estimating therapy delivery accuracy but also impact of machine learning in this area.

*Chair: D. Baltas (Germany)*

*Co-chair: A. Escande (France)*

- 14:30 > Multi-modal Image Fusion to support Minimally-invasive Therapy

*Speaker: D. Barratt (United Kingdom)*

**SP-0125**

- 14:55 > Steering of needles and applicators

*Speaker: J. Dankelman (The Netherlands)*

**SP-0126**

- 15:20 > 3D printed templates for steering of needles

*Speaker: J.C. Lindegaard (Denmark), P. Petric, A. Traberg Hansen, S. Kynde Nielsen, B. Meisner, K. Tanderup, L.U. Fokdal*

**SP-0127**

● SYMPOSIUM

**Automatic / Knowledge based treatment planning:open issues**

**14:30 - 15:45 | Space 1-2**

Automated and knowledge-based treatment planning has gained significant attention in the literature and there is increasing clinical uptake as commercial manufacturers offer some form of solution. While developments have occurred, there are still open areas of research and issues to be addressed. This session will explore some of these areas, addressing the following questions: how can we get the best out of knowledge-based planning? What role will automation play in personalised radiotherapy and what are the potential limitations? How can automated planning improve quality in clinical trials? How can automated planning play a role in bias-free plan comparisons?

*Chair: M. Hussein (United Kingdom)*

*Co-chair: C. Masciocchi (Italy)*



- 14:30 > How can we get the best out of knowledge-based planning?  
Speaker: S. Currie (United Kingdom), E. Miguel-Chumacero, N. Laverick, G. Currie
- 14:48 > Does automation jeopardise personalised treatment?  
Are we going back to prêt-à-porter instead of bespoke fashion?  
Speaker: R. Moekli (Switzerland)
- 15:06 > The potential of automated treatment planning in clinical trials  
Speaker: C. Hurkmans (The Netherlands)
- 15:24 > Using automated planning for "bias-free" plan comparison  
Speaker: L. Rossi (The Netherlands), A.W. Sharfo, S. Breedveld, B.J.M. Heijmen

SP-0128

SP-0129

SP-0130

SP-0131

● JOINT SYMPOSIUM

### **ESTRO-EFOMP: Multi-disciplinary working in Radiotherapy**

**14:30 - 15:45 | Space 3-4**

As we continue to seek to advance radiotherapy treatment through improved imaging and effective analysis of data the scientific disciplines required to deliver the best care are expanding. In this session we explore the multi-disciplinary nature of modern radiotherapy and highlight some of the important new roles. The perspective of physicists with a speciality other than radiotherapy will give their perspective on the changes they had to make to adapt to working in the radiotherapy multi-disciplinary team. In this session we will explore the view working in radiotherapy from physicists specialising in MRI, nuclear medicine, ultrasound and data science.

*Chair: R.I. Mackay (United Kingdom)*

*Chair: E. Koutsouveli (Greece)*

- 14:30 > Working for radiotherapy applications: The perspective of a nuclear medicine physicist in the era of Hybrid Imaging Systems  
Speaker: V. Bettinardi (Italy), M.G. Cattaneo
- 14:48 > Working in radiotherapy from the perspective of an MRI physicist  
Speaker: L.E. Olsson (Sweden)
- 15:06 > Working with radiotherapy from the perspective of US physicist  
Speaker: E. Harris (United Kingdom)

SP-0132

SP-0133

SP-0134

- 15:24 > Working with radiotherapy from the perspective of data/computer scientist

*Speaker: D. Sarrut (France), R. Simon, A. Myriam, C. Line, B. Thomas, B. Jean-Noel, G. Anne-Laure*

SP-0135

● SYMPOSIUM

**Younger people and radiotherapy**

**14:30 - 15:45 | Ambra 1-2**

The psychological, anatomical and surveillance issues for younger patients receiving radiotherapy will be discussed; examples of compliance, the risk of structural tissue damage after RT and the optimal balance of surveillance activities and follow up visits will be included. The second presentation will focus on the newest knowledge inside the causes of late effects and improved radiotherapy techniques helping to reduce incidence and severity. The symposium will be finalized with an example of how children's distress and anxiety during radiotherapy treatment can be reduced by use of a tablet and cartoon watching; experience with clinical implementation will also be presented.

*Chair: A. Boejen (Denmark)*

*Co-chair: T. O' Donovan (Ireland)*

- 14:30 > Considerations for Younger patients receiving RT: psychological, physical, and surveillance

*Speaker: C. Dickie (Canada), N. Laperriere*

SP-0136

- 14:55 > Radiotherapy in children and adolescents. What do we know until now and what will the future bring?

*Speaker: T. Boterberg (Belgium)*

SP-0137

- 15:20 > (VAIRT) Video-Assisted Immobilisation during external beam RadioTherapy for Children

*Speaker: N. Ritt (Austria)*

SP-0138



● POSTER VIEWING

**Poster viewing 3: Brachytherapy**

**14:30 - 15:45 | Poster area**

*Chair: T.P. Hellebust (Norway)*

*Chair: A. Gomez-Iturriaga (Spain)*

- > Endorectal HDR brachytherapy boost with MRI guidance for non operative management of rectal cancer  
*R. Engineer (India), A. Saklani, A. D'Souza, A. Baheti, M. Patil, S. Chopra, P. Patil* PV-0139
- > Predictive factors and patients' selection for pulsed dose rate brachytherapy boost in anal cancer  
*T. Brahmi (France), A.A. Serre, F. Gassa, F. Lafay, M. Sandt, P. Pommier* PV-0140
- > Treatment outcomes of HDR brachytherapy for cervical cancer: a comparison of Ir-192 versus Co-60  
*T. Tantivatana (Thailand), R. Kanisa* PV-0141
- > HDR BRT treatment of non-melanoma skin cancer: outcome and feasibility in a retrospective analysis  
*D. Delishaj, I.C. Fumagalli, R. D'Amico, G. Sangalli, F. Declich, C. Frigerio, C.P. Soatti (Italy)* PV-0142
- > High-dose CT-guided interstitial brachytherapy of liver metastases in oligometastatic patients  
*E. Walter (Germany), S. Gerum, M. Rottler, C. Maihöfer, J. Well, L. Nierer, M. Seidensticker, R. Seidensticker, T. Streitparth, F. Streitparth, J. Rieke, C. Belka, S. Corradini* PV-0143
- > Custom-made moulds plesiotherapy for non-melanoma skin cancer treatment  
*M.Á. González Ruiz (Spain), J.L. Muñoz García, J. Quirós Rivero* PV-0144
- > The impact of modern imaging on low dose-rate prostate brachytherapy  
*D. Lamb (New Zealand), L. Greig, G. Russell, J. Nacey, L. Woods* PV-0145
- > RTOG versus CTCAE score: reporting toxicity of HDR brachytherapy Monotherapy for prostate cancer  
*M. Jolicoeur (Canada), E. Hill* PV-0146
- > MRI-guided salvage HDR brachytherapy for locally recurrent prostate cancer  
*L. Joseph (Canada), A. Sundaramurthy, A. Berlin, J. Helou, C. Menard, P. Warde, C. Catton, B. Lao, A. Bayley, A. Rink, A. Beiki-Ardakani, P. Chung* PV-0147

● MULTIDISCIPLINARY TUMOUR BOARD

**Soft tissue sarcomas**

**14:30 - 15:45 | Ambra 5-6**

*Chair: R. Haas (The Netherlands)*

- > yESTRO Radiation Oncologist  
*Panellist: M. Spalek (Poland)*
- > Medical Oncologist  
*Panellist: P. Casali (Italy)*
- > Surgeon  
*Panellist: A. Gronchi (Italy)*
- > Radiation Oncologist  
*Panellist: F. Roeder (Germany)*
- > Pathologist  
*Panellist: A.P. Dei Tos (Italy)*

● JOINT SYMPOSIUM

**ESTRO-CARO: Functional imaging in RT: from biology to guidance**

**16:15 - 17:30 | Auditorium**

*Chair: D. Zips (Germany)*

*Chair: D. Jaffray (Canada)*

- 16:15 > Developments in techniques and processing tools for functional imaging in radiotherapy  
*Speaker: S. Leibfarth (Germany)*
- 16:40 > Functional imaging in preclinical models for exploring new radiotherapy strategies  
*Speaker: S. Stapleton (Canada)*
- 17:05 > Using functional imaging as a guidance and decision tool in radiotherapy  
*Speaker: M. Milosevic (Canada)*

● PROFFERED PAPERS

**RB 2: Proffered paper: How to exploit immunogenic cell death mechanisms in radiotherapy**

**16:15 - 17:30 | Brown 1**

*Chair: C. West (United Kingdom)*

*Chair: G. Adema (The Netherlands)*

- 16:15 > Radiation and PI3K-αδ inhibitor enhanced anti-tumor effect of PD-1 blockade in syngeneic tumor model  
*J.A. Kim (Korea Republic of), J.M. Park, J.H. Lee, D. Kim, Y. Lim*

**OC-0151**



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|--|----------------|
| 16:25 > IDO inhibition strongly enhances effects of combined hRT and PD1/PD-L1 checkpoint blockade<br><i>T. Watanabe (Japan), G. Niedermann</i>  | <b>OC-0152</b> |
| 16:35 > Immune infiltrate modulation induced by preoperative radiotherapy in breast cancer patients<br><i>A. Matias Perez (Spain), A. Bardet, M. Lacroix-Triki, F. Riet, M.C. Mathieu, E. Deutsch, S. Michiels, S. Rivera</i>  | <b>OC-0153</b> |
| 16:45 > Radiation abrogates fibroblast-mediated immunosuppressive effects on dendritic cells<br><i>T. Hellevik (Norway), R. Berzaghi, M.A. Akhtar, S. Tornaas, I. Martinez-Zubiaurre</i>   | <b>OC-0154</b> |
| 16:55 > LXR signaling regulates macrophage survival & phenotype polarization response to ionizing radiation<br><i>P.C. Lara Jimenez (Spain), C. Tabraue, M. Mirecki, J.V. De La Rosa, F. Lopez-Blanco, L. Bosca, L. Fernandez, A. Castrillo</i>                        | <b>OC-0155</b> |
| 17:05 > High-intensity focused ultrasound and radiotherapy: a promising combination?<br><i>G. Adema (The Netherlands), R. Van den Bijgaart, T. Raaijmakers, M. Den Brok, M. Hoogenboom, J. Fütterer, J. Bussink</i>  | <b>OC-0156</b> |
| 17:15 > Radiation and immunotherapy to fight cancer: a 'pushing the gas and releasing the brakes' approach<br><i>V. Olivo Pimentel (The Netherlands), D. Marcus, A. Van der Wiel, R. Biemans, N.G. Lieuwes, D. Neri, J. Theys, A. Yaromina, L.J. Dubois, P. Lambin</i> | <b>OC-0157</b> |

### ● PROFFERED PAPERS

#### **CL 3: Proffered papers: Prostate and Bladder**

**16:15 - 17:30 | Gold Plenary**

*Chair: A. Zapatero (Spain)*

*Chair: A. Napieralska (Poland)*

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|--|----------------|
| 16:15 > Effect of EBRT underutilization in prostate cancer on overall survival & local control, NSW, Australia<br><i>G. Gabriel (Australia), M. Barton, J. Shafiq, G. Delaney</i>  | <b>OC-0158</b> |
| 16:25 > Long-Term Results of RTOG 0321: HDR Brachytherapy and External Beam Radiotherapy for Prostate Cancer<br><i>L. Hsu (USA), J. Rodgers, K. Shinohara, J. Purdy, J. Michalski, G. Ibbott, M. Roach, E. Vigneault, R. Ivker, R. Pryzant, M. Kuettel, D. Taussky, G. Gustafson, A. Raben, H. Sandler</i> | <b>OC-0159</b> |

- 16:35 > When PI-RADS and ISUP meet each other: identification of candidates for pelvic lymph node dissection  
*C. Draulans (Belgium), W. Everaerts, S. Isebaert, T. Gevaert, R. Oyen, S. Joniau, E. Lerut, L. De Wever, A. Laenen, B. Weynand, E. Vanhoutte, G. De Meerleer, K. Haustermans*
- OC-0160
- 16:45 > Validation of clinical/dosimetric/genetic risk factor models for late RT-induced rectal bleeding  
*T. Rancati (Italy), P. Seibold, A. Webb, J. Chang-Claude, A. Cicchetti, D. Azria, D. De Ruysscher, R. Elliott, S. Gutiérrez-Enríquez, B.S. Rosenstein, C.J. Talbot, A. Vega, L. Veldeman, R. Valdagni, C. West*
- OC-0161
- 16:55 > PSMA PET/CT for intraprostatic tumor delineation and characterization based on radiomic features  
*C. Zamboglou (Germany), M. Carles, S. Kiefer, T. Fechter, P. Bronsart, K. Reichel, A. Soerensen, J. Ruf, M. Fahrner, H.C. Rischke, O. Schilling, C.A. Jilg, D. Baltas, M. Mix, A.L. Grosu*
- OC-0162
- 17:05 > Risk classification for PSA relapse after PSMA-PET-guided RT for oligorecurrent prostate cancer  
*M. Vogel (Germany), S.G.C. Kroese, C. Henkenberens, N.S. Schmidt-Hegemann, S. Kirste, J. Becker, H. Christiansen, C. Belka, A.L. Grosu, A.-C. Müller, M. Guckenberger, S.E. Combs*
- OC-0163
- 17:15 > Hypoxia modification in bladder preservation: relating long term outcomes to necrosis and hypoxia  
*Y.P. Song (United Kingdom), H. Mistry, L. Yang, S. Chin, C. West, A. Choudhury, P. Hoskin*
- OC-0164

### ● PROFFERED PAPERS

#### CL 4: Preferred papers: CNS and Paediatrics

16:15 - 17:30 | Brown 3

*Chair: S. Combs (Germany)*

*Chair: S. Scoccianti (Italy)*

- 16:15 > Patterns of treatment and outcomes for 1p19q co-deleted gliomas  
*D. Yeboa (USA), J. Yu, K.E. Liao, J. Huse, M. Penas-Prado, B. Kann, E. Sulman, D. Grosshans, J. Contessa*
- OC-0165
- 16:27 > Cumulative metastases volume, not number of brain metastases predicts survival in melanoma patients  
*J. Heitmann (Switzerland), S.G.C. Kroese, O. Blanck, S. Stera, K.H. Kahl, S. Gerum, S.E. Combs, A. Haap, A. Claes, M. Schymalla, A. Grosu, F. Eckert, F. Lohaus, N. Abbasi-Senger, G. Henke, M. Szuecs, M. Geier, N. Sundahl, D. Buergy, M. Guckenberger*
- OC-0166



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| 16:39 > Identifying No Fly Zones to prevent long-term thinning of the cerebral cortex in glioma after RT<br><i>S. Nagtegaal (The Netherlands), S. David, H. Mesri, M. Philippens, A. Leemans, J. Verhoeff</i>   | <b>OC-0167</b> |
| 16:51 > Dose-dependent atrophy of the amygdala after radiotherapy<br><i>M. Huynh-Le (USA), R. Karunamuni, V. Moiseenko, N. Farid, C. McDonald, J. Hattangadi-Gluth, T.M. Seibert</i>  | <b>OC-0168</b> |
| 17:03 > Spinal change after craniospinal irradiation for pediatric patients<br><i>Y. Oshiro (Japan), M. Mizumoto, H. Pan, S. Kaste, T.E. Merchant</i><br><br>Proton beam radiation results in pediatric Head and Neck<br>Rhabdomyosarcoma<br>Abstract withdrawn | <b>OC-0169</b> |
| 17:15 > Hypofractionated SBRT in childhood cancer: preliminary results of a national prospective study<br><i>L. Claude Defez (France), S. Bolle, E. Blanc, A. Laprie, A. Huchet, C. Vigneron, A. Escande, M. Morelle, C. Carrie, S. Supiot</i>                  | <b>OC-0171</b> |

● PROFFERED PAPERS

**BT 2: Cervix brachytherapy**

**16:15 - 17:30 | Brown 2**

*Chair: I. Jürgenliemk-Schulz (The Netherlands)*

*Chair: M. Schmid (Austria)*

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|--|----------------|
| 16:15 > Performance of ring vs ovoids and intracavitary vs intracavitary-interstitial in the EMBRACE study<br><i>M. Serban (Denmark), C. Kirisits, A. De Leeuw, R. Pötter, I.M. Jürgenliemk-Schulz, N. Nesvacil, J. Swamidas, R. Hudej, G. Lowe, T.P. Hellebust, G. Menon, A. Oinam, P. Bownes, B. Oosterveld, M. De Brabandere, K. Koedooder, A.B.L. Marthinsen, D. Whitney, J. Lindegaard, K. Tanderup</i> | <b>OC-0172</b> |
| 16:25 > Dosimetric comparison of T-O brachytherapy with/without interstitial component in FIGO I-IIIB tumors<br><i>M. Federico (Spain), A. Perez Fustero, C. Catarina, I. Fernandez, J.L. Perez Molina, I. Morales Orue, M. Lloret</i>   | <b>OC-0173</b> |
| 16:35 > Advancement of brachytherapy for locally advanced cervical cancer in the era of image guidance<br><i>J.C. Lindegaard (Denmark), L.U. Fokdal, P. Petric, S.K. Nielsen, K. Tanderup</i>  | <b>OC-0174</b> |

- 16:45 > 3D printed tandem-needle-template for image guided adaptive brachytherapy in cervical cancer

*P. Petric (Denmark), L.U. Fokdal, A. Traberg Hansen, S. Kynde Nielsen, K. Tanderup, J.C. Lindgaard*

OC-0175

- 16:55 > A systematic analysis of delineation performance seen in EMBRACE-II brachytherapy quality assurance

*S. Duke (United Kingdom), R. Pötter, A. Sturdza, M. Schmid, T. Rumpold, U. Mahantshetty, N. Nesvacil, A. De Leeuw, C. Kirisits, K. Tanderup, R. Nout, J. Lindegaard, I. Jurgenliemk-Schulz, L. Tan*

OC-0176

- 17:05 > The value of KV-CBCT in adaptive HDR brachytherapy of cervical cancer patients

*C. Constantinescu (Saudi Arabia), N. Jastaniyah, S. Wadi-Ramahi*

OC-0177

- 17:15 > Indirect Excess Dose Volume Ratio (iRex): A Novel predictor of Late Toxicity in Cervical Cancer IGBT

*T. Prasartseree (Thailand), P. Dankulchai*

OC-0178

## ● PROFFERED PAPERS

### PH 3: Proffered paper: New developments in automated treatment planning

16:15 - 17:30 | Space 1-2

Chair: B. Heijmen (The Netherlands)

Chair: L.B. Hysing (Norway)

- 16:15 > Clinical implementation of plan quality control for automated prostate planning

*M. Kusters (The Netherlands), F.J. Dankers, P. Van Kollenburg, R.J. Smeenk, R. Monshouwer*

OC-0179

- 16:25 > Towards a comprehensive automatic planning with deep neural networks: dose prediction for lung IMRT

*A.M. Barragán Montero (Belgium), D. Nguyen, W. Lu, M. Lin, X. Geets, E. Sterpin, S. Jiang*

OC-0180

- 16:35 > Prostate auto-planning in clinical practice: evaluation of plan acceptance and manual adaptations

*R. Van Der Bel (The Netherlands), D.A. Eekhout, G.H. Wortel, G. Van der Veen, R.H. Harmsen, F.J. Pos, T.M. Janssen, E.M.F. Damen*

OC-0181

- 16:45 > Automated (non-coplanar) beam selection for IMRT in young female lymphoma patients reduces OAR doses

*P. Cambraia Lopes (The Netherlands), L. Rossi, J. Leitão, C. Janus, M. Van de Pol, J. Penninkhof, B. Heijmen*

OC-0182



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|---------|---|----------------|
| 16:55 > | Multi-Institutional Evaluation of a Pareto Navigation Guided Automated Planning Solution<br><i>P. Wheeler (United Kingdom), N. West, R. Powis, R. Maggs, M. Chu, R.A. Pearson, N. Willis, B. Kurec, M. Youings, D.G. Lewis, J. Staffurth, E. Spezi, A.E. Millin</i> | <b>OC-0183</b> |
| 17:05 > | Predicting patient specific treatment planning Pareto fronts based on anatomy only<br><i>E. Van der Bijl (The Netherlands), Y. Wang, S.F. Petit, T. Janssen</i>   | <b>OC-0184</b> |
| 17:15 > | A multi-centre knowledge-based treatment planning model for radiotherapy of cervical cancer<br><i>E. Adams (United Kingdom), M. Hussein, S. Currie, C. Thomas, C. South, A. Greener, G. Currie, A. Nisbet</i>   | <b>OC-0185</b> |

● PROFFERED PAPERS

**PH 4: Proffered paper: New technologies**

**16:15 - 17:30 | Space 3-4**

*Chair: J. Malicki (Poland)*

*Chair: K. Tiigi (Estonia)*

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|---------|---|----------------|
| 16:15 > | A system of materials capable of mimicking soft tissues and bone with both CT and MR imaging<br><i>K. Singhrao (USA), J. Fu, Y. Gao, P. Hu, Y. Yang, J.H. Lewis</i>   | <b>OC-0186</b> |
| 16:25 > | Comparison of proton range predictions between Single- and Dual-Energy CT using prompt gamma imaging<br><i>T. Boon-Keng (USA), Y. Xie, F. O'Grady, A. Lalonde, J. Petzoldt, J. Smeets, G. Janssens</i>  | <b>OC-0187</b> |
| 16:35 > | Development and commissioning of a set-up optimization routine for ocular proton therapy<br><i>G. Elisei (Italy), R. Via, A. Pella, G. Calvi, R. Ricotti, B. Tagaste, G. Fontana, M.R. Fiore, M. Ciocca, F. Valvo, G. Baroni</i>  | <b>OC-0188</b> |
| 16:45 > | Brain and Head-and-Neck MRI in immobilization masks: a novel and practical setup for radiotherapy<br><i>S. Mandija (The Netherlands), F. D'Agata, R. Navest, A. Sbrizzi, C. Raaymakers, R. Tijssen, M. Philippens, E. Seravalli, J. Verhoeff, J. Lagendijk, C. Van den Berg</i> | <b>OC-0189</b> |
| 16:55 > | Development of Compton-scattered imaging technology for stereotactic radiotherapy of lung cancer<br><i>J. Chu (USA), K. Jones, J. Strologas, G. Redler, G. Marwaha, J. Turian</i>   | <b>OC-0190</b> |
| 17:05 > | MLC-tracking latencies on Elekta Unity<br><i>M. Glitzner (The Netherlands), P. Woodhead, J. Lagendijk, B. Raaymakers</i>  | <b>OC-0191</b> |

- 17:15 > Prerequisites for using "rapid learning" to optimise technical radiotherapy

*M. Aznar (United Kingdom), C. Johnson-Hart, A. McWilliam, M. Van Herk, G. Price*

OC-0192

● PROFFERED PAPERS

**RTT 2: A patient centered approach to follow up**

**16:15 - 17:30 | Ambra 1-2**

*Chair: I. Kristensen (Sweden)*

*Chair: S. Goldsworthy (United Kingdom)*

- 16:15 > Mobile application for daily patient scheduling during radiotherapy treatment course

*J. Kauppinen (Finland), M. Kokkonen, M. Kaunisto, J. Seppälä*

OC-0193

- 16:25 > Continuous improvement by crossing patient satisfaction surveys, adverse events and complaints

*S. Cucchiaro (Belgium), M. Delgaudine, F. Princen, P. Coucke*

OC-0194

- 16:35 > Towards a Patient-Focused Organizational Model for Radiation Therapists

*A. Shessel (Canada), E. Moyo, A. Koch, J. Ringash, J. Waldron, F.F. Liu, M. Velec*

OC-0195

- 16:45 > Predictors for radiation-induced oesophagitis in breast cancer patients

*K. West (Australia), M. Schneider, C. Wright, R. Beldham-Collins, N. Coburn, K. Tiver, V. Gebski, K. Stuart*

OC-0196

- 16:55 > A survey of UK practice of radiotherapy skin care for breast patients

*H. Nisbet (United Kingdom), S. Matthews, R. Cooke*

OC-0197

- 17:05 > Using PROs and PROMs in routine head and neck cancer care: what do RTs perceive as barriers?

*H. Nguyen (Australia), P. Butow, H. Dhillon, L. Morris, A. Brown, K. West, P. Sundaresan*

OC-0198

- 17:15 > Patient-reported outcomes after stereotactic body radiotherapy in lung cancer: The Lung PLUS study

*L. Van der Weijst (Belgium), R. Bultijnck, A. Van Damme, M. Van Eijkeren, V. Surmont, Y. Lievens*

OC-0199



### ● POSTER VIEWING

#### **Poster viewing 4: Head-Neck and Lung**

**16:15 - 17:30 | Poster area**

*Chair: J. Giralt (Spain)*

*Chair: S. Petit (The Netherlands)*

- > Accelerated- vs chemo-radiation as organ sparing strategies for laryngeal/hypopharyngeal carcinoma  
*A. M. Elamir (Canada), S. Huang, W. Xu, M. Yu, A. Spreafico, A. Bayley, S.V. Bratman, J. Cho, M. Giuliani, A. Hope, J. Kim, B. O'Sullivan, J. Ringash, J.R. De Almeida, D. Chepeha, D. Goldstein, J. Irish, J. Waldron, A. Hosni*
- PV-0200**
- > Development and validation of prediction models for salivary dysfunction in HN cancer patients  
*L. Van den Bosch (The Netherlands), A. Van der Schaaf, F.J.P. Hoebers, H.P. Van der Laan, E. Schuit, E. Bakker, O.B. Wijers, A.M. Van der Wel, R.J.H.M. Steenbakkers, J.A. Langendijk*
- PV-0201**
- > 3-D reconstruction of radiotherapy dose associated with advanced osteoradionecrosis after IMRT  
*A.S.R. Mohamed (USA), K. Al Feghali, S.P. Ng, H. Elhalawani, K. Hutcheson, M. Chambers, J. Phan, J. Kraeima, H. Glas, M. Witjes, G.B. Gunn, A. Garden, D. Rosenthal, S. Frank, W. Morrison, C. Fuller, S. Lai*
- PV-0202**
- > Adaptive proton therapy for patients with head and neck tumors involving skull base  
*S. Karaman, R. Malyapa (USA), U. Langner, T. Houser, Z. Fellows, J. Moreau, Z. Vujaskovic*
- PV-0203**
- > Mortality after radiotherapy or surgery in early stage NSCLC: a population based study  
*C. Ostheimer, F. Palm, E. Christoph, M. Katharina, M. Rafael, D. Vordermark, D. Medenwald (Germany)*
- PV-0204**
- > Quantification of Changes in Lung Cancer during Radiotherapy: a comparison between CT and MRI  
*E. Huang (Australia), S. Kumar, D. Moses, L. Holloway, S. Vinod*
- PV-0205**
- > Gross endobronchial disease: predictor of clinical outcomes for early stage NSCLC treated with SBRT  
*N. Aghdam (USA), S. Kataria, M. Pernia, C. Hall, T. O'Connor, L. Campbell, S. Suy, S.P. Collins, R. Krochmal, E. Anderson, J. Lischalk, B.T. Collins*
- PV-0206**

- > Is V37Gy a Better Dose Predictor for Radiation Pneumonitis for Lung Proton Therapy?

*W. Harris (USA), S. O'Reilly, V. Jain, B.K. Teo, L. Dong, S. Feigenberg, A. Berman, W. Zou*

**PV-0207**

- > Immune-related pneumonitis in NSCLC patients treated with ICI: impact of previous thoracic RT

*A. Botticella (France), T. Ibrahim, L. Mezquita, L. Hendriks, J. Le Pavec, R. Ferrara, C. Caramella, S. Champiat, J. Michot, P. Lavaud, P. Gustin, D. Planchard, A. Gazzah, A. Marabelle, E. Deutsch, B. Besse, C. Le Pechoux*

**PV-0208**

● AWARD LECTURE

**Award Lecture: Honorary Members award lectures**

**17:35 - 18:20 | Gold Plenary**

*Chair: B. Slotman (The Netherlands)*

*Chair: U. Ricardi (Italy)*

*Chair: Y. Lievens (Belgium)*

- 17:35 > Multidisciplinary approaches as the keys to defeat lung cancer  
*Speaker: G. Scagliotti (Italy)*

**SP-0209**

- 17:50 > Are radiation specialists good global cancer citizens?  
*Speaker: J. Torode (Switzerland)*

**SP-0210**

- 18:05 > Putting down the scalpel. The evolution of rectal cancer treatment  
*Speaker: A. Habr-Gama (Brazil)*

**SP-0211**

# Sunday 28 April 2019

## ● TEACHING LECTURE:

### **Re-irradiation for breast cancer**

**08:00 - 08:40 | Auditorium**

*Chair: V. Strnad (Germany)*

08:00 > Re-irradiation for breast cancer

*Speaker: P. Poortmans (France), O. Kaidar-Person, S. Oldenborg*

**SP-0212**

## ● TEACHING LECTURE

### **Extracellular vesicles; are we there yet?**

**08:00 - 08:40 | Brown 1**

*Chair: P. Span (The Netherlands)*

08:00 > Extracellular vesicles and potential implications for radiation therapy

*Speaker: A. Dal Pra (USA)*

**SP-0213**

## ● TEACHING LECTURE

### **Update on the management of SCLC**

**08:00 - 08:40 | Gold Plenary**

*Chair: F. McDonald (United Kingdom)*

08:00 > Update on the management of SCLC

*Speaker: C. Le Pechoux (France), A. Botticella, A. Levy*

**SP-0214**

## ● TEACHING LECTURE

### **How to combine checkpoint inhibitors with radiotherapy?**

**08:00 - 08:40 | Brown 3**

*Chair: E. Deutsch (France)*

08:00 > How to combine checkpoint inhibitors with radiotherapy?

*Speaker: K. Harrington (United Kingdom)*

**SP-0215**

● TEACHING LECTURE

**How does brachytherapy fit in the modern management of penile cancer?**

**08:00 - 08:40 | Brown 2**

*Chair: A. Henry (United Kingdom)*

08:00 > How does brachytherapy fit in the modern management of penile cancer?

*Speaker: J. Crook (Canada)*

SP-0216

● TEACHING LECTURE

**Detector specific output correction factors: How to use them in clinical practice**

**08:00 - 08:40 | Space 1-2**

*Chair: J. De Pooter (The Netherlands)*

08:00 > Detector specific output correction factors: How to use them in clinical practice

*Speaker: S. Huq (United States)*

SP-0217

● TEACHING LECTURE

**Uncertainties in Radiomics**

**08:00 - 08:40**

**Space 3-4**

*Chair: L. Wee (The Netherlands)*

08:00 > Uncertainties in Radiomics

*Speaker: M. Hatt (France)*

SP-0218

● TEACHING LECTURE

**New technology and modalities in Radiotherapy - What can the ESTRO School offer?**

**08:00 - 08:40 | Ambra 1-2**

*Chair: Y.M. Tsang (United Kingdom)*

08:00 > New technology and modalities in Radiotherapy - What can the ESTRO School offer?

*Speaker: J.G. Eriksen (Denmark)*

SP-0219



● TEACHING LECTURE

## Precision medicine and systems biology - transforming cancer research in the 21st century

**08:00 - 08:40 | Ambra 3-4**

*Chair: M. Bittner (Germany)*

08:00 > Precision medicine and systems biology - transforming cancer research in the 21st century

*Speaker: W. Kolch (Ireland)*

SP-0220

● SYMPOSIUM

## Balancing the risks and benefits of re-irradiation

**08:45 - 10:00 | Auditorium**

When, and how, to re-irradiate? Still today, defining the risk-benefit balance of re-irradiation is a major challenge in radiation oncology. In case of a radio-recurrent disease, the patient's selection process is a critical step, particularly in view of the potential interplay with modern systemic therapies. From an experimental perspective, understanding the biological mechanisms involved in re-treatment tolerance is of utmost importance. The presenters will provide an evidence-based overview on re-irradiation in different clinical scenarios. The suitability of modern external-beam techniques and brachytherapy for re-treatment will be discussed, with a focus on their intrinsic properties (such as dose conformality) and clinical workflow implications.

*Chair: TBC*

*Co-chair: P. Bonomo (Italy)*

08:45 > Indications for re-irradiation – changes in the era of effective systemic treatment options?

*Speaker: M. Hoyer (Denmark)*

SP-0221

09:03 > Radiobiology of normal tissue repair – what are the implications for reirradiation?

*Speaker: R. Copes (The Netherlands)*

SP-0222

09:21 > Protons, stereotactic radiotherapy and adaptive radiotherapy – what is their value for reirradiation?

*Speaker: A. Richter (Germany)*

SP-0223

09:39 > Brachytherapy in the reirradiation situation – what are benefits and limitations compared to modern EBRT?

*Speaker: C. Gutiérrez Miguélez (Spain)*

SP-0224

● SYMPOSIUM

**Circulating biomarkers for patient stratification and treatment monitoring**

**08:45 - 10:00 | Brown 1**

*Chair: G. Hanna (Australia)*

*Co-chair: S. Meltzer (Norway)*

- 08:45 > Blood biomarkers to predict radiotherapy response  
*Speaker: G. Hanna (Australia)*

SP-0225

- 09:03 > ctDNA as a non-invasive liquid biopsy for patient stratification and treatment monitoring  
*Speaker: D. Gale (United Kingdom)*

SP-0226

- 09:21 > Cancer detection using methylated cell-free DNA  
*Speaker: S. Bratman (Canada)*

SP-0227

- 09:39 > Circulating biomarkers tumor immune response  
*Speaker: D. De Ruysscher (The Netherlands)*

SP-0228

● DEBATE

**This house believes that Proton-beam be used routinely in the treatment of lung cancer**

**08:45 - 10:00 | Gold Plenary**

Proton therapy is an attractive treatment option for lung cancer patients who need radiotherapy. Due to its physical properties, it has the potential to reduce side-effects. Yet, proton therapy is very challenging in thoracic tumors because of the movement due to breathing, and of the large differences in tissue density.

It will be discussed whether there is enough clinical evidence to treat lung cancer patient with proton therapy in routine practice, and which patients to select for this treatment. Furthermore, the technical challenges of treating moving tumors will be addressed, and whether the current state-of-the-art proton techniques are able to tackle all these challenges.

*Chair: Y. Lievens (Belgium)*

*Co-chair: S. Peeters (The Netherlands)*

- 08:45 > For the motion  
*C. Simone (USA)*
- 09:00 > Against the motion  
*S. Ramella (Italy)*
- 09:15 > For the motion  
*M. Hoogeman (The Netherlands)*

09:30 > Against the motion  
*D. Verellen (Belgium)*

09:45 > Discussion

● SYMPOSIUM

**Radiation-drug combinations on the 2019 horizon**

**08:45 - 10:00 | Brown 3**

This session will focus on pending questions about radiation-drug combinations on the 2019 horizon. First will be pointed out the barriers and the potential solutions to improve the research in this domain, from the preclinical model to the clinical trial designs. Then, speakers will develop the specific questions of Tyrosine Kinase inhibitors and DNA damage response inhibitors in combination with radiation therapy: early data studies and clinical evidence. Finally, several cost-estimates models regarding radiation combined with biomarker-agnostic use of a given drug or with molecularly matched medication will be presented.

*Chair: M. Krause (Germany)*

*Co-chair: S. Bockel (France)*

08:45 > Barriers and solutions to increase the number of clinical trials of new drug-radiotherapy combinations

*Speaker: R. Sharma (United Kingdom)*

**SP-0229**

09:03 > Radiation and TKIs - what is the 2019 evidence?

*Speaker: C. Belka (Germany)*

**SP-0230**

09:21 > Radiotherapy in combination with DNA damage response inhibitors in 2019: are we any closer to clinical benefit?

*Speaker: A. Chalmers (United Kingdom)*

**SP-0231**

09:39 > Cost-estimate models for radiation-drug combinations

*Speaker: A.H. Ree (Norway)*

**SP-0232**

● SYMPOSIUM

**Inverse planning in brachytherapy - A one click solution?**

**08:45 - 10:00 | Brown 2**

In brachytherapy (BT) inverse planning can be used for automatic dose optimization. Similar to external beam IMRT treatment planning dose constraints are defined and an optimization algorithm computes the "best" solution. In Particular in prostate low-dose-rate (LDR) and high-dose-rate (HDR) treatment planning inverse planning is commonly used.

Nevertheless, sometimes automatic calculated treatment plans need manual refinement.

In this symposium three experts in BT inverse planning discuss the use and usability of inverse planning in BT. In particular the question if inverse planning is a “one click solution” or if manual optimization is still necessary should be answered; this not only for prostate BT, but as well for other treatment sites like gynecological BT, breast cases, and others. The experts will give insights into the applied algorithms of BT inverse planning and new approaches of these methods.

This symposium is for sure not only of interest for BT users but for all medical physicists and physicians who would like to learn on new strategies in automatic treatment planning.

*Chair: F. Siebert (Germany)*

*Co-chair: M. De Brabandere (Belgium)*

- 08:45 > Optimal use of inverse optimization in brachytherapy  
*Speaker: D. Baltas (Germany)*

SP-0233

- 09:10 > Inverse treatment planning in clinical practice, one click and done?  
*Speaker: D. Todor (USA)*

SP-0234

- 09:35 > Intuitive and insightful evolutionary intelligent treatment planning  
*Speaker: P. Bosman (The Netherlands)*

SP-0235

## ● SYMPOSIUM

### Reference and non-reference dosimetry - CoPs and beyond

08:45 - 10:00 | Space 1-2

This session focuses on TRS-398 and TRS-483. IAEA put up a project in order to update TRS-398 for MV beams as new developments have taken place (ICRU 90, FFF beams, new detectors, dosimetry for small fields). In this context, kQ results from the RTNORM project will be shown. Furthermore, the fundamentals of the TRS-483 will be explained. The current state of the art related to Appendix I of TRS-483 will be outlined, including a review of available literature on kQ for FFF beams and the implications for reference dosimetry in the clinic. Additionally, reference dosimetry with A1SL ionization chamber in Helical Tomotherapy following TRS-483 concepts will be discussed.

*Chair: C.E. Andersen (Denmark)*

*Co-chair: C. Boydev (France)*

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| 08:45 > MV reference dosimetry in TRS-398: State-of-the art and research supporting an updated code of practice<br><i>Speaker: F. Delaunay (France), C. Andersen, L. De Prez, S. Duane, M. Pimpinella, P. Teles, J. Tikkainen, K. Zink</i> | <b>SP-0236</b> |
| 09:03 > Clinical application of kQ factors for reference dosimetry in flattening filter free (FFF) photon beams<br><i>Speaker: L. De Prez (The Netherlands), C. Andersen, J. De Pootter, H. Palmans</i>                                    | <b>SP-0237</b> |
| 09:21 > TRS 483: past, present and future<br><i>Speaker: H. Palmans (Austria)</i>  | <b>SP-0238</b> |
| 09:39 > Following TRS 483: reference and relative dosimetry in Tomotherapy<br><i>Speaker: M.D.C. Lopes (Portugal), T. Santos, T. Ventura, M. Capela</i>  | <b>SP-0239</b> |

● SYMPOSIUM

**New advances in image reconstruction in CBCT**

**08:45 - 10:00 | Space 3-4**

While cone beam computed tomography (CBCT) has been introduced to radiation therapy nearly two decades ago, improving the technology and finding new applications remain very active areas of research. In this session, both fundamental aspects of image reconstruction and limitations of CBCT in terms of image quality will be summarized, along with a presentation of cutting edge advancements in CBCT. Topics will range from motion-compensated CBCT using sparse projection data to the use of deep learning to correct CBCT artefacts online. Applications of improved CBCT images for dose calculation and as novel biomarkers will finally be discussed.

*Chair: M. Aznar (United Kingdom)*

*Co-chair: G. Landry (Germany)*

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|---|----------------|
| 08:45 > Breathing motion in cone-beam CT<br><i>Speaker: S. Rit (France)</i>   | <b>SP-0240</b> |
| 09:10 > Deep image formation algorithms for CT and CBCT<br><i>Speaker: M. Kachelriess (Germany)</i>                             | <b>SP-0241</b> |
| 09:35 > Hounsfield corrected CBCT images – dose calculation and potential for bio-markers<br><i>Speaker: C. Brink (Denmark)</i> | <b>SP-0242</b> |

● SYMPOSIUM

**New technology and modalities**

**08:45 - 10:00 | Ambra 1-2**

Advanced practice roles for radiation therapists (RTTs) is an ongoing request for contemporary Radiotherapy. The development of innovative strategies and technologies, require multi and interdisciplinary approach to enhance practices and patient/focused outcomes.

Implementing new technologies and methodologies becomes even more challenging and complex which demands for advanced education and training, as a continuous professional and personal development for a long term life learning process.

This session intent to give crucial information for deliver and optimize current and future and advanced technologies as well as personalized approaches for enhanced patient care and treatment outcomes.

*Chair: F. Moura (Portugal)*

*Co-chair: A. Smit (The Netherlands)*

- 08:45 > How to secure the right competencies when new modalities are implemented - a clinical aspect in proton therapy

*Speaker: H. Pennington (United Kingdom)*

**SP-0243**

- 09:10 > Personalized treatment planning and automation in modern radiotherapy

*Speaker: T. Piotrowski (Poland)*

**SP-0244**

- 09:35 > Advanced practice role in breast cancer radiation therapy

*Speaker: G. Lee (Canada)*

**SP-0245**

● SYMPOSIUM

**Combining research and (clinical/ professional) training/ practice**

**08:45 - 10:00 | Ambra 3-4**

In this session, part of the Young Estro track, various aspects of training in clinical and translational research will be covered: 1/ The benefit of taking time off for full-time research will be presented, with perspective from young radiation oncologists; 2/ A presentation on the basis and prerequisite for biostatic analyses will underscore the need to avoid misuse and pitfalls of an inappropriate research and provide some highlights on how to have a critical analysis of available literature; 3/ Research and training in medical physics will be addressed with a special focus on how to acquire (and keep on having) a staff medical physicist position; 4/ the possibility, practical aspects and difficulties to combine research and training will be presented, with perspectives on how to deal

with limiting factors to keep radiation oncologists interested in research;  
 5/ Finally, the vision from a young head of department will be given.

*Chair: C. Chargari (France)*

*Co-chair: G. Reggiori (Italy)*

08:45 > Taking time off for full-time research - is it worth it? <i>Speaker: A. Levy (France)</i>	SP-0246
09:00 > Why do we need to be trained in statistics? Need and pitfalls <i>Speaker: A. Escande (France), L. Lebellec</i>	SP-0247
09:15 > Research and training in medical physics <i>Speaker: S. Petit (The Netherlands)</i>	SP-0248
09:30 > Clinical vs lab research for clinicians <i>Speaker: D. Milanovic (United Kingdom)</i>	SP-0249
09:45 > Lessons learnt from a young head of department <i>Speaker: R. Baumann (Germany)</i>	SP-0250

#### ● POSTER VIEWING

#### Poster viewing 5: Health Services Research and Health-Related Quality of Life

08:45 - 10:00 | Poster area

*Chair: D. Rodin (Canada)*

*Chair: Y. Anacak (Turkey)*

- > Inuit radiotherapy utilization: a multinational study of low-income regions in high-income countries  
*J. Chan (Canada), T. Mee, N.F. Kirkby, R. Jena, S. Waites, J. Renaud, K. Barker, A. Polo, D. Jones, K.J. Kirkby, R. Sullivan, M. Brundage, B. Slotman, J. Bourque*  
PV-0251
- > From theory to practice: assessing the use of radiotherapy in population based cancer registries  
*J.M. Borras (Spain), J. Corral, J. Galceran, R. Marcos-Gragera, L. Vilardell, J. Solà, A. Ameijide, M. Carulla, X. Cardó, À. Izquierdo, J.A. Espinàs*  
PV-0252
- > A critical quality appraisal of studies estimating the cost of radiotherapy  
*N. Defourny (Belgium), Y. Lievens, C. Monten, J. Monnet, P. B. Dunscombe, C. Grau, L. Perrier*  
PV-0253

- > Mortality and Morbidity Review of serial radiotherapy accidents in Epinal, 1987-2006

*J. Simon (France), P. Maingon, E. Francois, E.H. Labib, M. Vincent, N. Alain, L. Mihaï, M. Christian, P. Didier*

PV-0254

- > Advocating for radiation oncology through the development of a massive open online course

*M. Leech, C. Poole (Ireland), S. Gallagher, W. Fox*

PV-0255

- > European survey on electronic patient-reported outcomes by the EORTC young Radiation Oncology Group

*A.H. Thieme (Germany), Y.G. Eller, E. Rivin del Campo, A. Abrunhosa-Branquinho, S. Adebahr, I. Desideri, M. Fiore, S. Hafeez, B. Hoeben, O. Kaidar-Person, I. Kindts, I. Meattini, C. Mercier, F. Mehrhof, D. Nevens, L. Ollivier, M.H. Suppli, L. Visani, B.G. Baumert, C. Ostheimer*

PV-0256

- > Radiotherapy impact on quality of life in localised prostate cancer: validation of EPIC-16 in Spain

*A. Zapatero Laborda (Spain), X. Maldonado Pijoan, A. Gómez-Caamaño, J. Pardo Masferrer, V. Macias Hernández, A. Hervás Morón, J.L. Muñoz García, A. Palacios Eito, P. Arguita-Alonso, C. González-Juncos, J. López Torrecilla*

PV-0257

- > Patient reported outcome and survival analysis after stereotactic body RT (SBRT) of lung metastases

*R. Grosser (Germany), K.A. Kessel, D. Marciana-Nona, M. Oechsner, S.E. Combs*

PV-0258

- > Cosmetic outcome in irradiated breast cancer patients and association with patient reported outcomes

*M. Batenburg (The Netherlands), M. Gregorowitsch, D. Van den Bongard, W. Maarse, H. Verkooijen*

PV-0259

● NETWORKING SESSION

**Speed Dating**

**10:00 - 11:45 | Ambra 3-4**

*Chairs: M.I. Bittner (United Kingdom) and C. Chargari (France)*



● JOINT SYMPOSIUM

**ESTRO-JASTRO: Clinical trials for particle therapy: which ones to run and how?**  
**10:30 - 11:45 | Auditorium**

The aim of this interdisciplinary session is to address the important topic of clinical trials for proton therapy. First, the importance of international research networking to design and perform trials cannot be overexpressed. High-quality data collection is key in producing high-quality data that particle therapy is critically lacking. Second, quality assurance (QA) performed within the framework of a clinical trial, as in conventional radiotherapy, assures that particle radiation is delivered accurately as per protocol and consistently between accruing centers. Fundamental questions such as to why QA is needed for clinical trials with particles, what is currently being done for particle trials by clinical trial QA groups and most importantly what is missing in the QA process relating to particles. From a radiobiological point of view the limitations of current RBE models and their implication for clinical particle trials are important and should be debated. Finally, an overview of clinical trials in carbon ion therapy will be given in the final talk.

*Chair: D.C. Weber (Switzerland)*

*Chair: Y. Nagata (Japan)*

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|---|----------------|
| 10:30 > International collaborations in proton therapy: networks, trials and data collection<br><i>Speaker: C. Grau (Denmark)</i> | <b>SP-0260</b> |
| 10:48 > Trial quality assurance and audits for proton therapy<br><i>Speaker: C. Clark (United Kingdom)</i>                        | <b>SP-0261</b> |
| 11:06 > Limitations of current RBE models and their implication for clinical trial design<br><i>Speaker: N. Matsufuji (Japan)</i> | <b>SP-0262</b> |
| 11:18 > Clinical trials on carbon ion radiotherapy for locally advanced pancreatic cancer<br><i>Speaker: T. Ohno (Japan)</i>      | <b>SP-0263</b> |

● PROFFERED PAPERS

**RB3: Tumour sensitization**

**10:30 - 11:45 | Brown 1**

*Chair: C. Limoli (USA)*

*Chair: D. Martin (Germany)*

- 10:30 > CDK4/CDK6 inhibition radiosensitises HPV-neg HNSCC through inhibition of homologous recombination

*E. Gottgens (The Netherlands), K. Leszczynska, J. Bussink, E. Hammond, P. Span*

OC-0264

- 10:45 > MiR-205 enhances radiation sensitivity of prostate cancer cells through PKC $\epsilon$  and ZEB1 inhibition

*R. El Bezwany, S. Tinelli, A. Cicchetti, R. Valdagni, P. Gandellini, N. Zaffaroni (Italy)*

OC-0265

- 11:00 > Pancreatic ductal adenocarcinoma sensitization to radiotherapy by bioactive food components

*V. Vendrelly (France), S. Amintas, C. Noël, I. Moranvillier, I. Lamrissi, B. Rousseau, S. Coulibaly, A. Bedel, F. Moreau-Gaudry, E. Buscail, L. Chiche, G. Belleannée, C. Dupin, S. Dabernat*

OC-0266

- 11:15 > Imaging the effect of Atovaquone on the hypoxia-related marker CAIX in head and neck cancer models

*F. Huizing (The Netherlands), B.A. Hoeben, O.C. Boerman, S. Heskamp, J. Bussink*

OC-0267

- 11:30 > Intrinsic radiosensitivity, genomic-adjusted radiation dose and patterns of failure of penile cancer

*P. Johnstone (United States Minor Outlying Island), G.D. Grass, M. Azizi, K. Ahmed, G.S.J. Yoder, E. Welsh, W. Fulp, J. Dhillon, J. Torres-Roca, A. Giuliano, Z. Yuan, P. Spiess*

OC-0268

● PROFFERED PAPERS

**CL 5: Proffered papers: Randomised Clinical Trials**

**10:30 - 11:45 | Gold Plenary**

*Chair: C. Rödel (Germany)*

*Chair: V. Valentini (Italy)*

- 10:30 > A randomized phase III trial for alleviating radiation-induced xerostomia with chewing gum

*J.K. Kaae (Denmark), L. Stenfeldt, B. Hyrup, C. Brink, J.G. Eriksen*

OC-0269



- 10:42 > Antihormones with or without irradiation in breast cancer: 10-year results of the ABCSG 8A trial  
*G. Fastner (Austria), F. Sedlmayer, J. Widder, M. Metz, H. Geinitz, K. Kapp, L. Sölkner, R. Greil, R. Jakesz, W. Kwasny, D. Heck, V. Bjelic-Radisic, M. Balic, H. Stöger, U. Wieder, R. Zwrtek, D. Semmler, W. Horvath, E. Melbinger-Zeinitzer, M. Wiesholzer, V. Wette, M. Gnant* **OC-0270**
- 10:54 > First randomized study of Hafnium nanoparticles activated by radiotherapy in soft tissue sarcoma  
*S. Bonvalot (France), P. Rutkowski, J. Thariat, S. Carrere, M. Sunyach, E. Saada-Bouzid, P. Agoston, A. Hong, A. Mervoyer, M. Rastrelli, C. Le Pechoux, V. Moreno, R. Li, B. Tiangco, A. Casado Herraez, A. Gronchi, L. Mangel, P. Hohenberger, M. Delannes, Z. Papai* **OC-0271**
- 11:06 > Hypofractionated vs conventional radiotherapy for prostate cancer: 7 yr results from the HYPROtrial  
*L. Incrocci (The Netherlands), K. De Vries, R. Wortel, E. Oomen, W. Heemsbergen, F. Pos* **OC-0272**
- 11:18 > Organ preservation after chemoradiotherapy for rectal cancer: 5-year results of the GRECCAR2 trial  
*V. Vendrely (France), P. Rouanet, J. Tuech, A. Valverde, B. Lelong, M. Rivoire, J. Faucheron, J. Mehrdad, G. Portier, J. Asselineau, E. Frison, Q. Denost, E. Rullier* **OC-0273**
- 11:30 > 5x5 Gy and consolidation chemotherapy vs. chemoradiation for rectal cancer: a phase III study  
*K. Bujko (Poland), on behalf of the polish colorectal study group* **OC-0274**

### ● PROFFERED PAPERS

#### **CL 6: Proffered papers: Radiation and Targeted Agents**

**10:30 - 11:45 | Brown 3**

*Chair: A. Fiorentino (Italy)*

*Chair: M. Hecht (Germany)*

- 10:30 > Safety and efficacy of concurrent SRT and targeted- or immunotherapy for melanoma brain metastases  
*J. Heitmann (Switzerland), S.G.C. Kroese, O. Blanck, K.H. Kahl, S. Gerum, S.E. Combs, D. Kaul, A. Claes, M. Schymalla, A. Grosu, F. Eckert, F. Lohaus, N. Abbasi-Senger, G. Henke, M. Szuecs, M. Geier, N. Sundahl, D. Buergy, M. Guckenberger* **OC-0275**

- 10:40 > Stereotactic radiosurgery plus immunotherapy or targeted therapy for brain metastases from NSCLC  
*E. Olmetto (Italy), C. Delli Paoli, L.P. Ciccone, M. Perna, R. Grassi, S. Erika, S. Scoccianti, D. Greto, I. Desideri, G. Simontacchi, L. Marrazzo, C. Arilli, M. Casati, A. Compagnucci, G. Pecchioli, S. Pallotta, L. Livi*  
**OC-0276**
- 10:50 > Interim safety analysis of RAPPORT trial - SABR with pembrolizumab in oligometastatic RCC  
*S. Siva (Australia), M. Bressel, S. Sandhu, B. Tran, J. Mooi, J. Lewin, S. Loi, G. Toner, D. Moon, J. Goad, M. Shaw, S. Chander, T. Eade, A. Guminski, D. Jayamanne, D. Pryor, K. Cuff, S. Wood, N. Lawrentschuk, D. Murphy*  
**OC-0277**
- 11:00 > Radiation-induced lymphopenia: Fractionation effect and association with infections and mortality  
*C. Terrones Campos (Denmark), B. Ledergerber, I. Vogelius, M. Helleberg, L. Specht, J. Lundgren*  
**OC-0278**
- 11:10 > Concurrent and adjuvant effect of bevacizumab on hypofractionated tailor-made IMRT for glioblastomas  
*T. Iuchi (Japan), R. Hara, K. Hatano, T. Sugiyama, G. Togasaki, T. Setoguchi, Y. Hasegawa, M. Itami, T. Sakaida*  
**OC-0279**
- 11:20 > ReRT with bevacizumab is related to lower rate of radionecrosis as reRT alone for recurrent glioma  
*D. Fleischmann (Germany), J. Jenn, S. Corradini, V. Ruf, R. Forbrig, M. Unterrainer, N. Thon, F.W. Kreth, C. Belka, M. Niyazi*  
**OC-0280**
- 11:30 > Phase I/II trial of hafnium oxide nanoparticles activated by SBRT in the treatment of liver cancers  
*E. Chajon (France), M. Pracht, T. De Baere, F. N'Guyen, J. Bronowicki, V. Vendrelly, A. Baumann, V. Croisé-Laurent, E. Rio, Y. Rolland, S. Le Sourd, P. Gustin, C. Perret, F. Mornex, D. Peiffert, P. Merle, E. Deutsch*  
**OC-0281**

● PROFFERED PAPERS

**BT 3: Prostate HDR brachytherapy**

**10:30 - 11:45 | Brown 2**

*Chair: C. Salembier (Belgium)*

*Chair: J. Van der Voort - van Zyp (The Netherlands)*

- 10:30 > HDR brachytherapy Monotherapy for prostate cancer: a one-day schedule phase II trial acute toxicity  
*M. Jolicœur (Canada), T.V. Nguyen, T. Derashodian, E. Hill, M. Mondat, M. Nachabe, E. Antebi, G. Wakil, R. Héliou*  
**OC-0282**

10:40 > Pattern of relapse and dosimetric analysis of a single dose 19Gy HDR-brachytherapy phase II trial <i>A. Gomez-Iturriaga (Spain), D. Buchser, P. Minguez, J.M. Espinosa, F. Perez, J. Cacicedo, F. Suarez, A. Gonzalez, P. Bilbao, F. Casquero</i>	OC-0283
10:50 > Radiomic and dosimetric analysis of urethral strictures following prostate HDR monotherapy <i>Y.M. Tsang (United Kingdom), D. Vignarajah, A. Mcwilliam, H. Tharmalingam, A. Choudhury, P. Hoskin</i>	OC-0284
11:00 > Clinical outcomes of focal salvage high-dose-rate brachytherapy for radiorecurrent prostate cancer <i>M. Peters (The Netherlands), M.J. Van Son, M.A. Moerland, J.J.W. Lagendijk, J.R.N. Van der Voort van Zyp</i>	OC-0285
11:10 > Focal high-dose-rate brachytherapy for localized prostate cancer: long-term clinical follow-up <i>M. Van Son (The Netherlands), M. Peters, M.A. Moerland, J.J.W. Lagendijk, J.R.N. Van der Voort van Zyp</i>	OC-0286
11:20 > Dose to the dominant intraprostatic lesion using HDR vs. LDR monotherapy: Phase II Randomized trial <i>J. Crook (Canada), D. Batchelar, M. Hilts, D. Anderson, F. Bachand, S. Tissaverasinghe, B. Farnquist, T. Bainbridge, C. Araujo</i>	OC-0287
11:30 > Long-term results of 15Gy HDRBT boost in intermediate risk-prostate cancer: Analysis of 500+ patients <i>L. Mendez (Canada), K. Martell, H. Chung, C. Tseng, Y. Alayed, P. Cheung, S. Liu, D. Vesprini, W. Chu, E. Szumacher, A. Ravi, A. Loblaw, G. Morton</i>	OC-0288

### ● PROFFERED PAPERS

#### PH 5: Proffered paper: Innovations in dosimetry and dose measurements

10:30 - 11:45 | Space 1-2

Chair: *L. De Prez (The Netherlands)*

Chair: *A. Latorre Musoll (Spain)*

10:30 > A water calorimeter as a primary standard for absorbed dose in magnetic fields <i>L. De Prez (The Netherlands), J. De Pooter, B. Jansen, S. Woodings, J. Wolthaus, B. Van Asselen, T. Van Soest, J. Kok, B. Raaymakers</i>	OC-0289
10:40 > Consistency of PTW30013 and FC65-G ion chamber magnetic field correction factors <i>S. Woodings (The Netherlands), B. Van Asselen, T. Van Soest, L. De Prez, J. Lagendijk, B. Raaymakers, J. Wolthaus</i>	OC-0290

- 10:50 > Development of a deformable phantom for validation of adaptive irradiation methods in MRgRT  
*A. Elter (Germany), S. Dorsch, P. Mann, A. Runz, W. Johnen, S. Klüter, C.P. Karger*
- OC-0291
- 11:00 > When we have to apply volume corrections in dosimetry?  
*K. Zink (Germany), C. Andersen, L. De Prez, F. Delauny, S. Duane, C. Gomà, M. Pimpinella, P. Teles, J. Tikkainen, M. Pinto*
- OC-0292
- 11:10 > Cerenkov emission-based dosimetry is a promising perturbation-free technique  
*Y. Zlateva (Canada), B. Muir, I. El Naqa, J. Seuntjens*
- OC-0293
- 11:20 > Separating initial and general recombination in reference dosimetry of proton pencil beam scanning  
*J.B. Christensen (Denmark), E. Almhagen, L. Stolarczyk, M. Liszka, A. Vestergaard*
- OC-0294
- 11:30 > Comparison of PENH, FLUKA and Geant4/TOPAS for radiation transport calculations in proton beams  
*K. Baumann (Germany), F. Horst, K. Zink, C. Gomà*
- OC-0295

● PROFFERED PAPERS

**PH 6: Proffered paper: X-ray guided tumour tracking**

**10:30 - 11:45 | Space 3-4**

*Chair: M. Aznar (United Kingdom)*

*Chair: S. Russo (Italy)*

- 10:30 > Validation of motion-including dose reconstruction on a ground-truth time-resolved moving anatomy  
*J. Bertholet (United Kingdom), B. Eiben, M.J. Menten, E.H. Tran, D.J. Hawkes, S. Nill, J.R. McClelland, U. Oelfke*
- OC-0296
- 10:40 > Detailed PTV margin assessment for liver SBRT with CBCT-guidance or realtime monitoring and gating  
*E. Worm (Denmark), R. Hansen, M. Hoyer, J. Bertholet, B. Weber, A. Dolcet, P.R. Poulsen*
- OC-0297
- 10:50 > MLC tracking for lung cancer SABR is clinically feasible: results of first-in-human clinical trial  
*J. Booth (Australia), V. Caillet, A. Briggs, N. Hardcastle, D. Jayamanne, K. Szymura, O. Ricky, T. Eade, P. Keall*
- OC-0298
- 11:00 > Fully automatic detection of heart irradiation in cine MV images during breast cancer radiotherapy  
*P.R. Poulsen (Denmark), M.S. Thomsen, R. Hansen, E. Worm, E. Yates, H. Spejlborg, B. Offersen*
- OC-0299



- 11:10 > Experimental validation of an MLC tracking treatment simulator with dose reconstruction

*A. Hagner (Denmark), T. Ravkilde, S. Skouboe, C.G. Muurholm, R. Hansen, E.S. Worm, P.R. Poulsen*

OC-0300

- 11:20 > Real-time kV image guidance in the treatment of pancreatic SBRT: quantifying the purpose and impact

*B. Jones (USA), Y. Vinogradskiy, W. Campbell, Y. Ding, T. Schefter, K. Goodman, M. Miften*

OC-0301

- 11:30 > Dose-guided motion management during liver SBRT delivery using real-time reconstructed tumor DVHs

*C.G. Muurholm (Denmark), T. Ravkilde, S. Skouboe, E. Worm, R. Hansen, M. Høyér, P.J. Keall, P.R. Poulsen*

OC-0302

#### ● PROFFERED PAPERS

#### RTT 3: Impact of variations on treatment planning

10:30 - 11:45 | Ambra 1-2

Chair: M. Mascalchin (Italy)

Chair: L. Shelley (United Kingdom)

- 10:30 > Dosimetric benefit of a clinically applied adaptive plan selection strategy for rectal cancer

*R. De Jong (The Netherlands), J. Visser, N. Van Wieringen, K. Crama, J. Wiersma, D. Geijzen, A. Bel*

OC-0303

- 10:45 > Dosimetric impacts of VMAT FFF large-field on standard dose fractionation

*D. Julian (France), S. Muraro, O. Lauche, A. Moustamia, K. Serre*

OC-0304

- 11:00 > Organ sparing potential and inter-fraction robustness of IMPT for cervical cancer

*E.M. Gort (The Netherlands), J.C. Beukema, M.J. Spijkerman-Bergsma, S. Both, J.A. Langendijk, W.P. Matysiak, C.L. Brouwer*

OC-0305

- 11:15 > Using CBCT and VelocityTM Software for delivered dose verification during head and neck radiotherapy

*L. Hay (United Kingdom), A. Duffton, P. McLoone, E. Miguel, S. Currie, C. Paterson*

OC-0306

- 11:30 > Feasibility of cardiac sparing in isotoxic dose escalated radiotherapy for NSCLC

*L. Turtle (United Kingdom), A. Willett, J. Leadbetter, M. Brada, J. Fenwick*

OC-0307

● POSTER VIEWING

**Poster viewing 6: Radiobiological modelling and quantitative imaging**

**10:30 - 11:45 | Poster area**

*Chair: M. Philippens (The Netherlands)*

*Chair: I.R. Vogelius (Denmark)*

- > MRI based radiomics improves prognostic assessment in soft tissue sarcoma patients  
*J. Peeken (Germany), A. Ott, M.B. Spraker, D. Münzel, M. Devecka, A. Thamer, M.A. Shouman, F. Nüsslin, N.A. Mayr, M.J. Nyflot, S.E. Combs*
- > Pretreatment ADC does not predict local recurrences in head and neck squamous cell carcinoma  
*B. Peltenburg (The Netherlands), J. Driessen, J. Vasmel, R. De Bree, C. Terhaard, M. Philippens*
- > A field strength independent MR radiomics model for pathological complete response in rectal cancer  
*D. Cusumano (Italy), G. Meijer, J. Lenkowicz, G. Chiloiro, L. Boldrini, C. Masciocchi, N. Dinapoli, R. Gatta, C. Casà, A. Damiani, B. Barbaro, G. Maria Antonietta, L. Azario, M. De Spirito, M. Intven, V. Vincenzo*
- > MRI-based tumour control probability model in particle therapy  
*G. Buizza (Italy), S. Molinelli, E. D'ippolito, G. Fontana, L. Anemoni, L. Preda, G. Baroni, F. Valvo, C. Paganelli*
- > Distributed learning in radiomics to predict overall survival in Head and Neck cancer  
*M. Bogowicz (Switzerland), A. Jochems, S.H. Huang, B. Chan, J.N. Waldron, B. O'Sullivan, S. Tanadini-Lang, O. Riesterer, G. Studer, J. Unkelbach, R.H. Brakenhoff, I. Nauta, S.E. Gazzani, G. Calareso, K. Scheckenbach, F. Hoebers, S. Barakat, S. Keek, S. Sanduleanu, M. Vergeer, R.C. Leemans, C.H. Terhaard, M.W. Van den Brekel, M. Guckenberger, P. Lambin*
- > Ventilation functional lung volumes obtained from SPECT and 4D-CT do not identify the same voxels  
*T. Nyeng (Denmark), L. Hoffmann, K.P. Farr, A.A. Khalil, C. Grau, D.S. Møller*
- > Machine learning helps identifying relations and confounding factors in radiomics-based models  
*A. Traverso (The Netherlands), M. Kazmierski, L. Wee, A. Dekker, M. Welch, A. Hosni, D. Jaffray, A. Hope*

PV-0308

PV-0309

PV-0310

PV-0311

PV-0312

PV-0313

PV-0314

- > A risk assessment method including credible intervals for lymphatic metastatic spread for HNSCC  
*B. Pouymayou* (Switzerland), O. Riesterer, M. Guckenberger, J. Unkelbach

PV-0315

- > Deep Learning Based Automatic Grading of Colon Cancer in Digitized Histopathology Images  
*S. Chen* (China), J. Wang, W. Hu, Z. Zhang, M. Zhang, M. Xu, D. Huang, W. Sheng

PV-0316

● PROFFERED PAPERS

**BT 4: Breast and Skin brachytherapy**

**10:30 - 11:45 | Ambra 5-6**

*Chair: C. Gutiérrez Miguélez* (Spain)

*Chair: K. Lössl* (Switzerland)

- 10:30 > 2nd Conservative Treatment for 2nd Breast Tumor Event: GEC-ESTRO Breast Cancer WG updated results

*J. Hannoun-Levi* (France), K. Daniele, G. Benjamin, G. Jocelyn, S. Renaud, P. Csaba, G. Cristina, N. Pieter, G. Ravzan, L. Kristina, P. Bulent, K. Georgy, V.L. Erick, S. Vratislav

OC-0317

- 10:42 > 10-year clinical and cosmetic outcomes of high-dose-rate brachytherapy for early breast cancer

*E. Arcidiacono* (Italy), F. Trippa, P. Anselmo, M. Italiani, M. Casale, L. Draghini, S. Fabiani, A. Di Marzo, S. Terenzi, E. Maranzano

OC-0318

- 10:54 > Twelve-year clinical outcomes with APBI with interstitial multicathether brachytherapy after BCS

*S. Kellas-Sleczka* (Poland), B. Bialas, P. Wojcieszek, A. Cholewka, M. Szlag, M. Fijalkowski, T. Krzysztofiak, K. Trzaska, A. Pruefer, L. Piotr, M. Wesołowski, B. Lange

OC-0319

Comparing toxicities between multicatheter brachytherapy and whole breast external beam radiotherapy

Abstract withdrawn

OC-0320

- 11:06 > Phase I-II multicenter trial Very Accelerated Partial Breast Irradiation (VAPBI): early effects

*J. Guinot* (Spain), V. Gonzalez-Perez, N. Meszaros, C. Polgar, T. Major, M.A. Santos, D. Najjar, C. Gutierrez

OC-0321

- 11:18 > HDR Skin applicator fabrication for clinical cases: handmade vs digitally designed and 3D printed

*S. Nic A Bhaird* (United Kingdom), R. Caines, C. Lee

OC-0322

11:30 > Perioperative interstitial high dose rate brachytherapy for keloids scars

*V. Vera Barragam (Spain), M. De Juan Marín, S. Blanco Parajón, J. Fernández García, G. Juan Rijo, A.I. Alonso García*

OC-0323

● PRESIDENTIAL SYMPOSIUM

**Presidential symposium**

**12:00 - 12:30 | Gold Plenary**

12:00 > Speaker: U. Ricardi (Italy)

SP-0324

● AWARD LECTURE

**C. Regaud award Lecture**

**12:30 - 13:00 | Gold Plenary**

12:30 > Chair: B. Slotman (The Netherlands)

12:35 > Is fractionation history?

Speaker: D. De Ruysscher (The Netherlands)

SP-0325

● SYMPOSIUM

**How to prevent burnout?**

**13:00 - 14:30 | Ambra 3-4**

Chair: J. Bibault (France)

Co-chair: J. Bertholet (United Kingdom)

13:00 > Perspectives on burnout in the medical professions

Speaker: P. Franco (Italy)

SP-0326

13:15 > The PRO BONO survey (PROject on Burn-Out in RadiatioN Oncology)

Speaker: P. Franco (Italy), V. Tesio, J. Bertholet, A. Gasnier, E. Gonzalez del Portillo, M. Spalek, J. Bibault, G. Borst, W. Van Elmpt, D. Thorwhart, L. Mullaney, K. Roe Redalen, L. Dubois, M. Bittner, C. Chargari, M. Lybeer, L. Castelli

OC-0327

13:30 > Report back from ESTRO mobility grants clinical: SRS & SBRT in the management of oligometastatic disease

Speaker: I. Zumbadze (Georgia)

SP-0328

13:45 > Report back from ESTRO mobility grants physics: Modelling Head and Neck Radiotherapy outcomes using radiomics biomarkers

Speaker: P. Kalendralis (The Netherlands), Z. Shi, J. Van Soest, A. Ryczkowski, J. Kaźmierska, J. Malicki, A. Dekker, L. Wee

SP-0329



- 14:00 > Science slam: To breathe or not to breathe. ESTRO Mobility Grant report  
*Speaker: S. Prcic (Slovenia)*

SP-0330

- 14:15 > Discussion

#### ● SYMPOSIUM

#### **The microbiome, inflammation and radiotherapy response**

**14:30 - 15:45 | Auditorium**

*Chair: M. Vooijs (The Netherlands)  
 Co-chair: A. Levy (France)*

- 14:30 > Gut microbiota SCFAs modulate dendritic cell antigen presentation and impact radiotherapy

*Speaker: A. Facciabene (USA), S. Rafail, M. Uribe-Herranz, C. Koumenis*

SP-0331

- 14:48 > The Microbiome and Cancer Therapies

*Speaker: V. Pazienza (Italy)*

SP-0332

- 15:06 > Immune effects of the microbiome on cancer treatment

*Speaker: M. Nuti (Italy)*

SP-0333

- 15:24 > The Microbiome and treatment side-effects

*Speaker: Y. Touchefeu (France)*

SP-0334

#### ● SYMPOSIUM

#### **Reducing the normal tissue effects of RT**

**14:30 - 15:45 | Brown 1**

Salivary glands and brain tend to be most negatively affected by radiation-induced complications. This symposium will focus on the role of stem cells in preserving salivary gland function through regenerative medicine-based intervention after treatment or by using high-precision radiotherapy techniques to spare the stem cell region during radiotherapy delivery. The mechanisms and clinical consequences of radiation-induced neurocognitive dysfunction will be discussed, including the identification of new molecular targets as well as the use of modern neuroimaging technologies.

*Chair: F. Paris (France)*

*Co-chair: L. Barazzuol (The Netherlands)*

- 14:30 > Stem cell replacement to overcome RT induced xerostomia

*Speaker: C. Von Buchwald (Denmark), C. Groenhoej, C.D. Lynggaard*

SP-0335

- 14:48 > Reducing normal tissue damage by sparing of stem cells using protons  
*Speaker: P. Van Luijk (The Netherlands)*

**SP-0336**

- 15:06 > Mechanisms of radiotherapy-induced neurocognitive decline  
*Speaker: L. Barazzuol (The Netherlands)*

**SP-0337**

- 15:24 > Neurocognition and brain irradiation  
*Speaker: S. Deprez (Belgium)*

**SP-0338**

● SYMPOSIUM

**Radiotherapy in the era of the silver Tsunami: Demographic characteristics of cancer patients**

**14:30 - 15:45 | Gold Plenary**

*Chair: J. Overgaard (Denmark)*

*Co-chair: J. Van Loon (The Netherlands)*

- 14:30 > Cancer epidemiology in Europe with focus on indications for RT  
*Speaker: J. Overgaard (Denmark)*

**SP-0339**

- 14:45 > Does normal tissue in the elderly have different sensitivity and tolerance/are tumors in elderly of different biology and shall they be treated differently  
*Speaker: C. Herskind (Germany)*

**SP-0340**

- 15:05 > Influence of age and comorbidity on outcome and compliance to RT  
*Speaker: C.R. Boeje (Denmark), J. Overgaard*

**SP-0341**

- 15:25 > From geriatric assessment in radiation oncology to interventions: experience from the PIVOG trial  
*Speaker: D. Vordermark (Germany)*

**SP-0342**

● DEBATE

**This house believes that margin reduction is the key to improved outcome**

**14:30 - 15:45 | Brown 3**

*Chair: V. Kouloulias (Greece)*

*Co-chair: A.L. Appelt (United Kingdom)*

- 14:30 > For the motion  
*V. Grégoire (France)*

- 14:45 > Against the motion  
*E. Sterpin (Belgium)*



- 15:00 > For the motion  
*M. Van Herk (United Kingdom)*
- 15:15 > Against the motion  
*E. Troost (Germany)*
- 15:30 > Discussion

● DEBATE

**Which is the best brachytherapy technique to deliver partial breast irradiation?**

**Pitfalls, results and current recommendations**

**14:30 - 15:45 | Brown 2**

*Chair: E. Van Limbergen (Belgium)*

*Co-chair: R. Galalae (Germany)*

- |   |         |
|---|---------|
| 14:30 > Postoperative multicatheter brachytherapy<br><i>Speaker: J. Hannoun-Levi (France)</i>                                       | SP-0343 |
| 14:45 > Intraoperative multicatheter brachytherapy<br><i>Speaker: K. Lössl (Switzerland)</i>  | SP-0344 |
| 15:00 > Single catheter balloon brachytherapy (Mammosite, Contura)<br><i>Speaker: P. Niehoff (Germany)</i>                          | SP-0345 |
| 15:15 > Single catheter brachytherapy (SAVI) - Pitfalls, results and current recommendations<br><i>Speaker: A. Chichel (Poland)</i> | SP-0346 |
| 15:30 > Discussion  |         |

● SYMPOSIUM

**Big data – big problems?**

**14:30 - 15:45 | Space 1-2**

*Chair: D. Sarrut (France)*

*Co-chair: T. Janssen (The Netherlands)*

- |   |         |
|---|---------|
| 14:30 > The need and potential for use of big data for research and development of radiotherapy<br><i>Speaker: L. Wee (The Netherlands), J. Van Soest, I. Bermejo, R. Fijten, A. Dekker</i> | SP-0347 |
| 14:55 > Challenges of collection, sharing and analysis of data at scale<br><i>Speaker: M. Modat (United Kingdom)</i>  | SP-0348 |
| 15:20 > Practicalities and issues of setting up the infrastructure to collect big data in a hospital environment<br><i>Speaker: G. Price (United Kingdom)</i>                               | SP-0349 |

● SYMPOSIUM

**From grid therapy to microbeam radiotherapy**

**14:30 - 15:45 | Space 3-4**

Invited speakers will cover the challenges of different clinical implementations of spatially fractionated radiation therapy (SFRT). Dr Schültke will address the origins of GRID therapy and discuss the use of synchrotron-generated x-ray microbeam (MRT) in SFRT. Dr Prezado will instead discuss the use of charged particles in minibeam (MBRT) and its potential advantage over MRT. Dr Lye will talk about the absolute dosimetry challenges in a synchrotron beam focusing on reference dosimetry in MRT and the choice of appropriate detectors. Finally, Dr Bartzsch will discuss the use of compact sources as well as the challenges of treatment planning in MRT.

*Chair: J. Cashmore (United Kingdom)*

*Co-chair: M. Zeverino (Switzerland)*

- 14:30 > Introduction to microbeam radiation therapy: radiosurgical grid therapy at the microscopic scale

*Speaker: E. Schültke (Germany)*

SP-0350

- 14:48 > Spatial fractionation of the dose: from photons to charged particles

*Speaker: Y. Prezado (France)*

SP-0351

- 15:06 > Dosimetry measurement in microbeam therapy

*Speaker: J. Lye (Australia), P. Harty, D. Butler*

SP-0352

- 15:24 > Compact microbeam sources and microbeam treatment planning

*Speaker: S. Bartzsch (United Kingdom)*

SP-0353

● SYMPOSIUM

**Focus on the lung**

**14:30 - 15:45 | Ambra 1-2**

In this session adaptive radiotherapy in the treatment of lung cancer patients will be discussed. The session will start with a clinical overview of implementing image-guided adaptive radiotherapy in the treatment of lung cancer patients. With focus on the dosimetric and clinical outcome. After that practical guidelines will be highlighted how to evaluate the CBCT images and adapt the treatment plans following a specific workflow. The third speaker will weigh the benefits of IGRT and DIBH for motion management, compared to its limitations and evaluate on the feasibility of clinical implementation.



*Chair: M. Mast (The Netherlands)*  
*Co-chair: A. Botticella (France)*

- 14:30 > Image-guided adaptive radiotherapy in the treatment of lung cancer patients

*Speaker: M. Tvilum (Denmark), M. Marquard Knap, L. Hoffmann, A. Ahmed Khalil, C.M. Lutz, D. Sloth Møller*

SP-0354

- 14:55 > Selection of lung cancer patients for adaptive radiotherapy using cone-beam CT imaging

*Speaker: D. Hattu (The Netherlands)*

SP-0355

- 15:20 > Image-guided radiotherapy and motion management in lung cancer

*Speaker: V. Remberg Gram (Denmark)*

SP-0356

● SYMPOSIUM

**Stronger together - news and projects in the young national societies**

**14:30 - 15:45 | Ambra 3-4**

In this session, we will explore the perspectives of the young national societies from Poland, Spain and Romania and of the young radiation oncology group (YRROG) of the EORTC. The main focus will be on the following questions: How did the groups establish themselves and what were the main developments and projects since? Where do these young clinical and scientific societies see their contributions to the field of radiation oncology? What are their current and planned projects, with a particular emphasis on collaborative projects with other young academic groups?

The speakers will address these questions in their lectures, followed by a panel discussion focussing on how to strengthen cooperation and collaboration in our field between young researchers and practitioners and their respective associations across Europe.

*Chair: N. Ebert (Germany)*  
*Co-chair: O. Kaidar-Person (Israel)*

- 14:30 > Perspective of an established young society: the Spanish Young Society

*Speaker: V. Morillo (Spain), R. Hernanz*

SP-0357

- 14:45 > An emerging young society: Young Romanian Radiotherapists and Oncologists Group (YRROG)

*Speaker: M. Zerbea (Romania)*

SP-0358

- 15:00 > Creating a new young radiation oncology society - the case of Poland  
*Speaker: M. Spalek (Poland)*
- 15:15 > Working together across borders: Young Academics in Radiation Oncology  
*Speaker: C. Ostheimer (Germany)*
- 15:30 > Panel discussion

SP-0359

SP-0360

● POSTER VIEWING

**Poster viewing 7: CNS, Paediatrics, Haematology and Gynaecology**

**14:30 - 15:45 | Poster area**

*Chair: T. Boterberg (Belgium)*

*Chair: E. Fokas (Germany)*

- > Minor changes in neurocognition and quality of life after proton therapy for brain tumour patients

*A. Dutz (Germany), L. Agolli, C. Valentini, R. Bütof, E.G.C. Troost, M. Baumann, A. Lühr, M. Krause, S. Löck*

PV-0361

- > Long term outcomes of high-dose single-fraction radiosurgery for chordomas of the spine and sacrum

*C.J. Jin (USA), J. Berry-Candelario, A. Reiner, E. Lis, M. Bilsky, I. Laufer, A. Schmitt, D. Hlgginson, Y. Yamada*

PV-0362

- > Cognitive Outcomes after Conformal Radiotherapy in Pediatric Patients with Supratentorial Ependymoma

*M. Mizumoto (Japan), Y. Oshiro, S. Wu, T.E. Merchant*

PV-0363

- > Pulmonary function after high dose chemotherapy + total lung irradiation for pediatric Ewing sarcoma

*B. Diletto (Italy), E. Pecori, N. Puma, O. Alessandro, S. Meroni, M. Podda, A. Busia, F. Allegri, A.C. Ogliari, C. Materazzo, R. Boffi, E. Pignoli, R. Luksch, L. Gandola*

PV-0364

- > Adoption of expansion margins to reduce the dose received by coronary arteries in lymphoma patients

*V. De Luca (Italy), S. Bartocinini, M. Levis, E. Gallio, C. Cavallin, G.C. Iorio, R. Parise, C. Palladino, F.R. Giglioli, C. Fiandra, U. Ricardi*

PV-0365

- > Helical Total Lymphoid Irradiation: radiotherapy still works in lymphoma transplantation

*S. Vagge (Italy), F. Guolo, A. Dominietto, S. Agostinelli, M. Gusinu, A. Ibatici, F. Ballerini, R.M. Lemoli, E. Angelucci, M. Gobbi, R. Corvò*

PV-0366



- > TMLI-based low-toxic myeloablative conditioning regimen in haploidentical HSCT for AML

*C. Aristei, V. Lancellotta, A. Carotti, C. Zucchetti, S. Saldi (Italy), A. Pierini, L. Ruggeri, S. Piccinini, L. Amico, M. Iacco, A. Velardi, M.F. Martelli*

PV-0367

- > Persistence of late substantial patient reported symptoms (LAPERS): A report from the EMBRACE study

*A.S. Vittrup (Denmark), L.U. Fokdal, R. Pötter, S.M. Bentzen, J.C. Lindegaard, A. Sturzza, B. Segedin, K. Bruheim, I.M. Jürgenliemk-Schulz, U. Mahantshetty, B. Rai, C. Haie-Meder, R. Cooper, S. Marit, F. Huang, E. Van der Steen-Banasik, E. Villafranca, R.A. Nout, K. Tanderup, K. Kirchheimer*

PV-0368

- > Radiomics in Magnetic Resonance Imaging for prediction of radiotherapy outcomes in cervical cancer

*N. Thanamitsomboon (Thailand), N. Kosaisawe, K. Thephamongkhon, P. Dankulchai*

PV-0369

#### ● MULTIDISCIPLINARY TUMOUR BOARD

##### Prostate cancer

**14:30 - 15:45 | Ambra 5-6**

*Chair: V. Khoo (United Kingdom)*

- > yESTRO  
*S. Buus (Denmark)*
- > Medical Oncologist  
*M. Tucci (Italy)*
- > Radiation Oncologist  
*G. De Meerleer (Belgium)*
- > Urologist  
*A. Briganti (Italy)*
- > Diagnostic radiologist  
*G. Petralia (Italy)*

#### ● NETWORKING SESSION

Quiz and Young networking cocktail

**16:00 - 17:00 | The Stage**

● JOINT SYMPOSIUM

**ESTRO-ASTRO: Translating discovery to cure**  
16:15 - 17:30 | Auditorium

In this joint ESTRO-ASTRO session, a number of very exciting developments will be addressed. These included immunotherapy and the integration of immunotherapy with radiotherapy, development and implementation of the MRI-linac and adaptive radiotherapy, and the use of hypofractionation in breast cancer. These topics will be addressed by four excellent speakers who will not only address the basic aspects, but also the translation into clinical practice.

*Chair: B. Slotman (The Netherlands)*

*Chair: T. Eichler (USA)*

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|---|---------|
| 16:15 > Integrating Immunotherapy with Radiation<br><i>Speaker: J. Schoenfeld (USA)</i>   | SP-0370 |
| 16:33 > A retrospective overview and future perspectives of developments in MRgRT<br><i>Speaker: J. Lagendijk (The Netherlands)</i> | SP-0371 |
| 16:51 > Real Time Adaptive Radiation, Lessons from Clinical Practice Teams<br><i>Speaker: M. Bassetti (USA)</i>                     | SP-0372 |
| 17:09 > Fractionation and breast cancer: towards more efficient schedules<br><i>Speaker: J.R. Yarnold (United Kingdom)</i>          | SP-0373 |

● PROFFERED PAPERS

**RB 4: Normal tissue effects of radiotherapy**

16:15 - 17:30 | Brown 1

*Chair: M. Vozenin (Switzerland)*

*Chair: V. Jendrossek (Germany)*

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|--|---------|
| 16:15 > GWAS identifies new susceptibility loci for late toxicity following prostate cancer radiotherapy<br><i>C. West (United Kingdom), S. Kerns, L. Dorling, G. Barnett, D. Dearnaley, L. Fachal, L. Veldeman, M. Parliament, A. Vega, A. Dunning, B. Rosenstein</i> | OC-0374 |
| 16:27 > Improving lung cancer outcome by reducing normal lung tissue toxicity<br><i>L. Giuranno (The Netherlands), E. Roig Moreno, R. Iannone, M. Vooijs</i>   | OC-0375 |



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|---------|---|----------------|
| 16:39 > | Radio-selective effects of natural occurring muscle-derived dipeptide in A549 and normal cell lines<br><i>N. Ybarra (Canada), J. Seuntjens</i>  | <b>OC-0376</b> |
| 16:51 > | Individual radiation toxicity prediction, how does mtDNA influence normal tissue response?<br><i>M. Van Gisbergen (The Netherlands), S. Masroor, E.E.J.M. Smeets, M.J. Verhesen, A.P.M. Stassen, L. Dubois, C. Oberije, H.J.M. Smeets, P. Lambin</i>      | <b>OC-0377</b> |
| 17:03 > | Regeneration after radiation and T cell-induced tissue injury is not enhanced by type III interferon<br><i>J. Fischer (Germany), C. Lin, S. Heidegger, A. Wintges, M. Schlapschy, M. Beudert, S.E. Combs, F. Bassermann, A. Skerra, T. Haas, H. Poeck</i> | <b>OC-0378</b> |
| 17:15 > | Radiation response mechanisms of mesenchymal stem cells in dependence on their tissue of origin<br><i>N. Nicolay (Germany), A. Rühle, R. Lopez Perez, R. Saffrich, S. Sisombath, T. Trinh, J. Debus, P.E. Huber</i>                                       | <b>OC-0379</b> |

**● PROFFERED PAPERS**

**CL 7: Proffered papers: GI**

**16:15 - 17:30 | Gold Plenary**

*Chair: K. Bujko (Poland)*

*Chair: F. Cellini (Italy)*

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|---------|--|----------------|
| 16:15 > | Dose response relation in esophageal cancer after neoadjuvant therapy: multi-institutional analysis<br><i>M. Thomas (Belgium), A.S. Borggreve, P.S. Van Rossum, C. Perneel, J. Moons, E. Van Daele, R. Van Hillegersberg, W. Deng, P. Pattyn, S. Mook, T. Boterberg, J.P. Ruurda, P. Nafteux, S.H. Lin, K. Haustermans</i> | <b>OC-0380</b> |
| 16:25 > | Benchmark case in the ongoing PRODIGE 26 trial: quality assurance of dose escalated radiotherapy<br><i>J. Boustanji (France), R. Rivin Del Campo, J. Blanc, D. Peiffert, K. Benezery, R. Pereira, E. Rio, E. Le Prisé, G. Créhange, F. Huguet</i>  | <b>OC-0381</b> |
| 16:35 > | Patterns of local failure after SBRT for pancreatic cancer: implications of target volume design<br><i>X. Zhu (China), C. Yangsen, Z. Xianzhi, S. Yuxin, J. Xiaoping, Q. Shuiwang, C. Fei, J. Zhen, F. Fang, G. Lei, Z. Huojun</i>   | <b>OC-0382</b> |

- 16:45 > Randomised controlled trial for dose-escalated radiotherapy in locally advanced rectal cancer

*A. Couwenberg (The Netherlands), H.M. Verkooijen, M. Berbee, J.P.M. Burbach, S. Hoendervangers, O. Reerink, M.E.P. Philippens, E.C.J. Consten, A.B. Smits, J. Heikens, N. Wijffels, A. Schiphorst, M. Lacle, F.J. Wessels, M. Koopman, W.M.U. Van Grevenstein, M.P.W. Intven*

OC-0383

- 16:55 > QoL after multimodal treatment of rectal cancer with/without oxaliplatin (phase 3, CAO/ARO/AIO-04)

*R. Kosmala (Germany), E. Fokas, M. Flentje, R. Sauer, T. Liersch, U. Graeven, R. Fietkau, W. Hohenberger, D. Arnold, R. Hofheinz, M. Ghadimi, H. Raab, P. Ströbel, L. Staib, G.G. Grabenbauer, G. Folprecht, W. Uter, C. Gall, C. Rödel, B. Polat*

OC-0384

- 17:05 > Gender associated differences in outcome after neoadjuvant chemoradiotherapy for rectal cancer

*S. Meltzer (Norway), K.M. Bakke, K.L. Rød, S. Dueland, K. Flatmark, A.T. Kristensen, F.O. Larsen, J.V. Schou, A.J. Fuglestad, C. Kersten, K.R. Redalen, A.H. Ree*

OC-0385

- 17:15 > A PET-based patterns of failure analysis in the context of contouring guidelines in anal cancer

*H. Dapper (Germany), K. Schiller, S. Münch, J. Peek, K. Born, W. Weber, S.E. Combs*

OC-0386

### ● PROFFERED PAPERS

#### CL 8: Proffered papers: Head and Neck

16:15 - 17:30 | Brown 3

Chair: J. Bourhis (Switzerland)

Chair: F. Duprez (Belgium)

- 16:15 > Radiotherapy with paclitaxel/cisplatin vs. fluorouracil/cisplatin for head and neck cancer

*R. Fietkau, M. Hecht, B. Hofner, H. Iro, O. Gefeller, C. Rödel, M. Hautmann, O. Kölbl, A. Salay, C. Rübe, P. Breinl, W. Krings, S. Gripp, B. Wollenberg, R. Keerl, U. Schreck, B. Siekmeyer, G.G. Grabenbauer, P. Balermpas (Switzerland)*

OC-0387

- 16:25 > A prospective multicenter DAHANCA study of hyperfractionated accelerated RT for Head and Neck cancer

*M. Saksø (Denmark), E. Andersen, J. Bentzen, M. Andersen, J. Johansen, J. Overgaard, J.G. Eriksen*

OC-0388



- 16:35 > Individualized prophylactic irradiation based on sentinel lymph node(s) identification in cN0 HNSCC  
*E. Longton (Belgium), G. Lawson, S. Deheneffe, B. Bihin, I. Mathieu, F. Hanin, T. Vander Borght, J. Daisne* **OC-0389**
- 16:45 > TCGA molecular subclassification is prognostic for LRC of HNSCC after postoperative RCTx  
*A. Linge (Germany), B. Tawk, S. Löck, M. Großer, F. Lohaus, V. Gudziol, A. Nowak, I. Tinhofer, V. Budach, M. Stuschke, P. Balermpas, C. Rödel, H. Schäfer, A. Grosu, J. Debus, U. Ganswindt, C. Belka, S. Pigorsch, S.E. Combs, D. Mönnich, D. Zips, G.B. Baretton, A. Abdollahi, M. Krause, M. Baumann* **OC-0390**
- 16:55 > Treatment outcome of 265 patients with sinonasal adenoid cystic carcinoma (ACC)  
*S. Akbaba (Germany), D. Ahmed, A. Mock, K. Lang, T. Held, K. Herfarth, S. Rieken, P. Plinkert, J. Debus, S. Adeberg* **OC-0391**
- 17:05 > Risk of ischemic cerebrovascular events is associated with carotid artery radiation dose  
*E. Van Aken (The Netherlands), H. Bijl, H.P. Van der Laan, L. Van den Bosch, A. Van den Hoek, M. Dieters, R. Steenbakkers, H. Langendijk* **OC-0392**
- 17:15 > Impact of sarcopenia on survival and late toxicity in head and neck cancer patients treated with RT  
*I. Van Rijn - Dekker (The Netherlands), L. Van den Bosch, A. Van den Hoek, H. Bijl, M. Dieters, E. Van Aken, H.P. Van der Laan, H. Langendijk, R. Steenbakkers* **OC-0393**

### ● PROFFERED PAPERS

#### **BT 5: Optimising dose distribution**

**16:15 - 17:30 | Brown 2**

*Chair: A. De Leeuw (The Netherlands)*

*Chair: G. Fröhlich (Hungary)*

- 16:15 > Brachytherapy quality assurance in the PORTEC-4a trial for high-intermediate risk endometrial cancer  
*B. Wortman (The Netherlands), E. Astreinidou, M. Laman, L. Lutgens, E. Van der Steen-Banasik, A. Slot, H. Westerveld, K. De Winter, H. Van den Berg, M. Bloemers, T. Stam, J. Mens, L. Zwanenburg, S. Bijmolt, I. Jürgenliemk-Schulz, A. Snyers, C. Creutzberg, R. Nout* **OC-0394**
- 16:25 > Bi-objective optimization of dosimetric indices for HDR prostate brachytherapy within 30 seconds  
*A. Bouter (The Netherlands), T. Alderliesten, B.R. Pieters, A. Bel, Y. Niatsetski, P.A.N. Bosman* **OC-0395**

- 16:35 > Robust HDR prostate brachytherapy planning accounting for organ reconstruction settings  
*M.C. Van der Meer (The Netherlands), P.A.N. Bosman, B.R. Pieters, Y. Niatsetski, T. Alderliesten, A. Bel*  
**OC-0396**
- 16:45 > Intensity modulated brachytherapy for prostate cancer: plan quality, robustness and delivery time  
*G. Famulari (Canada), S.A. Enger*  
**OC-0397**
- 16:55 > Clinical introduction of 3D printed applicators for endocavitary and interstitial brachytherapy  
*W. Bazen, P. Kroon, R. Moerland, S. Van de Vegt (The Netherlands), P. Mulder, R. Schokker, K. Van Vliet - van den Ende, S. Kloosterman, H. Dehnad*  
**OC-0398**
- 17:05 > Comparison of high-dose interstitial brachytherapy vs. stereotactic treatment in patients with HCC  
*F. Walter (Germany), S. Gerum, J. Well, R. Shpani, N. Lukas, M. Cornelius, F. Streitparth, J. Ricke, C. Belka, S. Corradini*  
**OC-0399**
- 17:15 > Are prostate contours affected by the RO's clinical experience in prostate HDR brachytherapy?  
*H. Lavoie-gagnon (Canada), E. Poulin, A. Martin, L. Pilote, E. Vigneault, W. Foster, L. Archambault, F. Lacroix*  
**OC-0400**

● PROFFERED PAPERS

**PH 7: Proffered paper: Outcome modelling**

**16:15 - 17:30 | Space 1-2**

*Chair: T. Rancati (Italy)*

*Chair: C. Rønn Hansen (Denmark)*

- 16:15 > Pre-treatment radiomic features predict individual nodal failure in head and neck cancer  
*T. Zhai (The Netherlands), R.J.H.M. Steenbakkers, L.V. Van Dijk, J.G.M. Verner-van den Hoek, H.P. Bijl, M. Dieters, W. Noordzij, A. Van der Schaaf, N.M. Sijtsema, J.A. Langendijk*  
**OC-0401**
- 16:25 > Tumour blood perfusion from baseline contrast-based MRI predicts radiation outcome in rectal cancer  
*K. Bakke (Norway), S. Meltzer, E. Grøvik, A. Negård, H. Stein Harald, A. Hansen Ree, K. Gjesdal, K. Røe Redalen*  
**OC-0402**
- 16:35 > Type 4 TRIPoD external validation of a larynx survival model  
*C. Rønn Hansen (Denmark), N. Sarup, R. Zukauskaite, J. Johansen, J.G. Eriksen, S.L. Krogh, A. Bertelsen, D.I. Thwaites, U. Bernchou, C.*  
**OC-0403**



- |         |   |                |
|---------|---|----------------|
| 16:45 > | Dose to vascular calcifications is predictive for overall survival in lung cancer patients<br><i>E.M. Vasquez Osorio</i> (United Kingdom), F. Brewster, A. McWilliam, A. Scaife, K. Banfill, A. Abravan, D. Cobben, C. Faivre-Finn, M. Van Herk           | <b>OC-0404</b> |
| 16:55 > | Registry-based modelling of early mortality following radiotherapy of lung cancer<br><i>L. Stervik</i> (Sweden), N. Pettersson, J. Scherman, C.F. Behrens, C. Ceberg, S. Engelholm, G.F. Persson, M. Pøhl, A. Hallqvist, J. Nyman, I.R. Vogelius, A. Böck | <b>OC-0405</b> |
| 17:05 > | Early survival prediction in non-small cell lung cancer with PET/CT size aware longitudinal pattern<br><i>M. Astaraki</i> (Sweden), C. Wang, G. Buizza, I. Toma-Dasu, M. Lazzeroni, Ö. Smedby   | <b>OC-0406</b> |
| 17:15 > | CT-based Radiomics for Risk Stratification in Prostate Cancer<br><i>S. Osman</i> (United Kingdom), R.T.H. Leijenaar, A.J. Cole, A.R. Hounsell, K.M. Prise, J.M. O'Sullivan, P. Lambin, C.K. McGarry, S. Jain  | <b>OC-0407</b> |

#### ● PROFFERED PAPERS

##### **PH 8: Proffered paper: Handling intra-fraction motion in MR guided RT**

**16:15 - 17:30 | Space 3-4**

*Chair: P. Keall* (Australia)

*Chair: J. Bertholet* (United Kingdom)

- |         |  |                |
|---------|--|----------------|
| 16:15 > | Impact of bladder filling on the magnitude of prostate intra-fraction motion assessed in 3D Cine-MR<br><i>H. De Boer</i> (The Netherlands), D.M. De Muinck Keizer, J.R.N. Voort van Zyp, N.A.T. Van den Berg, F.J. Pos, U.A. Van der Heide, B.W. Raaymakers, J.J.W. Lagendijk, L.G.W. Kerkmeijer | <b>OC-0408</b> |
| 16:25 > | Comparison of different strategies to derive time-resolved volumetric MRI in MRI-guided radiotherapy<br><i>C. Paganelli</i> (Italy), S. Portoso, N. Garau, G. Meschini, R. Via, P. Keall, M. Riboldi, G. Baroni  | <b>OC-0409</b> |
| 16:35 > | Soft-tissue based on-line prostate motion assessment in 4D Cine-MR for MR-Linac treatments<br><i>D. De Muinck Keizer</i> (The Netherlands), L.G.W. Kerkmeijer, M. Maspero, J.R.N. Van der Voort van Zyp, C.A.T. Van den Berg, B.W. Raaymakers, J.J.W. Lagendijk, H.C.J. De Boer                  | <b>OC-0410</b> |
| 16:35 > | Geometric efficacy of breath-hold gated MR-guided SABR for adrenal metastases<br><i>J. Van Sornsen de Koste</i> (The Netherlands), M. Palacios, A. Bruynzeel, F. Spoelstra, B. Slotman, F. Lagerwaard, S. Senan  | <b>OC-0411</b> |

16:45 > Dosimetric impact of marker-based intrafraction motion from cine-MRI in prostate SBRT <i>C. Kontaxis</i> (The Netherlands), D. De Muinck Keizer, L. Kerkmeijer, H. De Boer, B. Raaymakers	OC-0412
16:55 > MR-derived signals for respiratory motion models evaluated using sagittal and coronal datasets <i>E.H. Tran</i> (United Kingdom), B. Eiben, A. Wetscherek, U. Oelfke, G. Meedt, D.J. Hawkes, J.R. McClelland	OC-0413
17:05 > Intrafraction displacement of breast tumor (bed) and individual axillary lymph nodes on cine MRI <i>M. Groot Koerkamp</i> (The Netherlands), H.J.G.D. Van den Bongard, M.E.P. Philippens, J.J.W. Lagendijk, A.C. Houweling	OC-0414
<b>● PROFFERED PAPERS</b>	
<b>RTT 4: Reducing uncertainties in volume definition</b>	
<b>16:15 - 17:30   Ambra 1-2</b>	
Chair: TBC	
Chair: D. Bodusz (Poland)	
16:15 > MERINO study: Defining a standardised delineation method for repeated GTV assessment using DW MRI <i>A. Duffton, I. McCrea, S. Allwood-Spiers, L. Hay, L. Devlin, M. Sankaralingam, M. Thomson, P. McLoone, M. McJury, J. Foster, C. Paterson</i> (United Kingdom)	OC-0415
16:25 > Assessing the quality of oesophageal cancer target volume delineation in the SCOPE1 trial <i>S. Cox</i> (United Kingdom), S. Gwynne, J. Staffurth, T. Crosby	OC-0416
16:35 > Impact of CT myelogram vs. MR imaging on spinal cord delineation in spine stereotactic radiosurgery <i>C.J. Jin</i> (USA), N. Tyagi, E. Lis, M. Patel, J. Haseltine, P. McLaughlin, X. Cai, X. Huang, Y. Yamada	OC-0417
16:45 > Residual misalignment of supraclavicular lymph nodes for NSCLC patients, to determine GTV-PTV margin <i>J. Stam, S. Gerretsen</i> (The Netherlands), R. De Haan, J. Belderbos, E. Damen, P. Remeijer	OC-0418
16:55 > Evaluation of Metabrain: a semi-automated delineation tool for edema surrounding brain metastasis <i>Y. Pin</i> (France), D. Antoni, A. Keller, P. Truntzer, J. Clavier, O. Schaeffer, M. Schmitt, W. Waissi, G. Noël	OC-0419





- 17:05 > How accurate is automatic determination of the Mid-Ventilation position and tumour motion?

*A. Van Nunen (The Netherlands), D. Schuring*

OC-0420

- 17:15 > Stage migration in planning PET/CT scans in lung cancer patients referred to radiochemotherapy

*S. Kivistik (Estonia), L. Randle, M. Vardja, A. Aasa, J. Jaal*

OC-0421

#### ● POSTER VIEWING

#### Poster viewing 8: TP Developments

16:15 - 17:30 | Poster area

Chair: U. Oelfke (United Kingdom)

Chair: P. Aljosa (Slovenia)

- > Consequences of respiratory motion variability in lung 4DMRI datasets

*M. Krieger (Switzerland), A. Giger, D.C. Weber, A.J. Lomax, Y. Zhang*

PV-0422

- > Fast automated IMRT sequencing using deep-learned dose from generative adversarial networks

*C. Kontaxis (The Netherlands), G. Bol, J. Lagendijk, B. Raaymakers*

PV-0423

- > Deliverable multi-criteria navigation for VMAT in RayStation

*R. Bokrantz (Sweden)*

PV-0424

- > Automated configuration of an algorithm for fully automated Pareto-optimal treatment planning

*R. Van Haveren (The Netherlands), B. Heijmen, S. Breedveld*

PV-0425

- > First system for fully automated multi-criterial planning for an MR-Linac applied to rectal cancer

*R. Bijman (The Netherlands), L. Rossi, T. Janssen, P. De Ruijter, C. Carbaat, B. Van Triest, S. Breedveld, JJ. Sonke, B. Heijmen*

PV-0426

- > Improving cumulative dose evaluation for re-irradiation: first results from the STRIDeR project

*L. Murray (United Kingdom), S. Gregory, M. Nix, M. Aldred, L. Aspin, J. Uzan, J. Lilley, B. Al-Qaisieh, A. Appelt*

PV-0427

- > A multi-centre study for implementation of MRI-only prostate planning

*P. Greer (Australia), P. Pichler, T. Young, J. Martin, P. Hunter, C. Wratten, J. Denham, L. Holloway, M. Sidhom, J. Dowling*

PV-0428

- > A machine learning method to improve duodenum dose prediction for pancreatic cancer radiotherapy

*Z. Feng (China), K. Ding*

PV-0429

- > Automated IMRT planning integrating knowledge-based model with Auto-Planning for cervical cancer  
*C. Tao (China), B. Liu, C. Li, J. Zhu, J. Lu, Y. Yin*

PV-0430

## ● PROFFERED PAPERS

### BT 6: Innovative and uncommon indications

16:15 - 17:30 | Ambra 5-6

Chair: P. Petric (Denmark)

Chair: A. Stewart (United Kingdom)

- 16:15 > Esophageal brachytherapy: Institut Gustave Roussy's experience  
*M. Kissel (France), E. Chirat, P. Annede, P. Burtin, I. Fumagalli, E. Bronsart, F. Mignot, A. Schernberg, I. Dumas, C. Haie-Meder, C. Chargari*
- 16:25 > Endoluminal brachytherapy with induction chemotherapy and definitive chemoradiation in Ca.Esophagus  
*S. Raghunath (India), R. Tiwari, G. Narayanan, B. Vishwanathan, R. Sultana*
- 16:35 > Feasibility and early clinical response of interstitial BT for hepatocellular carcinoma  
*S. Corradini (Germany), F. Walter, C. Maihöfer, M. Rottler, J. Well, L. Nierer, M. Seidensticker, R. Seidensticker, T. Streitparth, F. Streitparth, J. Ricke, C. Belka*
- 16:45 > Sphincter function after EBRT and Pulsed Dose Rate Brachytherapy (PDR-BT) in anal cancer patients  
*T. Brahmi (France), A.A. Serre, F. Gassa, M. Sandt, F. Lafay, P. Pommier*
- 16:55 > Contact X-Ray Brachytherapy (CXB) after local excision (LE) for early rectal adenocarcinoma  
*J. Gérard (France), S.M. Arthur, F. Antoine, D. Amandeep*
- 17:05 > 13 SCC penis treated with HDR brachytherapy, results and dosimetric analysis  
*M. Marban Orejas (Canada), J. Crook, M. Keyes, D. Batchelar, R. Dubash, F. Bachand*
- 17:15 > Update of moderate dose-escalation with perioperative HDR brachytherapy in soft tissue sarcomas  
*X. Chen (Spain), A. Montero, J. De las Heras, E. Sanchez, O. Hernando, M. Lopez, J. Garcia, M.A. De la Casa, D. Zucca, R. Ciervide, M. Garcia-Aranda, J. Valero, R. Alonso, J. Marti, L. Alonso, P. Garcia de Acilu, P. Fernandez-Leton, C. Rubio*

OC-0431

OC-0432

OC-0433

OC-0434

OC-0435

OC-0436

OC-0437



● AWARD LECTURE

**J. Overgaard Legacy Award Lecture**

**17:40 - 18:00 | Gold Plenary**

17:40 > Chair: J. Overgaard (Denmark)

17:45 > Back to the future, a tale of volumes  
*P. Poortmans (France)*

● AWARD LECTURE

**Honorary Physicist Award Lecture**

**18:00 - 18:20 | Gold Plenary**

18:00 > Chair: N. Jornet (Spain)

18:05 > Precision medicine – an opportunity for medical physics and  
radiation oncology  
*Speaker: M. Guckenberger (Switzerland)*

**SP-0438**

# ESTRO SCHOOL OF RADIOTHERAPY AND ONCOLOGY

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## POSTGRADUATE COURSES IN EUROPE

**Image-Guided Radiotherapy in Clinical Practice**  
17-21 February 2019 | Porto, Portugal

**Basic Clinical Radiobiology**  
3-7 March 2019 | Brussels, Belgium

**Comprehensive and Practical Brachytherapy**  
3-7 March 2019 | Athens, Greece

**Particle Therapy**  
18-22 March 2019 | Groningen, The Netherlands

**Lower GI – Technical and Clinical Challenges for Radiation Oncologists**  
20-22 March 2019 | Amsterdam, The Netherlands

**Upper GI – Technical and Clinical Challenges for Radiation Oncologists**  
23-26 March 2019 | Amsterdam, The Netherlands

**Foundation of Leadership in Radiation Oncology**  
26 April 2019 | Milan, Italy

**Advanced Skills in Modern Radiotherapy**  
19-23 May 2019 | Brussels, Belgium

**Multidisciplinary Management of Prostate Cancer**  
19-23 May 2019 | Pisa, Italy

**Dose Modelling and Verification for External Beam Radiotherapy**  
19-23 May 2019 | Lisbon, Portugal

**Target Volume Determination – From Imaging to Margins**  
2-5 June 2019 | Athens, Greece

**IMRT and Other Highly Conformal Techniques in Practice**  
2-6 June 2019 | Budapest, Hungary

**Brachytherapy for Prostate Cancer**  
13-15 June 2019 | Prague, Czech Republic

**Evidence Based Radiation Oncology**  
24-29 June 2019 | Montpellier, France

**Clinical Practice and Implementation of Image-Guided Stereotactic Body Radiotherapy**  
1-5 September 2019 | Florence, Italy

**Physics for Modern Radiotherapy A joint course for clinicians and physicists**  
8-12 September 2019 | Riga, Latvia

**Advanced Treatment Planning**  
22-26 September 2019 | Budapest, Hungary

**Imaging for Physicists**  
29 September - 3 October 2019 | Manchester, UK

**Image-Guided Radiotherapy and Chemo-therapy in Gynaecological Cancer: Focus on MRI Based Adaptive Brachytherapy**  
12-16 October 2019 | Cluj, Romania

**Comprehensive Quality Management in Radiotherapy – Quality Assessment and Improvement**  
13-16 October 2019 | Dublin, Ireland

**Best Practice in Radiation Oncology Train the RTT (Radiation Therapists) Trainers - Part II**  
14-16 October 2019 | Vienna, Austria

**Positioning and Immobilisation for Radiation Therapy**  
19-20 October 2019 | Brussels, Belgium

**Multidisciplinary Management of Breast Cancer**  
27-30 October 2019 | Budapest, Hungary

**Research Course in Radiation Oncology How to develop research/validation programmes when implementing new technology? Edition 1: MRI Linac**  
3-6 November 2019 | Madrid, Spain

**Research Course in Radiotherapy Physics**  
3-6 November 2019 | Madrid, Spain

**ESTRO/ESOR Multidisciplinary Approach of Cancer Imaging**  
4-5 November 2019 | Amsterdam, The Netherlands

**Multidisciplinary Management of Non-Melanoma Skin Cancer**  
7-9 November 2019 | Brussels, Belgium

**Palliative Care and Radiotherapy A course on prognosis, symptom control, re-irradiation, oligometastases**  
26-28 November 2019 | Brussels, Belgium

**Paediatric Malignancies**  
1-3 December 2019 | Utrecht, The Netherlands

**Multidisciplinary Management of Brain Tumours**  
1-3 December 2019 | Brussels, Belgium

## POSTGRADUATE COURSES OUTSIDE EUROPE

**3D Radiotherapy with a Special Emphasis on Implementation of MRI/CT Based Brachytherapy in Cervical Cancer**  
14-17 March 2019 | Rishikesh, India

**Palliative Care and Radiotherapy A course on prognosis, symptom control, re-irradiation, oligometastases**  
26-28 March 2019 | Manila, Philippines

**Combined Drug-Radiation Treatment: Biological Basis, Current Applications and Perspectives**  
7-9 June 2019 | Seoul, South Korea

**Multidisciplinary Management of Head and Neck Oncology**  
28-31 October 2019 | Mexico City, Mexico

**Advanced Technologies**  
3-6 November 2019 | Shenzhen, China

**Advanced Technologies**  
9-12 November 2019 | India, venue to be announced

## PRE-MEETING COURSES

Eight Pre-Meeting Courses at ESTRO 38  
26 April 2019 | Milan, Italy

## UNDERGRADUATE COURSES

**Medical Science Summer School Oncology for Medical Students**  
15-27 July 2019 | Vienna, Austria

**ESO-ESSO-ESTRO Multidisciplinary Course in Oncology for Medical Students**  
26 August - 6 September 2019 | Turin, Italy

MULTIMODAL CANCER TREATMENT

RADIOTHERAPY TREATMENT PLANNING AND DELIVERY

BIOLOGY

IMAGING

RESEARCH

BEST PRACTICE

# Monday 29 April 2019

## ● TEACHING LECTURE

### **Extreme hypofractionation in the treatment of localized prostate cancer**

**08:00 - 08:40 | Auditorium**

*Chair: A. Bossi (France)*

08:00 > Extreme hypofractionation in the treatment of localized prostate cancer

*Speaker: F. Alongi (Italy)*

**SP-0439**

## ● TEACHING LECTURE

### **Immunotherapy and Radiotherapy: challenges and opportunities**

**08:00 - 08:40 | Ambra 5-6**

*Chair: R. Orecchia (Italy)*

08:00 > Immunotherapy and Radiotherapy: challenges and opportunities

*Speaker: S. Formenti (USA)*

**SP-0440**

## ● TEACHING LECTURE

### **Inhibiting mitochondrial TCA cycle unravels tumor growth inhibitory and radi-sensitizing effects**

*Chair: M. Koritzinsky (Canada)*

08:00 > Inhibiting mitochondrial TCA cycle unravels tumor growth inhibitory and radi-sensitizing effects

*Speaker: O. Feron (Belgium)*

**SP-0441**

## ● TEACHING LECTURE

### **Machine learning in radiomic analyses to predict radiotherapy outcome**

**08:00 - 08:40 | Gold Plenary**

*Chair: P. Lambin (The Netherlands)*

08:00 > Machine learning in radiomic analyses to predict radiotherapy outcome

*Speaker: S. Löck (Germany)*

**SP-0442**

● TEACHING LECTURE

**Importance of volumetric staging and biological dose inhomogeneity in IMRT**

**08:00 - 08:40 | Brown 3**

*Chair: D. Gabrys (Poland)*

08:00 > Importance of volumetric staging and biological dose inhomogeneity in IMRT

*Speaker: B. Maciejewski (Poland)*

SP-0443

● TEACHING LECTURE

**In-vivo dosimetry: Possibilities and Pitfalls**

**08:00 - 08:40 | Space 1-2**

*Chair: N. MacDougall (Gibraltar)*

08:00 > In-vivo dosimetry: Possibilities and Pitfalls

*Speaker: V.N. Hansen (Denmark)*

SP-0444

● TEACHING LECTURE

**The vital role of physicists in clinical trials: from design to data analysis**

**08:00 - 08:40 | Space 3-4**

*Chair: S. Kry (USA)*

08:00 > The vital role of physicists in clinical trials: from design to data analysis

*Speaker: A.L. Appelt (United Kingdom)*

SP-0445

● Teaching Lecture

**New developments in the treatment of brain metastases: better prognostic tools, improved outcomes**

**08:00 - 08:40 | Ambra 1-2**

*Chair: B. Wisgrill (Austria)*

08:00 > New developments in the treatment of brain metastases: better prognostic tools, improved outcomes

*Speaker: C. Nieder (Norway)*

SP-0446



● SYMPOSIUM

## Radiotherapy in bladder cancer: Standard of care and future perspectives 08:45 - 10:00 | Auditorium

This session will cover the role of Radiotherapy in the management of muscle-invasive bladder cancer (MIBC). The data available comparing cystectomy vs radio-chemotherapy in MIBC, particularly focusing on the importance of the correct evaluation of the results, based on retrospective analysis, where similar oncological outcome has been reported between the two modalities (also in elderly population). External beam radiotherapy has evolved enormously in the past 10 years through technological innovation resulting in improved quality of bladder external beam radiotherapy. Besides technological innovation radiosensitization strategies have also led to improvement in outcome. A review and consideration of these developments will be presented. An underused, but efficacious technique is brachytherapy for limited stage MIBC. Data will be presented on the historical open retro-pubic approach as well as the laparoscopic, robot assisted implantation technique, highlighting the importance of a multidisciplinary approach.

*Chair: B. Pieters (The Netherlands)*

*Co-chair: G. Marvason (Italy)*

- 08:45 > Do we have the evidence for radiation therapy as standard of care in bladder cancer?

*Speaker: V. Fonteyne (Belgium)*

SP-0447

- 09:03 > Bladder brachytherapy: an undoubtable importance of close multidisciplinary collaboration

*Speaker: E. Van Der Steen-Banasik (The Netherlands), B. Oosterveld, M.A.D. Haverkort, C. Wijburg, G. Smits*

SP-0448

- 09:21 > Stepwise development of personalized radiation therapy for bladder cancer

*Speaker: V. Kong (Canada), P. Chung, S. Chen, T. Craig, T. Rosewall*

SP-0449

- 09:39 > Radiosensitization strategies for the treatment of bladder cancer

*Speaker: A. Choudhury (United Kingdom)*

SP-0450

● JOINT SYMPOSIUM

## ESTRO-EACR: Radio-immunotherapy: from concept to clinical practice

08:45 - 10:00 | Ambra 5-6

*Chair: U. Ricardi (Italy)*

*Chair: A. Bardelli (Italy)*

- 08:45 > Opposition and opportunity for immunotherapy via the irradiated tumor microenvironment  
*Speaker: MH Barcellos-Hoff (United States)*
- SP-0451
- 09:03 > Radiotherapy and cisplatin increase immunotherapy efficacy by enabling local and systemic intratumoral T-cell activity  
*Speaker: P. Kroon, E. Frijlink, V. Iglesias-Guimaraes, A. VOLKOV, M. Van Buuren, T. Schumacher, M. Verheij, J. Borst, I. Verbrugge (The Netherlands)*
- SP-0452
- 09:21 > Targeting DNA repair to improve immune-surveillance and restrict cancer growth  
*Speaker: G. Germano (Italy), S. Lamba, G. Rospo, L. Barault, A. Magri, F. Maione, M. Russo, F. de Braud, S. Marsoni, M. D'incalci, A. Sartore-Bianchi, S. Siena, F. Pietran-tonio, F. di Nicolantonio, A. Bardelli*
- SP-0453
- 09:39 > Trial design: early clinical studies and learning from the laboratory  
*Speaker: T. Illidge (United Kingdom)*
- SP-0454

● SYMPOSIUM

**Tumor Metabolism and Radiotherapy**

**08:45 - 10:00 | Brown 1**

As tumors have a different regulated metabolism that drives tumor growth and influence treatment response, manipulation of the metabolism can potentially benefit different treatment modalities such as radiotherapy. In this session new approaches, insights and clinical promises to impair different aspects of the tumor metabolism, hypoxia tolerance and associated DNA damage will be discussed.

*Chair: J. Bussink (The Netherlands)  
Co-chair: M. Van Gisbergen (The Netherlands)*

- 08:45 > Inhibition of glycolysis and redox metabolic pathways in cervical cancer  
*Speaker: J. Schwarz (USA)*
- SP-0455
- 09:03 > Sex differences in cancer metabolism: implications for therapy  
*Speaker: J. Ippolito (USA)*
- SP-0456
- 09:21 > Metabolic targeting of tumor cells  
*Speaker: C. Pecqueur (France)*
- SP-0457
- 09:39 > Targeting metabolism to sensitize hypoxic tumor cells  
*Speaker: M. Koritzinsky (Canada)*
- SP-0458



● JOINT SYMPOSIUM

**ESTRO-ESR: Current status and future challenges in MR-integrated radiotherapy**

**08:45 - 10:00 | Gold Plenary**

*Chair: B. Slotman (The Netherlands)*

*Chair: L. Derchi (Italy)*

08:45 > Clinical status of MR-integrated photon therapy

*Speaker: L. Boldrini (Italy)*

**SP-0459**

09:03 > Integration of MR and particle therapy – how far are we?

*Speaker: A. Hoffmann (Germany)*

**SP-0460**

09:21 > MR-based functional imaging

*Speaker: R. Beets-Tan (The Netherlands)*

**SP-0461**

09:39 > Adaptive workflow - current status and challenges

*Speaker: S. Kharuzhyk (Belarus)*

**SP-0462**

● SYMPOSIUM

**Improved outcome by smarter use of radiotherapy**

**08:45 - 10:00 | Brown 3**

The symposium 'Improved outcome by smarter use of radiotherapy' will address the changing role of radiotherapy in the management of three important oncological indications. Emerging insights into individual risk factors that determine locoregional tumor control and toxicity, the availability of new imaging technologies and better understanding of the underlying radiobiology, have allowed the clinical introduction of new treatment concepts, including dose and volume reduction, adaptive strategies and multimodal combinations. These new approaches of individualized and smarter use of radiotherapy will be discussed in the context of breast cancer, head and neck cancer, and soft tissue sarcoma.

*Chair: M. Verheij (The Netherlands)*

*Co-chair: N. Ebert (Germany)*

08:45 > Towards less radiotherapy in breast cancer treatment

*Speaker: I. Meattini (Italy)*

**SP-0463**

09:10 > Image-guided elective neck irradiation in Head and Neck cancer

*Speaker: A. Al-Mamgani (The Netherlands)*

**SP-0464**

09:35 > Adapting RT in soft tissue sarcoma: the influence of anatomy, biology and re-sponse

*Speaker: B. O'Sullivan (Canada)*

**SP-0465**

● SYMPOSIUM

**Quantitative Imaging for Radiation Oncology**

**08:45 - 10:00 | Space 1-2**

In this session the possibilities and challenges associated with quantitative imaging for radiation oncology will be presented. Potential clinical applications and efforts to standardize imaging parameters, test of repeatability/reproducibility across vendors and sites, as well as quality assurance will be discussed. In short, how far away is clinical implementation of quantitative imaging in radiation oncology, and what are the challenges we face toward this goal?

*Chair: K. Tanderup (Denmark)*

*Co-chair: T. Hompland (Norway)*

- 08:45 > A critical look of quantitative dynamic contrast enhanced MRI: from QIBA guidelines to clinical implementation  
*Speaker: C. Chung (USA)*

SP-0466

- 09:10 > Quality assurance for quantitative MRI in a multicenter trial  
*Speaker: P. Van Houdt (The Netherlands)*

SP-0467

- 09:35 > Quality assurance and validation for quantitative PET in multicenter trials  
*Speaker: M. Lubberink (Sweden)*

SP-0468

● SYMPOSIUM

**Advanced methods to account for proton range uncertainties in treatment planning**

**08:45 - 10:00 | Space 3-4**

In proton radiotherapy highly-modulated dose distributions tailored to the individual patient can eradicate the disease while sparing the majority of surrounding tissue. Unfortunately, the accuracy of proton radiotherapy deliveries is compromised by uncertainties, most prominently the range uncertainty. In this symposium the sources of range uncertainties and their clinical impact will be briefly discussed. Next, advanced imaging options ranging from dual or multi-energy CT to proton radiograph/CT, that improve the estimation of stopping powers and thus reduce proton range uncertainty, will be highlighted. Finally, current research in the areas of robust plan optimisation and adaptive proton therapy will be disseminated.

*Chair: K. Parodi (Germany)*

*Co-chair: M. Fast (The Netherlands)*

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- 08:45 > Mitigation of range uncertainties with probabilistic IMPT optimization  
*Speaker: M. Bangert, N. Wahl, H. Wieser (Germany)*
  - 09:03 > Multi-energy CT for improved SPR determination: Proposed methods and their experimental validation  
*Speaker: V. Taasti (Denmark), G.J. Michalak, A.J. Deisher, J.J. Kruse, C.H. McColough, L.P. Muren, J.B.B. Petersen, D.C. Hansen*
  - 09:21 > Treatment planning and verification with proton CT and proton radiography to reduce range uncertainties in proton therapy  
*Speaker: R. Schulte (USA)*
  - 09:39 > Accounting for organ motion in proton therapy at the planning stage  
*Speaker: T. Lomax (Switzerland)*

SP-0469

SP-0470

SP-0471

SP-0472

● SYMPOSIUM

**Care, communication and new technology in brain radiotherapy**

**08:45 - 10:00 | Ambra 1-2**

This session will start with an overview of SRS peer reviewed published evidence and the technology available to treat multiple brain metastases. Key technical factors for accurate application of the prescription including management of tumour margins, the impact on tumour margins of location and stability of the isocentre and simple, accurate and quick measurement of isocentric characteristics. The session will conclude with a novel approach to the provision of social support for patients and carers through network meetings. The process of preparing and conducting network meetings will be discussed and their impact on the patient experience.

*Chair: M. Coffey (Ireland)*

*Co-chair: E.R. Andersen (Norway)*

- 08:45 > Stereotactic radiosurgery for brain metastases: treating multiple lesions  
*Speaker: A. Williamson (United Kingdom)*
- 09:10 > Linac isocentric accuracy and its influence on treatment margins  
*Speaker: E. Kouwenhoven (The Netherlands), J. Van Egmond, J. Van Santvoort*
- 09:35 > Communication care and side effect - brain radiotherapy - What's the role of the RTT?  
*Speaker: H. Simonsen (Denmark)*

SP-0473

SP-0474

SP-0475

● POSTER VIEWING

**Poster viewing 9: Applied dosimetry**

**08:45 - 10:00 | Poster area**

*Chair: H. Palmans (Austria)*

*Chair: S. Ceberg (Sweden)*

- > Effect of updated ICRU90 data on Monte Carlo kQ calculations: results from the Australian PSDL  
*M. Hanlon (Australia), C. Oliver, T. Bailey, J. Lye, D. Butler* PV-0476
- > A Monte Carlo study of collimator angle dependence of extra focal dose during VMAT  
*E. Ghareeb (Portugal), J. Lencart, J. Oliveira, J. A. M. Santos* PV-0477
- > A new tool to test tracking systems based on tumour detection  
*S. Pallotta (Italy), S. Calusi, L. Masi, L. Marrazzo, C. Talamonti, L. Livi, G. Simontacchi, L. Foggi, R. Lisci* PV-0478
- > Development of an anthropomorphic multimodality pelvis phantom for PET/MRI- and CT-based RT planning  
*N. Homolka (Germany), A. Pfaffenberger, B. Beuthien-Baumann, P. Mann, V. Schnei-der, W. Johnen, A. Runz, G. Echner, A.L. Hoffmann, E. Troost, S.A. Koerber, J. Seco, C. Gillmann* PV-0479
- > Plastic-scintillator based PET detector for proton beam therapy range monitor-ing: preliminary study  
*A. Rucinski (Poland), J. Baran, M. Garbacz, M. Pawlik-Niedzwiecka, P. Moskal* PV-0480
- > IMRT/VMAT QA in heterogeneous media: first experience with a 2D solid-state detector prototype  
*G. Biasi (Australia), N. Stansook, M. Petasecca, M. Carolan, V.L. Perevertaylo, P. Metcalfe, M.L.F. Lerch, T. Kron, A.B. Rosenfeld* PV-0481
- > Dosimetric verification of Elekta MR-linac adaption workflow using 3D dosime-ters  
*F. Costa (United Kingdom), I. Hanson, S. Doran, J. Adamovics, S. Nill, U. Oelfke* PV-0482
- > Pre-treatment portal dosimetry for the MR-Linac  
*I. Torres Xirau (The Netherlands), I. Olaciregui-Ruiz, A. Mans, U. A. van der Heide* PV-0483
- > *In vivo* dosimetry using CBCT and EPID device: analysis of sources of errors in VMAT treatments  
*S. Bresciani (Italy), L. Botez, A. Miranti, M. Stasi* PV-0484



● JOINT SYMPOSIUM

**ESTRO-IAEA: The role of hypofractionation in current radiotherapy and its impact in planning radiotherapy services**

**10:30 - 11:45 | Auditorium**

*Chair: N. Jornet (Spain)*

*Chair: E.H. Zubizarreta (Austria)*

10:30 > Hypofractionation from a radiobiological perspective

*Speaker: M.R. Horsman (Denmark)*

**SP-0485**

10:48 > Clinical outcome and effectiveness of extreme hypofractionation together with the different scenarios in terms of resources and costs

*Speaker: J.A. Polo Rubio (Austria)*

**SP-0486**

11:06 > How we deliver extreme-hypofractionated radiotherapy with current technology - a physicist perspective

*Speaker: J. Cuijpers (The Netherlands)*

**SP-0487**

11:24 > What's the impact of extreme-hypofractionated radiotherapy in operating a radiotherapy department - an RTT perspective

*Speaker: Y.M. Tsang (United Kingdom)*

**SP-0488**

● DEBATE

**Which is the best technique for the delivery of APBI?**

**10:30 - 11:45 | Ambra 5-6**

Great interest is being directed toward Accelerated Partial Breast Irradiation (APBI), compared to whole-breast irradiation after breast-conserving surgery, in selected women with early low-risk breast cancer. The aim of this debate is to discuss with experts about the pros and cons of the two main APBI techniques: multicatheter interstitial brachytherapy and external beam radiation therapy. The second part of the session will focus on physics and radiobiology aspects of both techniques, in order to assist personalised decision-making for each patient.

*Chair: C. Polgár (Hungary)*

*Co-chair: K. Cao (France)*

10:30 > This house believes that the EBRT is the best technique

*Speaker: C. Coles (United Kingdom)*

**SP-0489**

10:45 > This house believes that the multicatheter brachytherapy is the best technique

*Speaker: V. Strnad (Germany)*

**SP-0490**

- 11:00 > For which patient which technique is the best from view of the physicist?  
*Speaker: T. Major (Hungary)*
- 11:15 > Radiobiology of APBI: aspects and limitations  
*Speaker: J. Guinot (Spain), V. Gonzalez-Perez*
- 11:30 > Discussion

SP-0491

SP-0492

● PROFFERED PAPERS

**IND: Biomarkers and bioimaging in radiotherapy**

**10:30 - 11:45 | Brown 1**

*Chair: Y. Belkacemi (France)*

*Chair: K. Røe Redalen (Norway)*

- 10:30 > CTCs in patients with brain metastases under radiotherapy: do they indicate treatment response?  
*C. Petersen (Germany), Y. Goy, A. Krüll, K. Pantel, H. Wikman, K. Borgmann*

OC-0493

- 10:40 > Genetic variants associated with radiation-induced xerostomia in head and neck cancer: a GWA study  
*E. Naderi, A.P. Crjins, R.J. Steenbakkers, H.P. Bijl, J.F. Van den Hoek, M. Dieters, M.H. Boezen, B.Z. Alizadeh J.A. Langendijk (The Netherlands)*

OC-0494

- 10:50 > Use of radiomics in the recurrence patterns after IMRT for head and neck cancer: a preliminary study  
*S. Li (China), K. Wang, Z. Hou, J. Yang, W. Ren, S. Gao, F. Meng, P. Wu, B. Liu, J. Liu, J. Yan*

OC-0495

- 11:00 > Deep-learning based estimation of loco-regional control for patients with locally advanced HNSCC  
*S. Starke (Germany), S. Leger, A. Zwanenburg, K. Pilz, F. Lohaus, A. Linge, K. Zöphel, J. Kotzerke, A. Schreiber, I. Tinhofer, V. Budach, M. Stuschke, P. Balermans, C. Rödel, U. Ganswindt, C. Belka, S. Pigorsch, S.E. Combs, D. Mönnich, D. Zips, M. Krause, M. Baumann, C. Richter, E.G.C. Troost, S. Löck*

OC-0496

- 11:10 > Predictive modelling of risk of breast fibrosis at >10 years after radiotherapy using the RILA assay  
*C. Herskind (Germany), P. Seibold, I. Helmbold, E. Sperk, F.A. Giordano, S. Behrens, F. Wenz, J. Chang-Claude, M.R. Veldwijk*

OC-0497

- 11:20 > Results of the prospective trial evaluating radiation-induced lymphocyte apop-tosis and prostate RT  
*D. Azria (France), G. Crehange, F. Castan, E. Schwartz, Y. Belkacemi, J. Lagrange, T. NGuyen, O. Chapet, F. Mornex, G. Noel, E. Lartigau, D. Pasquier, S. Clippe, C. Hennequin, S. Gourgou, M. Brengues, P. Fenoglietto, M. Farcy-Jacquet, E. Ozsahin* **OC-0498**
- 11:30 > Neutrophilia as prognostic factor for outcome in the CAO/ARO/AIO-04 phase 3 rectal cancer trial  
*M. Diefenhardt, R. Hofheinz, T. Beissbarth, D. Arnold, J. Müller von den Grün, T. Liersch, P. Ströbel, G. Grabenbauer, R. Fietkau, J. Weitz, M. Ghadimi, C. Rödel, E. Fokas (Germany)* **OC-0499**

● PROFFERED PAPERS

**CL 9: Proffered papers: Late breaking abstracts**

**10:30 - 11:45 | Gold Plenary**

*Chair: B. Slotman (The Netherlands)*

*Chair: Y. Lievens (Belgium)*

- 10:30 > Radical Hemi-thoracic Radiotherapy vs. Palliative Radiotherapy for Malignant Pleural Mesothelioma  
*E. Minatel, M. Trovo (Italy), J. Polesel, C. Furlan, A. Revelant, A. Drigo, L. Barresi, A. Bearz, A. Del Conte, A. Follador, U. Zuccon, A. Dicorato, P. Fontana, G. Franchin* **OC-0500**
- 10:42 > Chemo-RT plus induction or consolidation chemotherapy for rectal cancer: a randomised phase 2 trial  
*E. Fokas (Germany), M. Allgäuer, B. Polat, G. Klautke, G. Grabenbauer, R. Fietkau, T. Kuhnt, L. Staib, T. Brunner, A.L. Grosu, W. Schmiegel, L. Jacobasch, J. Weitz, G. Folprecht, A. Schleska-Lange, R. Grützmann, M. Schwarzbach, V. Paolucci, W.O. Bechstein, T. Friede, M. Ghadimi, R.D. Hofheinz, C. Rödel* **OC-0501**
- 10:54 > Role of consolidation RT to bulky lesions of advanced Hodgkin lymphoma: results of FIL HD0801 trial  
*U. Ricardi (Italy), M. Levis, A. Evangelista, D.M. Gioia, L. Rigacci, B. BOtto, G. Simon-tacchi, P. Franzzone, G. Rossi, M. Buglione, V. Pavone, M. Bonfichi, C. Rusconi, R. Freilone, A. Pulsoni, V. De Sanctis, G. Gaidano, C. Stelitano, M. Tani, A. Castagnoli, G. Ciccone, F. Zaja, A. Santoro, P.L. Zinzani* **OC-0502**

- 11:06 > Phase III trial of Prophylactic Cranial Irradiation with or without Hippocampus Avoidance in SCLC

*J. Belderbos* (The Netherlands), MD PhD, D. De Rysscher, K. De Jaeger, F. Koppe, M. Lambrecht, Y. Lievens, E. Dieleman, J. Jaspers, J. Van Meerbeeck, J. Ubbels, M. Kwint, M. Kuenen, S. Deprez, M. De Ruiter, K. Sikorska, H. Van Tinteren, S. Schagen

OC-0503

- 11:18 > Randomized phase 2 trial of adaptive dose painting vs. standard IMRT for head and neck cancer

*F. Duprez* (Belgium), J. Daisne, D. Berwouts, W. De Gersem, I. Goethals, L. Olteanu, T. Vercauteren, W. De Neve

OC-0504

- 11:30 > Evidence-based practice in the global setting: an international survey of hypofractionation

*D. Rodin* (Canada), M. Osama, B. Tawk, S. Grover, F. Moraes, M.L. Yap, E. Zubizarreta, Y. Lievens

OC-0505

### ● PROFFERED PAPERS

#### CL 10: Proffered papers: Pelvic Tumours

10:30 - 11:45 | Brown 3

Chair: S.K. Shrivastava (India)

Chair: K. Vandecasteele (Belgium)

- 10:30 > Patient-reported sexual outcomes after definitive RCHT+IGABT for cervical cancer (EMBRACE study)

*K. Kirchheimer* (Austria), I.M. Jürgenliemk-Schulz, C. Haie-Meder, J.C. Lindgaard, A. Sturdza, U. Mahantshetty, B. Segedin, K. Bruheim, B. Rai, R. Cooper, E. Van der Steen-Banasik, E. Wiebe, M. Sundset, E. Van Limbergen, E. Villafranca, H. Wester-veld, L.T. Tan, K. Tanderup, R. Pötter, R.A. Nout

OC-0506

- 10:40 > Risk factors for bladder fistula, bleeding and cystitis in cervix cancer: an EM-BRACE analysis

*S. Spampinato* (Denmark), L.U. Fokdal, R. Pötter, C. Haie-Meder, J.C. Lindgaard, M. Schmid, I. Jürgenliemk-Schulz, U. Mahantshetty, B. Segedin, K. Bruheim, P. Hoskin, B. Rai, F. Huang, R. Cooper, E. Van der Steen-Banasik, E. Van Limbergen, K. Kirchheimer, C. Kirisits, K. Tanderup

OC-0507

- 10:50 > MRI guided chemoradiation and brachytherapy for postsurgical vaginal recurrences: A phase II study

*S. Chopra* (India), R. Engineer, U. Mahantshetty, S. Mechanery, T. Dora, R. Shukla, P. Popat, J. Swamidas, J. Ghosh, S. Gupta, S. Shrivastava

OC-0508



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|---|----------------|
| 11:00 > MRI radiomics analysis for predicting prognosis of cervical cancer after definitive radiotherapy<br><i>A. Takada (Japan), H. Yokota, M. Watanabe, T. Horikoshi, T. Uno</i>  | <b>OC-0509</b> |
| 11:10 > MRI radiomics to predict tumour response in patients with locally advanced rectal cancer<br><i>P. Bulens (Belgium), A. Couwenberg, M. Intven, A. Debucquoy, V. Vandecaveye, M. Philippens, P. Mukherjee, O. Gevaert, K. Haustermans</i>                           | <b>OC-0510</b> |
| 11:20 > Organ Preservation with Image Guided and Adaptive Brachytherapy for Patients with Rectal Cancer<br><i>A. Garant (USA), S. Magnan, S. Devic, A. Martin, M. Boutros, C. Vasilevsky, S. Ferland, A. Bujold, S. Desgroeilliers, H. Sebajang, C. Richard, T. Vuong</i> | <b>OC-0511</b> |
| 11:30 > Radiochemotherapy and hyperthermia in locally advanced rectal cancer - A prospective phase II trial<br><i>C. Gani (Germany), U. Lamprecht, M. Bitzer, J. Gellermann, O. Voigt, A. Ziegler, M. Moll, A. Königsrainer, D. Zips</i>                                  | <b>OC-0512</b> |

● PROFFERED PAPERS

**PH 9: Proffered paper: Artificial intelligence and novel imaging approaches**

**10:30 - 11:45 | Space 1-2**

*Chair: U. Van der Heide (The Netherlands)*

*Chair: M. Bogowicz (Switzerland)*

- |  |                |
|--|----------------|
| 10:30 > Cone-beam CT intensity correction using a generative adversarial network and unpaired training<br><i>C. Kurz (Germany), M. Maspero, M.H.F. Savenije, G. Landry, F. Kamp, M. Li, K. Parodi, C. Belka, C.A.T. Van den Berg</i>                                   | <b>OC-0513</b> |
| 10:40 > Unsupervised deep learning for fast and accurate CBCT to CT deformable image registration<br><i>S.R. Van Kranen (The Netherlands), T. Kanehira, R. Rozendaal, J. Sonke</i>   | <b>OC-0514</b> |
| 10:50 > Synthetic CT generation for head and neck radiotherapy by a 3D convolutional neural network<br><i>A. Dinkla, M. Florkow, M. Maspero, M. Savenije, F. Zijlstra, P. Doornaert, M. Van Stralen, M. Philippens, P. Seevinck, N. Van den Berg (The Netherlands)</i> | <b>OC-0515</b> |
| 11:00 > Whole-frame 2D cineMR prediction using deep neural networks<br><i>P. Borman (The Netherlands), L. Kerkmeijer, B. Raaymakers, M. Glitzner</i>   | <b>OC-0516</b> |

- 11:10 > Automatic tumor delineation in rectal cancer using functional MRI and machine learning

*F. Knuth (Norway), A. Rosvoll Grøndahl, T. Torheim, A. Negård, S.H. Holmedal, K.M. Bakke, S. Meltzer, C. Futsæther, K.R. Redalen*

OC-0517

- 11:20 > Feasibility of MRI-guided VMAT: investigating image quality during gantry rotation on an MR-linac

*S. Jackson (United Kingdom), M. Glitzner, R.H.N. Tijssen, B.W. Raaymakers*

OC-0518

- 11:30 > Registration and image quality of T2w 3D TSE scans of the Unity MR-linac

*V. Van Pelt, T. Janssen, I. Walraven, C. Liskamp, D. Lambregts, U. Van der Heide, M. Nowee (The Netherlands)*

OC-0519

### ● PROFFERED PAPERS

#### PH 10: Proffered paper: Treatment planning innovations

10:30 - 11:45 | Space 3-4

Chair: C. Brink (Denmark)

Chair: C. Garibaldi (Italy)

- 10:30 > Inter-observer variations in plan evaluation

*L.P. Kaplan (Denmark), A.I.S. Holm, U.V. Elstrøm, J.G. Eriksen, K. Jensen, H. Prim-dahl, C.N. Andreassen, S.S. Korreman*

OC-0520

- 10:40 > SRS plan quality with variation in modality: Results of an international planning competition

*N. Hardcastle (Australia), B. Nelms, L. O'Connor, J. Shakeshaft, A. Haworth, O. Cook, M. Harris, C. Phillips*

OC-0521

- 10:50 > Characterising dose changes due to unplanned gas cavities in Magnetic Resonance guided Radiotherapy

*J. Shortall (United Kingdom), E. Vasquez Osorio, A. Green, R. Chuter, A. McWilliam, K. Kirkby, R. Mackay, M. Van Herk*

OC-0522

- 11:00 > 3He MRI for functional lung avoidance VMAT treatment planning in lung cancer

*K. Hart (United Kingdom), H. Marshall, J. Swinscoe, S. Robinson, T. Matthew, S. Tozer-Loft, M. Hatton, J. Wild, R. Ireland, B. Tahir*

OC-0523

- 11:10 > A two-beam non-coplanar class solution to supplement VMAT in prostate SBRT

*A.W. Sharfo (The Netherlands), L. Rossi, M. Dirkx, S. Aluwini, S. Breedveld, B. Heijmen*

OC-0524

- 11:20 > 4D Monte Carlo dose calculations on different CT image sets for SBRT using patient breathing data

*P. Freislederer* (Germany), A. Von Münchow, F. Kamp, C. Heinz, S. Gerum, F. Roed-er, S. Corradini, R. Floca, M. Alber, M. Söhn, M. Reiner, C. Belka, K. Parodi

OC-0525

- 11:30 > Dependency of the interplay effect on the fractionation for proton therapy of pancreatic cancer

*K. Dolde* (Germany), Y. Zhang, N. Chaudhri, C. Dávid, M. Kachelriess, A.J. Lomax, P. Naumann, N. Saito, D.C. Weber, A. Pfaffenberger

OC-0526

● PROFFERED PAPERS

**RTT 5: Improving accuracy in patient positioning**

**10:30 - 11:45 | Ambra 1-2**

*Chair: L. Devlin* (United Kingdom)

*Chair: S. Perryck* (Switzerland)

- 10:30 > Evaluation of AlignRT for deep inspiration breath hold positioning and in-trafraction monitoring

*V. Hamming* (The Netherlands), C. Visser, D. Busz, E. Batin, J.A. Langendijk, S. Both, N.M. Sijtsema

OC-0527

- 10:42 > A clinical evaluation of the stability, patient comfort and ease in use of the new Nanor mask

*L. Mesch* (The Netherlands), M. Essers, T. Rozema

OC-0528

- 10:54 > Evaluation of the potential treatment delivery benefits of Varian HyperArc for brain metastases

*A. Williamson* (United Kingdom), A. James, A. Chalmers, R. Carruthers, S. Nowicki, P. McLoone

OC-0529

- 11:06 > Improving OAR volumes during prostate RT using daily patient feedback and standardized protocols

*L. Gagne* (Canada), K. Earnshaw, S. Cowan, J. Goulart, A. Alexander

OC-0530

- 11:18 > Can SGRT be used with open masks to set-up HNC patients and reduce in-trafractional motion?

*A. Moreira, N. Weitkamp* (Switzerland), M. Zamburlini, H.I. Garcia Schüler, M. Guckenberger

OC-0531

- 11:30 > Virtual reality animations, a new strategy to reduce patients' anxiety induced by radiotherapy

*G. Van Ooteghem* (Belgium), X. Geets

OC-0532

● POSTER VIEWING

**Poster viewing 10: Radiobiology**

**10:30 - 11:45 | Poster area**

*Chair: M. Vooijs (The Netherlands)*

*Chair: R. Coppes (The Netherlands)*

- > HPV16 viral load may explain gender differences in treatment outcome of anal squamous cell carcinoma  
*D. Martin (Germany), P. Balermpas, R. Winkelmann, U. Wieland, M. Rave-Fränk, J. Kitz, C. Rödel, E. Fokas, F. Rödel* PV-0533
- > Carbon ions and microRNAs: new insights into hadrontherapy biology in pros-tate cancer  
*I. Salido, R. El Bezzawy (Italy), M. Ciocca, F. Valvo, A. Facoetti, P. Gandellini, R. Val-dagni, N. Zaffaroni* PV-0534
- > Pilot study on immunomodulation role of radiotherapy in oropharyngeal can-cer: preliminary results  
*L. Belgioia (Italy), A. Bacigalupo, F. Missale, S. Negrini, G. Filaci, D. Fenoglio, F. In-candela, S. Vecchio, G. Peretti, R. Corvò* PV-0535
- > On the impact of HPV status and radiation dose on survival in a large cohort of anal cancer patients  
*R. Kabarriti (USA), P. Brodin, R. Narang, R. Huang, J. Chuy, L. Rajdev, S. Kalnicki, C. Guha, M. Garg* PV-0536
- > Optimized fractionated radiotherapy with anti-PD-L1 and anti-TIGIT: a promising combination  
*M. Grapin (France), E. Limagne, C. Richard, R. Boidot, M. Thibaudin, V. Morgand, G. Créhange, F. Ghiringhelli, C. Miriolet* PV-0537
- > Prostaglandin related distinct regenerative activities in hair follicles following radiation injury  
*S. Lai (Taiwan), W. Huang, S. Chen, S. Lin* PV-0538
- > Antidiabetic biguanides radiosensitize hypoxic cancer cells through a decrease in oxygen consumption  
*S. De Mey (Belgium), H. Jiang, C. Corbet, H. Wang, I. Dufait, K.L. Law, T. Gevaert, O. Feron, M. De Ridder* PV-0539
- > Tumor Microenvironment modifications recorded with IVIM and DCE-MRI after Neoadjuvant radiotherapy  
*F. Lallemand (Belgium), N. Leroy, M. Bahri, E. Balteau, A. Noël, P. Coucke, A. Plene-vaux, P. Martinive* PV-0540
- > Immune modulation by brachytherapy in peripheral blood  
*M.A. Berenguer Francés (Spain), I. Linares Galiana, R. Cañas, C. Gutierrez, D. Najjari, A. Slocker, S. Marin i Borras, C. Bellobi, F. Guedea* PV-0541



● AWARD LECTURE

**Klaus Breur Award Lecture**

**12:00 - 12:30 | Gold Plenary**

12:00 > Chair: U. Ricardi (Italy)

12:05 > A stroll in Rome, together  
Speaker: V. Valentini (Italy)

SP-0542

● AWARD LECTURE

**Academic award: Jack Fowler University of Wisconsin Award**

**12:30 - 12:40 | Gold Plenary**

Chair: C. Clark (United Kingdom)

Chair: C. Rödel (Germany)

12:30 > First clinical real-time motion-including tumor dose reconstruction during ra-diotherapy delivery

*S. Skouboe* (Denmark), T. Ravkilde, J. Bertholet, R. Hansen, E. Worm, C.G. Muurholm, B. Weber, M. Høyér, P.R. Poulsen

OC-0543

● AWARD LECTURE

**Company Award Lectures**

**12:40 - 13:00 | Gold Plenary**

Chair: C. Rödel (Germany)

Chair: C. Clark (United Kingdom)

12:40 > Distributed learning on 20 000+ lung cancer patients

*T. Deist* (The Netherlands), F.J.W.M. Dankers, P. Ojha, S. Marshall, T. Janssen, C. Faivre-Finn, C. Mascioccchi, V. Valentini, J. Wang, J. Chen, Z. Zhang, E. Spezi, M. Button, J.J. Nuyttens, R. Vervhout, J. Van Soest, A. Jochems, R. Monshouwer, J. Bussink, G. Price, P. Lambin, A. Dekker

OC-0544

● SYMPOSIUM

**Adaptive RT: reactive or proactive?**

**14:30 - 15:45 | Auditorium**

Chair: C. Faivre-Finn (United Kingdom)

Co-chair: T. Gauer (Germany)

14:30 > Clinical perspective and evidence on RT adaptation, has it improved outcome?

Speaker: M. Guckenberger (Switzerland)

SP-0545

- 14:48 > Physics perspective on RT adaptation including role of predictive modelling in RT adaptation  
*Speaker: J. Sonke (The Netherlands)* SP-0546
- 15:06 > Role of the RTT in the clinical implementation of adaptive radiotherapy  
*Speaker: A. Baker (United Kingdom), H. McNair* SP-0547
- 15:24 > Adaptive and Real-time Approaches in Brachytherapy  
*Speaker: T.P. Hellebust (Norway)* SP-0548

● SYMPOSIUM

**Predictive models of toxicity and big data, big open issues**

**14:30 - 15:45 | Ambra 5-6**

This interdisciplinary session will address how to best collect data to build predictive models of toxicity. It will be discussed how implementing a methodology in the department can help ensure the quality of toxicity data in order to generate robust models. The last talk will focus on a specific example: the prediction of toxicity based on genomics.

*Chair: C. Fiorino (Italy)  
Co-chair: A. Gasnier (United Kingdom)*

- 14:30 > How to organise your department to have a structured way of collecting toxicity data  
*Speaker: J. Widder (Austria)* SP-0549
- 14:48 > Dreams and reality of toxicity data-sharing/farming: quality vs quantity?  
*Speaker: A. Dekker (The Netherlands)* SP-0550
- 15:06 > Exploiting large data base to build robust predictive models: validation issues  
*Speaker: T. Rancati (Italy)* SP-0551
- 15:24 > Radiogenomics: big data to understand genetic risk factors of toxicity  
*Speaker: C.N. Andreassen (Denmark)* SP-0552





### ● SYMPOSIUM

## Biological Imaging for Radiotherapy

**14:30 - 15:45 | Brown 1**

Exciting, new imaging techniques based on PET and MRI for visualizing tumor biological features in the context of radiotherapy have emerged. Promising PET approaches for imaging of DNA damage responses using γH2AX and PARP radiotracers and to visualize infiltration of T-cells and tumor hypoxia will be discussed. Moreover, the MRI-Chemical Exchange Saturation Transfer (CEST) method and its potential for imaging of tumor acidosis will be present-ed.

*Chair: H. Lyng (Norway)*

*Co-chair: A. Bunea (Switzerland)*

- |         |   |                |
|---------|---|----------------|
| 14:30 > | Imaging of tumor infiltrating lymphocytes with [18F] FB-IL2 PET<br><i>Speaker: E. De Vries (The Netherlands), S. Hartimath, O. Draghiciu, V. Manuell, A. Van Waerde, R. Dierckx, T. Daemen, H. Nijman</i> | <b>SP-0553</b> |
| 14:48 > | Imaging DNA damage response<br><i>Speaker: B. Cornelissen (United Kingdom)</i>  | <b>SP-0554</b> |
| 15:06 > | MRI-CEST Imaging of tumor acidosis<br><i>Speaker: D. Longo (Italy)</i>  | <b>SP-0555</b> |
| 15:24 > | Tracing Tumor Hypoxia<br><i>Speaker: M. Vooijs (The Netherlands), J. Ient, A.J. Groot, J.A.F. Vermeer, R. Muschel, J. Van Rheenen, D. Postrach, B. Markelc</i>  | <b>SP-0556</b> |

### ● SYMPOSIUM

## New developments for breast cancer irradiation

**14:30 - 15:45 | Gold Plenary**

The management of breast cancer is multidisciplinary from the time of initial cancer diagnosis. Recently introduced systemic therapies (e.g., anti-HER2) and surgical techniques (e.g., oncoplasty, reconstruction, selective lymph node dissection) are being progressively introduced into daily practice. Parallel to that, the radiation techniques improved which allows for volume-based radiation therapy. Therefore, it is time to move forward volume-based delineation and more precisely define the target volumes with the highest risks for harbouring subclinical disease. This approach is necessary to solve issues of improved dose coverage and lowered normal tissue toxicity, thereby allowing for irradiation in cases that in the past was associated with increased toxicity (e.g., preoperative, after reconstruction). This concept also supports decreasing doses and

volumes to even entirely omitting radiation if the risk of recurrence is low. The current session will discuss several exciting new developments for breast cancer irradiation and their implementation in daily practice.

*Chair: P. Poortmans (France)*

*Co-chair: O. Kaidar-Person (Israel)*

- |         |   |                |
|---------|---|----------------|
| 14:30 > | Neoadjuvant radiotherapy in breast cancer<br><i>Speaker: Y. Kirova (France)</i>   | <b>SP-0557</b> |
| 14:48 > | Response to preoperative therapy - prediction, assessment and indications for adjuvant radiotherapy<br><i>Speaker :M. Jarzab (Poland)</i> | <b>SP-0558</b> |
| 15:06 > | Nodal irradiation with or instead axillary lymph node dissection<br><i>Speaker: M. Molla (Spain)</i>                                      | <b>SP-0559</b> |
| 15:24 > | Radiotherapy after breast reconstruction<br><i>Speaker: B. Offersen (Denmark)</i>   | <b>SP-0560</b> |

● JOINT SYMPOSIUM

**ESTRO-EORTC: Moving radiation oncology forward to improve patient outcomes**

**14:30 - 15:45 | Brown 3**

*Chair: Y. Lievens (Belgium)*

*Chair: D.C. Weber (Switzerland)*

- |         |  |                |
|---------|--|----------------|
| 14:30 > | EORTC State of Science in Radiation Oncology: Overcoming barriers to practice change by collaboration; why now, and how....<br><i>R. Bristow (United Kingdom)</i>  | <b>SP-0561</b> |
| 14:50 > | Cohorts studies versus randomised controlled trials: can we combine the best of both worlds?<br><i>L. Verkooijen (The Netherlands)</i>   | <b>SP-0562</b> |
| 15:10 > | First experience with the model-based selection of head and neck cancer patients for proton therapy<br><i>M. Tambas (The Netherlands), H.P. Van der Laan, J.G.M. Van den Hoek, H.P. Bijl, M. Dieters, R.G.J. Kierkels, D. Scandurra, S. Both, R.J.H.M. Steenbakkers, J.A. Langendijk</i> | <b>OC-0563</b> |
| 15:20 > | Discussion   |                |



- DEBATE

## In 10 years physicists will need different training to include more ...

14:30 - 15:45 | Space 1-2

Radiotherapy is evolving to be more personalised and adaptive. Our future physicists will need to keep up with these changes and therefore their skills may need to be different from the ones we need now. This debate will ask how (if at all) the training for medical physicists specialising in radiation oncology should develop/change in the next decade and explore in which areas these changes should be made. Each speaker will make their case for the need to train more in a different area and then at the end the audience will vote for which they believe is the most important.

*Chair: C. Clark (United Kingdom)*

*Chair: D. Verellen (Belgium)*

- 14:30 > Imaging Knowledge!!  
*D. Thorwarth (Germany)*
- 14:40 > Predictive models and big data  
*L.P. Muren (Denmark)*
- 14:50 > Deep learning, automation and computing  
*B. Heijmen (The Netherlands)*
- 15:00 > Management and leadership  
*J. Malicki (Poland)*
- 15:10 > Basic Physics skills  
*G. Gagliardi (Sweden)*
- 15:20 > Discussion
- 15:30 > Rebuttal: Imaging Knowledge!!  
*D. Thorwarth (Germany)*
- 15:32 > Rebuttal: Predictive models and big data  
*L.P. Muren (Denmark)*
- 15:34 > Rebuttal: Deep learning, automation and computing  
*B. Heijmen (The Netherlands)*
- 15:36 > Rebuttal: Management and leadership  
*J. Malicki (Poland)*
- 15:38 > Rebuttal: Basic Physics skills  
*G. Gagliardi (Sweden)*

● PROFFERED PAPERS

**PH 11: Proffered paper: Proton range and dose verification**

**14:30 - 15:45 | Space 3-4**

*Chair: A. Knopf (United Kingdom)*

*Chair: C. Richter (Germany)*

- 14:30 > A novel range probing-based optimization of CT calibration curve for Proton Therapy

*A. Meijers (The Netherlands), J. Free, D. Wagenaar, S. Deffet, A.C. Knopf, J.A. Langendijk, S. Both*

OC-0564

- 14:40 > The optimization of prompt gamma based range estimation in proton therapy using Cramér-Rao theory

*E. Lens (The Netherlands), E. Tolboom, D. Schaart*

OC-0565

- 14:50 > Range verification in proton therapy: Can prompt-gamma imaging identify the source of deviation?

*C. Khamfongkhrua (Germany), G. Janssens, J. Petzoldt, J. Smeets, G. Pausch, C. Richter*

OC-0566

- 15:00 > Reconstructing the 3-D proton dose distribution from the modelled iono-acoustic wave field

*E. Lens (The Netherlands), A. De Blécourt, D. Schaart, F. Vos, K. Van Dongen*

OC-0567

- 15:10 > Experimental dosimetric characterization of a proton beam in the presence of a magnetic field

*F. Padilla Cabal (Austria), L. Fetty, P. Kuess, D. Georg, H. Fuchs*

OC-0568

- 15:20 > A framework for variance-based sensitivity analysis of uncertainties in proton therapy

*J. Hofmaier (Germany), G. Dedes, D.J. Carlson, K. Parodi, C. Belka, F. Kamp*

OC-0569

- 15:30 > Dosimetric study to guide preclinical trials in proton minibeam radiotherapy

*G. Consuelo (France), L. De Marzi, Y. Prezado*

OC-0570

● SYMPOSIUM

**Education and Advance Practice**

**14:30 - 15:45 | Ambra 1-2**

This session will outline the background of advanced practice in radiation therapy and give an overview of the diversity of roles that exist within the RTT profession and the benefit they have on patient care, service provision and the development of the role of the RTT within the multidisciplinary team.

Advanced practice roles must be developed together with appropriate postgraduate education. ESTRO has recently published its European Qualifications Framework Levels 7 and 8, which will be presented.

A novel approach to advanced practice in Europe will illustrate how optimisation of radiation therapy practice and work-flow is possible through advanced practice.

*Chair: M. Leech (Ireland)*

*Co-chair: C. Poole (Ireland)*

- 14:30 > Defining advanced practice roles specifically in radiotherapy  
*Speaker: A. Duffton (United Kingdom)*

**SP-0571**

- 14:55 > Education and Advance Practice - Defining level EQF 7 and 8 competencies  
*Speaker: M. Coffey (Ireland)*

**SP-0572**

- 15:20 > Incorporation radiation therapist RTT into radiation oncologist RO team  
*Speaker: B. Bak (Poland), J. Michalewska, A. Machtyl, P. Martenka*

**SP-0573**

#### ● POSTER VIEWING

#### Poster viewing 11: Novel strategies in IGRT

**14:30 - 15:45 | Poster area**

*Chair: J. Mitchell (United Kingdom)*

*Chair: S. Faithfull (United Kingdom)*

- > Evaluation of a clinical decision support protocol during radiotherapy for H&N cancer patients  
*E. Rodrigues Sousa (Belgium), Y. Jourani, M. Somoano, T. Dragan, S. Beauvois, D. Van Gestel*

**PV-0574**

- > Is diaphragm dome or bone fusion adequate to IGRT in liver-SBRT compare to fiducial markers?  
*C. De la Pinta Alonso (Spain), D. Sevillano, R. Colmenares, M. Martín, C. Vallejo, E. Fernández-Lizarbe, S. Barrio, V. Pino, J.A. Rojo, S. Sancho*

**PV-0575**

- > Simulation of EHTR for prostate cancer without monitoring intra-fractional prostate motion  
*Y. Oguma (Japan), H. Shiomi, K. Nagata, K. Okajima, H. Morikawa, Y. Watandbe, K. Mizuno, K. Komatsubara, K. Hata*

**PV-0576**

- > Single-institution report of whole breast VMAT radiotherapy implemented with 3D surface imaging  
*V. Favrel (France), O. Ruiz Achard, L. Gonzague Casabianca, F. Chabbert, A. Louis, J. Paumont, H. Mailleux, P. Eustache, A. Tallet*

**PV-0577**

- > Image quality of cone beam CT used as image-guidance for pelvic Stereotactic Ablative Radiotherapy  
*F. Slevin (United Kingdom), M. Beasley, A. Needham, J. Lilley, R. Speight, L.J. Mur-ray, A.M. Henry*
- > The impact of intra-thoracic anatomical changes on the delivery of lung SABR  
*M. Beasley (United Kingdom), S. Brown, R. Chuter, C. Faivre-Finn, K. Franks, L. Mur-ray, M. Van-Herk, A. Henry*
- > CBCT-based analysis of target coverage-volume changes after prostate SABR with triggered kV-imaging  
*K. Kisiván (Hungary), A. Farkas, D. Gugyérás, C. Glavák, Z. László, M. Petőné Csima, Z. Cselik, J. Hadjiev, A. Gulyban, F. Lakosi*
- > Image Gently for pediatric IGRT on Varian Halcyon and Edge systems: dose and positioning accuracy  
*Y. Zhang (China), M. Wang, Y. Huang, H. Wu, W. Wang*

PV-0578

PV-0579

PV-0580

PV-0581

● MULTIDISCIPLINARY TUMOUR BOARD

**Bladder cancer**

**14:30 - 15:45 | Brown 2**

*Chair: M. Hulshof (The Netherlands)*

- > yESTRO Radiation Oncologist  
*Panellist: G. Marvaso (Italy)*
- > Medical Oncologist  
*Panellist D. Raggi (Italy)*
- > Surgeon  
*Panellist E. Ditrapani (Italy)*
- > Radiation Oncologist  
*Panellist A. Kiltie (United Kingdom)*
- > Pathologist  
*Panellist C. Patriarca (Italy)*



- DEBATE

## Can early-regression-guided adaptive RT (eRG-ART) improve the pathological response in neo-adjuvant treatments?

16:15 - 17:30 | Auditorium

Early-regression-guided adaptive radiotherapy (eRG-ART) is a strong trend in radiation oncology. It can be defined as a radiotherapy technique that aims to customize each patient's treatment plan to patient-specific variation in response by evaluating and characterizing early response through feedback of functional images and including them in adaptive planning. Treatment adaptation based on the response could result in a better outcome, lesser toxicity, and also be an independent prognostic factor. It sounds encouraging, but the reality is more brutal. Uncertainties of imaging, risks of missing the residual tumor, lack of prediction models, and other problems may limit the use of eRG-ART in clinical practice. The proponents and opponents of eRG-ART will heatedly discuss this issue.

*Chair: E. Malinen (Norway)*

*Co-chair: M. Spalek (Poland)*

- 16:15 > For the motion  
*K. Haustermans (Belgium)*
- 16:30 > Against the motion  
*C. Rödel (Germany)*
- 16:45 > For the motion  
*C. Fiorino (Italy)*
- 17:00 > Against the motion  
*G. Meijer (The Netherlands)*
- 17:15 > Discussion

- SYMPOSIUM

## Recent insights into adverse cardiac effects from multimodal radiation therapy

16:15 - 17:30 | Ambra 5-6

The symposium will cover four aspects pertaining to cardiac effects of cancer therapy. The first presentation will discuss prediction models of acute coronary events with particular emphasis on ongoing studies that aim to improve existing models. Next, radiotherapy procedures in patients with a cardiac implantable electronic device will be discussed. This will be followed by a summary of biology-driven efforts intended at developing therapeutic approaches for prevention or reversal of radiation heart damage. Finally, as patients with cancer therapy sequelae are increasingly managed in the primary health care services, the assessment of high-risk individuals and secondary prevention will be overviewed.

*Chair: A.H. Ree (Norway)  
Co-chair: I. Meattini (Italy)*

- |         |   |                |
|---------|---|----------------|
| 16:15 > | Prediction models for adverse cardiac effects to target optimal cardiac radiation dose distributions in breast cancer patients<br><i>A. Crijs (The Netherlands)</i> | <b>SP-0582</b> |
| 16:33 > | Practical aspects of estimating and measuring of CIED dose in radiotherapy procedures<br><i>E. Konstanty (Poland), B. Bak, W. Szyszka</i>                           | <b>SP-0583</b> |
| 16:51 > | From biological basis of RI cardiac toxicity to the new application of SBRT in the cardiovascular field<br><i>M. Vozenin (Switzerland)</i>                          | <b>SP-0584</b> |
| 17:09 > | Managing cardiotoxicity in oncology follow up and primary care services<br><i>S. Faithfull (United Kingdom)</i>   | <b>SP-0585</b> |

● PROFFERED PAPERS

**RB 6: Pre-clinical research in particle therapy**

**16:15 - 17:30 | Brown 1**

*Chair: K. Rothkamm (Germany)*

*Chair: N. Protti (Italy)*

- |         |   |                |
|---------|---|----------------|
| 16:15 > | Immunological contexture basis of a prognostic radiomics signature in head and neck cancers<br><i>D. Ou (China), J. Adam, I. Garberis, P. Blanchard, F. Nguyen, A. Levy, O. Casiraghi, R.T.H. Leijenaar, P. Gorphe, I. Breuskin, F. Janot, C. Robert, P. Lambin, S. Temam, J. Scoazec, E. Deutsch, Y. Tao</i> | <b>OC-0586</b> |
| 16:30 > | Preclinical studies of MRI guided BNCT at Torino and Pavia Universities<br><i>N. Protti (Italy), D. Alberti, A. Toppino, S. Bortolussi, S. Altieri, A. Deagostino, S. Aime, S. Geninatti-Crich</i>  | <b>OC-0587</b> |
| 16:45 > | Combining hyperthermia and/or OXi4503 with low LET radiation is equivalent to high LET radiation alone<br><i>P.B. Elming (Denmark), B.S. Sørensen, H. Spejlborg, J. Overgaard, M.R. Horsman</i>   | <b>OC-0588</b> |
| 17:00 > | RBE-weighted dose in carbon ion therapy: impact of the RBE model translation on clinical outcomes<br><i>S. Molinelli (Italy), M. Bonora, B. Vischioni, J.E. Dale, S. Russo, S. Casale, M.R. Fiore, I. Fumagalli, A. Hasegawa, L. Preda, P. Fossati, F. Valvo, M. Ciocca</i>                                   | <b>OC-0589</b> |

- 17:15 > Avoidance of DNA replication stress by functional HR leads to radioresistance in stem cell-like TNBC

*K. Borgmann (Germany), M. Felix, E. Anna Maria, B. Saskia, H. Linda, P. Claudia, D. Anna, W. Sabine, W. Harriet, R. Kai, P. Cordula*

OC-0590

### ● PROFFERED PAPERS

#### CL 11: Proffered papers: Breast

16:15 - 17:30 | Gold Plenary

Chair: P.C. Lara Jimenez (Spain)

Chair: TBC

- 16:15 > Response after MR-guided single dose ablative preoperative partial breast irra-diation

*J. Vasmel (The Netherlands), R. Charaghvandi, A. Houweling, M. Philippens, C. Vreuls, P. Van Diest, G. Van Leeuwen, J. Van Gorp, A. Witkamp, C. Van der Pol, R. Koelemij, A. Doeksen, M. Sier, T. Van Dalen, E. Van der Wall, W. Veldhuis, M. Hob-belink, A. Kirby, H. Verkooijen, D. Van den Bongard*

OC-0591

- 16:27 > 5 year results of the Preoperative Accelerated Partial Breast Irradiation (PAPBI) trial

*S. Bosma (The Netherlands), F. Leij van der, S. Vreeswijk, M. Vijver van der, S. Rive-ra, T. Foukakis, D. Bongard van den, E. Rutgers, A. Scholten, H. Bartelink, P. Elkhuijzen*

OC-0592

- 16:39 > Prone breast radiotherapy reduces acute skin toxicity – results from a multicentre single blind RCT

*D. Vesprini (Canada), M. Davidson, S. Bosnic, L. Fenkell, D. Comsa, P. Truong, E. Wai, M. El-Mallah, L. Garcia, C. Stevens, M. Follwell, H. Gotthardt, S. Zhu, A. Kiss, E. Rakovitch, J. Pignol*

OC-0593

- 16:51 > Acute toxicity results after breast-conserving therapy in "boost vs no boost (BONBIS)" DCIS trial

*C. Bourgier (France), D. Cowen, C. Lemanski, F. Castan, S. Rivera, B. De La Lande, K. Peignaux, M. Le Blanc-Onfroy, A. Benyoucef, A. Mege, Z. Douadi-Gaci, S. Racadot, I. Latorzeff, U. Schick, S. Jacquot, C. Massabeau, P. Guillet, J. Geffrelot, S. Ellis, I. Lecouillard, C. Breton-Callu, A. Richard-Tallet, P. Bontemps, P. Fenoglietto, D. Azria*

OC-0594

- 17:03 > Does seroma predict patient-reported adverse effects following breast radio-therapy in IMPORT HIGH?

*I.S. Bhattacharya (United Kingdom), J.S. Haviland, C. Perotti, D. Eaton, S. Gulliford, E. Harris, C.E. Coles, C.C. Kirwan, J.M. Bliss, A.M. Kirby*

OC-0595

- 17:15 > Importance of dose to the atherosclerotic plaque in the LAD for cardiac toxicity in breast cancer

*V. Van den Bogaard, D. Spoor, A. Van der Schaaf, L. Van Dijk, J. Langendijk, J. Maduro, A. Crijns (The Netherlands)*

OC-0596

● PROFFERED PAPERS

**CL 12: Proffered papers: Health Economics and Health services research**

**16:15 - 17:30 | Brown 3**

*Chair: C. Grau (Denmark)*

*Chair: J. Chan (Canada)*

- 16:15 > Implementing a quality indicator project on a national basis: a feasibility study

*A. Vaandering (Belgium), Y. Lievens, N. Jansen, C. Weltens, L. Moretti, K. Stellamans, F. Vanhoutte, P. Scalliet, V. Remouchamps*

OC-0597

- 16:27 > Estimating the need for palliative radiotherapy for breast cancer: A benchmark-ing approach

*C.J. Jin (USA), W. Kong, W.J. Mackillop*

OC-0598

- 16:39 > Survival and local control deficits due to radiotherapy under-utilisation in NSW, Australia

*G. Delaney (Australia), G.S. Gabriel, J. Shafiq, R. Merie, S. Vinod, V. Batumalai, M.B. Barton*

OC-0599

- 16:51 > Assessment of non-adherence to external radiotherapy treatment in cancer pa-tients in Catalonia, Spain

*J.M. Borras (Spain), R. Font, J. Solà, M. Macià, M. Arenas, R. Verges, A. Eraso, V. Tuset, A. Biete, J.M. Solé, N. Farré, A. Pedro, M. Mira, J.A. Espinàs*

OC-0600

- 17:03 > Stereotactic body radiotherapy for oligometastatic disease in belgium: costs and budgetary impact

*D. Nevens (Belgium), I. Kindts, N. Defourny, M. Rosskamp, C. Mercier, H. De Schut-ter, C. Van de Voorde, Y. Lievens*

OC-0601

- 17:15 > Pattern of care of radiotherapy practice for EBRT patients in Spain

*N. Defourny (Belgium), A.L. Medina, J.L. Tarjuelo, A. Rodríguez, J. Giralt, J.C. Novais, M.M. Martín, A.M. Luis, J. Isern, I.H. Lopez, O. Leaman, F. Arias De la Vega, R. Morera, L. Cerezo, F.L. Campos, S. Rodríguez, A.J. Conde Moreno, A. Lozano Bor-balas, N. Rodríguez de Dios, M.E. Rodríguez-Ruiz, P.C. Lara, C. Ferrer, J.M. Borras, C. Grau, Y. Lievens*

OC-0602

● PROFFERED PAPERS

**PH 12: Proffered paper: Multi centre analysis of quality**

**16:15 - 17:30 | Space 1-2**

*Chair: E. Clementel (Belgium)*

*Chair: P. Taylor (USA)*

- |         |   |                |
|---------|---|----------------|
| 16:15 > | A 2018 IPEM audit of MRI in external beam radiotherapy treatment planning in the UK<br><i>R. Speight (United Kingdom), M. Schmidt, G. Liney, R. Johnstone, C. Eccles, M. Dubec, B. George, A. Henry, H. McCallum</i>  | <b>OC-0603</b> |
| 16:25 > | The first UK survey of dose indices from radiotherapy treatment planning CT scans for adult patients<br><i>M. Williams (United Kingdom), T. Wood, A. Davis, J. Earley, R. Plaistow, R. Lindsay, A. Palmer, A. Nesbit, S. Edyean, U. Findlay</i>   | <b>OC-0604</b> |
| 16:35 > | Is DIBH more robust than FB in VMAT left breast irradiation? Multicenter and multivendor analysis<br><i>S. Russo (Italy), M. Esposito, V. Hernandez, J. Saez, G. Nicolini, E. Vanetti, F. Rossi, L. Paoletti, P. Bastiani, G. Reggiori, S. Tomatis, M. Scorsetti, P. Mancosu</i>  | <b>OC-0605</b> |
| 16:45 > | IMRT QA: comparing independent recalculation against measurement based methods<br><i>S. Kry (USA), M. Glenn, C. Peterson, D. Branco, H. Mehrens, A. Steinmann, D. Fol-lowill</i>  | <b>OC-0606</b> |
| 16:55 > | IAEA supported national 'end-to-end' IMRT audit in Portugal<br><i>T. Santos (Portugal), M.D.C. Lopes, E. Gershkevitsch, J. Izewska</i>  | <b>OC-0607</b> |
| 17:05 > | Credentialing of spine stereotactic ablative body radiotherapy in a multi-centre trial<br><i>N. Hardcastle (Australia), O. Cook, P. Mitchell, S. Siva</i>   | <b>OC-0608</b> |
| 17:15 > | Urethra-sparing SBRT for prostate cancer: quality assurance of a randomized phase II trial<br><i>M. Jaccard (Switzerland), T. Zilli, A. Dubouloz, L. Tsang, S. Zvi, N. Linthout, S. Bral, W. Verbakel, A. Bruynzeel, M. Björkqvist, H. Minn, L. Escude, S. Jorcano, J. Lencart, A. Oliveira, Z. Ozen, U. Abacioglu, J.M. Pérez-Moreno, C. Rubio, M. Rouzaud, R. Miralbell</i> | <b>OC-0609</b> |

● PROFFERED PAPERS

**PH 13: Proffered paper: Modelling toxicity**

**16:15 - 17:30 | Space 3-4**

*Chair: A. Van Der Schaaf (The Netherlands)*

*Chair: O. Casares Magaz (Denmark)*

- 16:15 > Modelling of xerostomia after radiotherapy for head and neck cancer: a registry study

*E. Onjukka (Sweden), C. Mercke, A. Discacciati, G. Alexandersson von Döbeln, E. Björgvinsson, H. Carstens, S. Friesland, G. Gagliardi, C. Lenneby Helleday, H. Sjödin, G. Wickart Johansson, I. Lax*

OC-0610

- 16:25 > Planned and delivered DVHs of the skin predict acute cutaneous toxicity after IGRT for HN cancer

*M. Mori (Italy), S. Foti, I. Dell' Oca, M. Branchini, S. Broggi, G.M. Cattaneo, N. Di Muzio, C. Fiorino*

OC-0611

- 16:35 > A case-control study of brainstem substructures and morbidity following pedi-atric proton therapy

*C. Stokkevåg (Norway), D.J. Indelicato, L.F. Fjæra, Y. Lassen-Ramshad, K.S. Ytre-Hauge, Z. Li, L. Toussaint, O. Casares-Magaz, S. Flampouri, R. Mikkelsen, C. Pedro, O. Dahl, L.P. Muren*

OC-0612

- 16:45 > Spatial dose patterns of radiation pneumonitis in lung cancer patients treated by photons or protons

*G. Palma (Italy), S. Monti, T. Xu, E. Scifoni, P. Yang, S. Hahn, M. Durante, R. Mohan, Z. Liao, L. Cella*

OC-0613

- 16:55 > NTCP models of late rectal morbidity after proton therapy in 1036 prostate can-cer patients

*J. Pedersen (Denmark), S. Flampouri, C. Bryant, Z. Li, N. Mendenhall, L.P. Muren*

OC-0614

- 17:05 > Predicting urinary toxicity via 2D and 3D dose map analyses in prostate cancer radiotherapy

*E. Mylona (France), A. Cicchetti, T. Rancati, F. Palorini, S. Supiot, N. Magné, G. Cre-hange, O. Acosta, R. De Crevoisier*

OC-0615

- 17:15 > Introducing information on gut microbiota into toxicity modeling: preliminary results from a trial

*T. Rancati (Italy), N. Bedini, L. De Cecco, B. Avuzzi, S. Morlino, B. Noris Chiorda, M. Dispigneri, S. Villa, T. Di Florio, F. Badenchini, F. Palorini, T. Giandini, A. Cicchetti, E. Mancinelli, M.S. Serafini, A. De Vecchi, E. Orlandi, R. Valdagri*

OC-0616



● PROFFERED PAPERS

**RTT 6: Education and quality management for optimising patient care**

**16:15 - 17:30 | Ambra 1-2**

*Chair: L. Van den Berghe (Belgium)*

*Chair: A. Kostovski (Bosnia and Herzegovina)*

- 16:15 > Work interruptions in radiotherapy and their impact on patient safety

*S. Cucchiaro (Belgium), M. Delgaudine, N. Gourmet, P. Coucke*

**OC-0617**

- 16:30 > Clinical audits as a quality improvement tool in radiotherapy departments: the Belgian experience

*A. Vaandering, P. Scalliet, E. Vanhoucke (Belgium)*

**OC-0618**

- 16:45 > Using continuous quality improvement to improve safety and reduce imaging errors in radiotherapy

*D. TAN, L. Davies, M. Williams, S. Jones, N. Bales, C. Beswick, P. Wheeler (United Kingdom)*

**OC-0619**

- 17:00 > Stop: No! Take Action: Yes! A new approach to act on anatomical changes seen on CBCT

*M. Buijs (The Netherlands), F. Pos, M. Frantzen-Steneker, F. Koetsveld, P. Remeijer*

**OC-0620**

- 17:15 > Changing responsibilities for RTTs on the MR-linac

*A. Betgen (The Netherlands), J. Bilderbeek, T. Janssen, J. Kaas, M. Nowee, T. Vijlbrief, L. Wiersema, U. Van der Heide*

**OC-0621**

● POSTER VIEWING

**Poster viewing 12: GI and Urological Cancers**

**16:15 - 17:30 | Poster area**

*Chair: C. Gani (Germany)*

*Chair: K. Bujko (Poland)*

- > NCTP model for postoperative pulmonary complications after trimodality therapy in esophageal cancer

*M. Thomas (Belgium), G. Defraene, M. Lambrecht, W. Deng, J. Moons, P. Nafteux, S.H. Lin, K. Haustermans*

**PV-0622**

- > Tumor-stroma ratio for predicting pathologic response after chemoradiotherapy in esophageal cancer

*I. Lips (The Netherlands), G.W. Van Pelt, F.P. Peters, J.A. Krol, D. Van Klaveren, J.J. Boonstra, W.O. De Steur, A. Farina Sarasqueta, W.E. Mesker, M. Slingerland*

**PV-0623**

- > Pathologic response in pancreatic cancer treated with neoadjuvant MRI-guided radiation therapy  
*S. Rudra (USA), R. Brenneman, S. Badiyan, A. Wang-Gillam, W. Hawkins, R. Fields, S. Strasberg, M. Roach, H. Kim*
- > Biological factors influencing outcomes in SBRT for colorectal cancer oligome-tastases (OM)  
*S. O'Cathail (United Kingdom), T. Smith, R. Owens, Y. Tsang, M. Harrison, M. Hawkins*
- > Mismatch Repair System Deficiency increases response to neoadjuvant chemo-radiation in rectal cancer  
*N. Meillan (France), D. Vernerey, J.H. Lefèvre, G. Manceau, M. Svrcek, J. Augustin, J. Fléjou, O. Lascols, J. Simon, R. Cohen, P. Maingon, J. Bachet, F. Huguet*
- > IL17F-rs641701 polymorphism as prognostic factor in rectal cancer after pre-operative chemoradiation  
*E. Palazzari (Italy), E. Dreussi, I. Maretto, F. Navarra, R. Innocente, C. Belluco, F. Matrone, G. Fanetti, A. Revelant, M. Montico, G. Toffoli, S. Pucciarelli, E. Cecchin, A. De Paoli*
- > Association of androgen deprivation duration and cardiovascular mortality in prostate cancer men  
*A. Yorozu (Japan), S. Sutani, K. Toya, Y. Shiraishi, S. Saito*
- > Late toxicity and PROMs in pelvic or prostate RT in high risk prostate cancer: A randomized trial  
*V. Murthy (India), J. Bhatia, S. Kannan, P. Gurav, R. Krishnatry, D. Chourasiya, G. Prakash, G. Bakshi, S. Menon, U. Mahantshetty*
- > 10-year multi-centre experience of adjuvant radiotherapy in pN3 squamous cell carcinoma of the penis  
 Abstract withdrawn

PV-0624

PV-0625

PV-0626

PV-0627

PV-0628

PV-0629

#### ● AWARD LECTURE

#### **Donald Hollywood Award lecture**

**17:40 - 17:50 | Gold Plenary**

*Chair: C. Rödel (Germany)*

- 17:40 > Stem cell sparing IMRT for head and neck cancer patients: a double-blind ran-domized controlled trial  
*R. Steenbakkers (The Netherlands), M. Stokman, R. Kierkels, M. Schuurman, A. Van den Hoek, H. Bijl, M. Dieters, R. Coppes, J. Langendijk, P. Van Luijk*

OC-0631



- AWARD LECTURE

**Highlights of proffered papers****17:50 - 18:30 | Gold Plenary**

*Chair: C. Clark (United Kingdom)*

*Chair: B. Pieters (The Netherlands)*

*Chair: M. Vooijs (The Netherlands)*

*Chair: B. Bak (Poland)*

- 17:50 > Radiotherapy-related lymphopenia affects overall survival in patients with lung cancer

*A. Abravanel (United Kingdom), C. Faivre-Finn, J. Kennedy, A. McWilliam, M. Van Herk*

**OC-0632**

- 18:00 > Single dose high dose-rate (HDR) brachytherapy as monotherapy for localised prostate cancer

*H. Tharmalingam (United Kingdom), Y.M. Tsang, P. Hoskin*

**OC-0633**

- 18:10 > Implementation of plan of the day adaptive radiotherapy: Compliance to guide-lines

*A. Webster (United Kingdom), S. Hafeez, E. Hall, V. Hansen, H. McNair, R. Lewis, H. Robert*

**OC-0634**

- 18:20 > Targeting TEMPRSS2: ERG fusion to achieve a tumor-specific radiosensitization in prostate cancer

*S. Köcher, B. Beyer, T. Lange, L. Nordquist, S. Burdak-Rothkamm, T. Schlomm, C. Petersen, K. Rothkamm, W. Mansour (Germany)*

**OC-0635**



2-4 April 2020  
Vienna, Austria

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# World Congress of Brachytherapy

# Tuesday 30 April 2019

## ● TEACHING LECTURE

### The DNA damage response to radiotherapy: mechanisms and therapeutic opportunities

08:30 - 09:10 | Ambra 5-6

Chair: M. Van Vugt (*The Netherlands*)

08:30 > The DNA damage response to radiotherapy: mechanisms and therapeutic opportunities

Speaker: M. Morgan (*USA*)

SP-0636

## ● TEACHING LECTURE

### Are adolescents and young adults (AYA) a specific patients' population?

08:30 - 09:10 | Brown 2

Chair: K. Dieckmann (*Austria*)

08:30 > Are adolescents and young adults (AYA) a specific patients' population?

Speaker: D. Walker (*United Kingdom*)

SP-0637

## ● TEACHING LECTURE

### Hypofractionation: can the DNA damage response deliver a biological rationale?

08:30 - 09:10 | Brown 1

Chair: K. Borgmann (*Germany*)

08:30 > Hypofractionation: can the DNA damage response deliver a biological rationale?

Speaker: K. Rothkamm (*Germany*)

SP-0638

## ● TEACHING LECTURE

### Recent insights into radiotherapy tolerance from the REQUITE Consortium

08:30 - 09:10 | Auditorium

Chair: D. De Ruysscher (*The Netherlands*)

08:30 > Recent insights into radiotherapy tolerance from the REQUITE Consortium

Speaker: C. West (*United Kingdom*)

SP-0639

● TEACHING LECTURE

**Integration of PET imaging in radiation treatment planning**

**08:30 - 09:10 | Brown 3**

*Chair: A. Loft (Denmark)*

08:30 > Integration of PET imaging in radiation treatment planning  
*Speaker: U. Nestle (Germany)*

SP-0640

● TEACHING LECTURE

**Implementation and practice of SRS and SBRT: Consensus guidelines and protocols**

**08:30 - 09:10 | Space 1-2**

*Chair: M.d.C. Lopes (Portugal)*

08:30 > Implementation and practice of SRS and SBRT: Consensus guidelines and protocols  
*Speaker: L. Seuntjens (Canada), E. Lartigau*

SP-0641

● TEACHING LECTURE

**How to select patients for radiotherapy with protons instead of photons**

**08:30 - 09:10 | Space 3-4**

*Chair: L.P. Muren (Denmark)*

08:30 > How to select patients for radiotherapy with protons instead of photons  
*Speaker: J. Balosso (France), J. Thariat, J.L. Habrand, T. Tessonnier, P. Lesueur, A. Chaikh, D. Stefan, J.M. Fontbonne*

SP-0642

● TEACHING LECTURE

**MR-guided radiotherapy in the pelvic region**

**08:30 - 09:10 | Ambra 1-2**

*Chair: L. Mullaney (Ireland)*

08:30 > MR-guided radiotherapy in the pelvic region  
*Speaker: A. Tree (United Kingdom)*

SP-0643

● SYMPOSIUM

**Radiotherapy biomarkers: a confluence of imaging, genetics and pathology**

**09:15 - 10:30 | Ambra 5-6**

*Chair: JL Perfettini (France)*

*Co-chair: L. Marignol (Ireland)*





- |   |                |
|---|----------------|
| 09:15 > Advances in imaging to predict and monitor radiation response<br><i>Speaker U. Van der Heide (The Netherlands)</i>  | <b>SP-0644</b> |
| 09:35 > New approaches to Radiotherapy biomarkers, the data has gotten big<br><i>Speaker E. Medico (Italy)</i>  | <b>SP-0645</b> |
| 09:55 > Translation of biomarker signatures in daily clinical use?<br><i>Speaker: M. Krause (Germany)</i>   | <b>SP-0646</b> |
| 10:15 > Analysis of biomarkers for late radiotherapy toxicity in the REQUITE project<br><i>C. Talbot (United Kingdom), D. Azria, T. Burr, J. Chang-Claude, A. Dunning, M. Farcy Jacquet, C. Herskind, D. De Ruysscher, R. Elliott, S. Gutiérrez-Enríquez, P. Lambin, A. Müller, T. Rancati, T. Rattay, B. Rosenstein, P. Seibold, R. Valdagni, A. Vega, L. Veldeman, M. Veldwijk, F. Wenz, A. Webb, C. West</i> | <b>OC-0647</b> |

● SYMPOSIUM

**Palliation in RT - How much is enough?**

**09:15 - 10:30 | Brown 2**

In this interdisciplinary session, the role of palliative radiotherapy will be discussed and special focus will be set on patient selection criteria and how to choose different radiation techniques and dose schedules. Moreover, an overview of beneficial indications for single fraction treatment in palliation will be discussed. The radiation therapists' role in this field including the knowledge and experience required to conduct palliative radiotherapy planning and their relationship with patients referred to palliative radiotherapy will also be addressed. Finally, the importance of individual radiosensitivity including the risk of adverse tissue reactions and reliable predictive assays will be presented.

*Chair: P. Hoskin (United Kingdom)*

*Co-chair: J. Cacicedo (Spain)*

- |   |                |
|---|----------------|
| 09:15 > Criteria for choosing dose and irradiation techniques for palliative treatment<br><i>Speaker: Y. Van Der Linden (The Netherlands)</i> | <b>SP-0648</b> |
| 09:33 > Uncertainties in single fraction treatment<br><i>Speaker: J. Dhont (Belgium)</i>  | <b>SP-0649</b> |
| 09:51 > The role of the RTT in the palliative patients journey<br><i>Speaker: K. Moore (United Kingdom)</i>                                   | <b>SP-0650</b> |

- 10:09 > Healthy tissue response to a single fraction treatment: Impact of the individual radiosensitivity  
Speaker: *N. Foray (France)*

SP-0651

● SYMPOSIUM

**Mechanisms of treatment resistance in glioma**

09:15 - 10:30 | Brown 1

In this session, novel insights into glioma resistance and therapeutic opportunities are presented. How glioma stem cells use DNA replication stress to survive, how glioma cells connect and communicate with astrocytes to control their resistance, how glioma cells respond to temozolomide on the transcriptional level to form interaction nodes between sensitive and non-sensitive subpopulations, and how defective signaling pathways in glioma cells can be exploited with novel therapeutic approaches using combinations of radiotherapy plus biologicals are some of the fundamental questions discussed.

Chair: *N. Cordes (Germany)*

Co-chair: TBC

- 09:15 > The role of DNA replication stress in glioma stem cell radiation resistance

Speaker: *R. Carruthers (United Kingdom), S. Ahmed, K. Strathdee, A. Chalmers*

SP-0652

- 09:33 > Tumor cell connections causing radiation resistance

Speaker: *F. Winkler (Germany)*

SP-0653

- 09:51 > Transcriptional response to temozolomide in Glioblastoma reveals critical role of long non-coding RNAs

Speaker: *S. Niclou (Luxembourg), S. Fritah, M. Sarmini, W. Jiang, A. Muller, M. Dieterle, R. Mitra, A. Golebiewska, Z. Zhao, F. Azuaje*

SP-0654

- 10:09 > Irradiation and targeted inhibition of the PI3K/AKT and MAPK pathways in glioma

Speaker: *P. Sminia (The Netherlands), R. Narayan, A. Gasol, F. Cornelissen, J. Theys, T. Lagerweij, E. De Vries, F. Bikhezar, A. Denkova, R. De Kruijff, B. Slotman, L. Stalpers, B. Baumert, B. Westerman*

SP-0655



● DEBATE

**This house believes that there is still a role for radiotherapy in pancreatic cancer**  
**09:15 - 10:30 | Auditorium**

Overall pancreatic cancer has a very poor survival. To date, the sole curative treatment for non-metastasized pancreatic cancer is surgery. The role of radiation therapy in the management of pancreatic cancer has been subject of debate for decades. Recent results from clinical trials and the introduction of novel techniques such as SBRT may support the use of radiotherapy in the treatment of localized pancreatic cancer. However, systemic treatment options and other ablative therapies have evolved as well. The role of radiotherapy in both primary resectable and locally advanced pancreatic cancer will be debated in view of the latest insights.

*Chair: K. Haustermans (Belgium)*  
*Co-chair: M. Berbée (The Netherlands)*

09:15 > For the motion: resectable pancreatic cancer Speaker: T. Brunner (Germany)	SP-0656
09:30 > Against the motion: resectable pancreatic cancer Speaker: M. Falconi (Italy)	SP-0657
09:45 > For the motion: locally advanced pancreatic cancer Speaker: F. Huguet (France)	SP-0658
10:00 > Against the motion: locally advanced pancreatic cancer Speaker: E. Van Cutsem (Belgium)	SP-0659
10:15 > Discussion	

● SYMPOSIUM

**New developments in Head and Neck Cancer treatment**  
**09:15 - 10:30 | Brown 3**

Head and Neck oncology is being transformed by a series of major developments that relate to the epidemiology of the disease, the use of advanced forms of radiotherapy planning and delivery, and the introduction of immunotherapy. In this session these three areas will be discussed by key experts. Dr. Lassen will discuss the impact of Human Papilloma Virus in oropharyngeal cancers, and will review the latest TNM staging. She will discuss how to optimally treat HPV positive OPC integrating an overview of the design and rationale of ongoing clinical trials and a presentation of lessons learned from completed clinical trials. Dr. Langendijk will present prediction models that and their integration in head and neck radiotherapy.

He will show how the model-based approach allows for a continuous improvement and validation of newly introduced radiation techniques and ultimately the most optimal outcome for patients. Last, Dr. Licitra will discuss the rationale for using immunotherapy in head and neck cancers, the latest results in the recurrent/metastatic setting and the development of prognostic/predictive biomarkers to guide patient selection.

*Chair: P. Blanchard (France)*

*Co-chair: I. Desideri (Italy)*

- 09:15 > p16+ oropharyngeal cancer: new disease, new staging – what about treatment?

*Speaker: P. Lassen (Canada)*

SP-0660

- 09:40 > Predictive models in treatment of head and neck cancer

*Speaker: H. Langendijk (The Netherlands)*

SP-0661

- 10:05 > Immunotherapy in HNC – when and for whom, biomarkers of response

*Speaker: L. Licitra (Italy)*

SP-0662

● SYMPOSIUM

**New detector developments**

**09:15 - 10:30 | Space 1-2**

This session focuses on developments in detector technology. The new UK primary standard calorimeter for proton radiotherapy is discussed covering of why this is needed, how the device is built and validated, its operation and ultimately its implementation. The next talks gives an update on the present status of the two commercial scintillation detectors available and the third system in development for HDR brachytherapy. The third talk discusses the different methods of multichannel film dosimetry and associated uncertainties, and the final presentation covers high spatial and time resolution silicon detectors with application in motion adaptive radiotherapy and synchrotron microbeam radiotherapy.

*Chair: J. Lye (Australia)*

*Co-chair: E. Dabrowska-Szewczyk (Poland)*

- 09:15 > Update on compact graphite calorimeter for absolute dosimetry measurements

*Speaker: R. Thomas (United Kingdom)*

SP-0663

- 09:33 > Update on commercial scintillators

*Speaker: S. Beddar (USA)*

SP-0664

- 09:51 > Multichannel film dosimetry  
*Speaker: I. Mendez Carot (Spain)* SP-0665
- 10:09 > Developments in time-resolved detectors  
*Speaker: A. Rozenfeld (Australia)* SP-0666

### ● PROFFERED PAPERS

#### **PH 14: Proffered paper: Treatment planning of proton therapy**

**09:15 - 10:30 | Space 3-4**

*Chair: H. Nyström (Denmark)*

*Chair: R. Amos (United Kingdom)*

- 09:15 > Experimental assessment of inter-centre variation and accuracy in SPR prediction within the EPTN  
*N. Peters (Germany), P. Wohlfahrt, A. Bolsi, C.V. Dahlgren, L. De Marzi, M. Ellerbrock, F. Fracchiolla, J. Free, C. Gomà, J. Góra, F.T. Kajdrowicz, R. MacKay, S. Molinelli, O. Nørrevang, I. Rinaldi, V. Rompokos, P. Van der Tol, X. Vermeren, C. Richter* OC-0667
- 09:25 > MRI-only proton therapy treatment planning with synthetic CT images generated using deep learning  
*A.M. Barragán Montero, K. Souris (Belgium), S. Kazemifar, R. Timmerman, S. Jiang, X. Geets, E. Sterpin, A. Owrange* OC-0668
- 09:35 > Development of a novel MRI-only treatment planning approach for ocular proton therapy  
*E. Fleury (The Netherlands), P. Trnková, E. Erdal, K. Hassan, J. Beenakker, J. Herault, J. Pignol, M. Hoogeman* OC-669
- 09:45 > Temporal lobe sparing radiotherapy for cognitive preservation in pediatric brain tumor patients  
*L. Toussaint (Denmark), D.J. Indelicato, L.P. Muren, Z. Li, Y. Lassen-Ramshad, K. Kirby, C. Pedro, R. Mikkelsen, M. Di Pinto, M. Høyér, C.H. Stokkevåg* OC-0670
- 09:55 > Which planning strategy is better for Head&Neck Cancer: PTV based or CTV based robust IMPT?  
*W.G. Wang, A. Qin, P. Kabolizadeh, X. Li, D. Yan, G. Liu, R. Deraniyagala, I. Grills, C. Stevens, D. Krauss, X. Ding (USA)* OC-0671
- 10:05 > Proton radiotherapy for left-sided breast cancer in patients with pectus excavatum anatomy  
*S. Korreman (Denmark), S. Andreasen, J.B.B. Petersen, B. Offersen* OC-0672
- 10:15 > LET variation as a function of different optimization approaches in proton beam therapy  
*G. Martino (Austria), N. Van Lobenstein, A. Carlino, A. Resch, M. Stock, G. Kragl* OC-0673

● SYMPOSIUM

**Focus on the Pelvic Region**

**09:15 - 10:30 | Ambra 1-2**

In this session with the focus on the pelvic region you will be able to get an overview of different adaptive strategies as well as an insight on practical issues and the reporting of those techniques. Furthermore, the impact of bladder filling on anatomic structures in the pelvis will be demonstrated, including the possibilities to assess and evaluate bladder filling. Additionally, the role of MR for treatment planning will be presented and the possibilities of MRI-only treatment planning and the required QA procedures will be discussed.

*Chair: P. Scherer (Austria)*

*Co-chair: L. Turtle (United Kingdom)*

09:15 > Status on adaptive strategies in the pelvic region – how far are we?

*Speaker: Y. Seppenwoolde (Austria)*

**SP-0674**

09:40 > Bladder filling - does it matter?

*Speaker: D. Bodusz (Poland)*

**SP-0675**

10:05 > MR-based treatment planning for prostate cancer

*Speaker: E. Persson (Sweden)*

**SP-0676**

● JOINT SYMPOSIUM

**ESTRO-RANZCR: Radiotherapeutic management of oligometastatic disease**

**11:00 - 12:15 | Ambra 5-6**

Radical radiotherapy for oligometastatic disease (OMD) has gained rapid and broad acceptance in the last few years. This is in part related to the evolving technical and imaging capabilities. Yet, strong clinical evidence from prospective clinical trials is lacking in many indications, while randomized evidence in particular remains scarce. Lung cancer OMD is to date the best studied clinical indication.

In this session the available clinical evidence supporting OMD will be critically discussed, along with the challenges from a medical physics perspective. In addition, the specific situation of OMD in lung cancer will be addressed in more detail.

*Chair: Y. Lievens (Belgium)*

*Chair: M. Chilkuri (Australia)*



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|---|----------------|
| 11:00 > Oligometastatic Prostate SBRT: The How, What, Where and When<br><i>Speaker: J. Martin (Australia), P. Blanchard, P. Greer, P. Keall, D. Pryor, M. Sidhom, S. Siva, S. Supiot, S. Turner</i> | <b>SP-0677</b> |
| 11:18 > SBRT for oligometastatic NSCLC<br><i>Speaker: S. Senan (The Netherlands)</i>  | <b>SP-0678</b> |
| 11:36 > Challenges in SBRT physics<br><i>Speaker: T. Kron (Australia)</i>   | <b>SP-0679</b> |
| 11:54 > Hints on optimal dose and fraction number from lung SBRT<br><i>Speaker: R. Ruggieri (Italy)</i>   | <b>SP-0680</b> |

● SYMPOSIUM

**Plan of the day - present status and future aims**

**11:00 - 12:15 | Brown 2**

This multidisciplinary state-of-the-art session will focus on personalizing radiotherapy treatment through delivery of a "plan of the day". Omar Bohoudi (NL) will focus on MR-guided on-line adaptive stereotactic radiotherapy for pancreatic cancer; Uwe Oelfke (GB) will discuss future developments in adaptive strategies; Shaista Hafeez (GB) will review currently available results of adaptive strategies, trials in development and the challenges of evaluating adaptive technologies; and Vincenzo Valentini (IT) will focus on opportunities and pitfalls in online MRI-guided adaptive radiotherapy including dealing with uncertainty, adaptive segmentation strategies and adapted-vs-planned dosimetry.

*Chair: M. Dahele (The Netherlands)*

*Co-chair: E. Fokas (Germany)*

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|---|----------------|
| 11:00 > Online adaptive planning in pancreatic cancer<br><i>Speaker: O. Bohoudi (The Netherlands)</i> | <b>SP-0681</b> |
| 11:18 > Future developments in adaptive strategies<br><i>Speaker: U. Oelfke (United Kingdom)</i>      | <b>SP-0682</b> |
| 11:36 > Clinical results of PotD strategies<br><i>Speaker: S. Hafeez (United Kingdom)</i>             | <b>SP-0683</b> |
| 11:54 > MRI online ART: opportunities and pitfalls<br><i>Speaker: V. Valentini (Italy)</i>            | <b>SP-0684</b> |

● DEBATE

**This house believes that immunotherapy is really changing radiation oncology**

**11:00 - 12:15 | Brown 1**

*Chair: A. Chalmers (United Kingdom)*

*Co-chair: R. Baumann (Germany)*

11:00 > For the motion

*Speaker: E. Deutsch (France)*

SP-0685

11:15 > Against the motion

*Speaker: M. Baumann (Germany), N. Ebert*

SP-0686

11:30 > For the motion: combining radiotherapy with immunotherapy:  
focus on immunocytokines

*Speaker: P. Lambin (The Netherlands), R. Lieverse, E.J. Van Limbergen,  
V. Olivo Pimentel, D. Marcus, A. Van Der Wiel, J. Theys, A. Yaromina,  
L.J. Dubois, A. Hoeben, A.M. Dingemans*

SP-0687

11:45 > Against the motion: we don't need Costalotamab when we have  
SBRT

*Speaker: M. Joiner (USA)*

SP-0688

12:00 > Discussion

● DEBATE

**This house believes that patients with squamous cell cancer of the esophagus no longer need surgery**

**11:00 - 12:15 | Auditorium**

Efficacy of chemoradiotherapy (CRT) in esophageal squamous cell carcinoma (SCC) will be discussed, with focus on potential subgroups of patients that could benefit from definitive CRT (dCRT) as an organ-sparing approach, the need for a prediction model for histopathological response, and quality of life after dCRT and surgery. Locoregional control and overall survival in SCC patients will be compared between dCRT and neoadjuvant CRT + surgery. Role of surgery in poor-responders and as salvage treatment will be discussed. Current approaches across Europe contrasting use of surgery +/- neoadjuvant therapies vs dCRT will be outlined.

*Chair: C. Belka (Germany)*

*Co-chair: J. Socha (Poland)*

11:00 > For the motion

*Speaker: F. Cellini (Italy)*

SP-0689

11:15 > Against the motion <i>Speaker: B. Wijnhoven (The Netherlands)</i>	<b>SP-0690</b>
11:30 > For the motion <i>Speaker: M. Hulshof (The Netherlands)</i>	<b>SP-0691</b>
11:45 > Against the motion <i>W. Allum (United Kingdom)</i>	<b>SP-0692</b>
12:00 > Discussion	



### ● SYMPOSIUM

#### **Controversies in the management of brain metastases**

**11:00 - 12:15 | Brown 3**

This session will deal with controversies in the management of brain metastases. Indications of whole brain radiotherapy will be debated in the context of new techniques of hippocampus sparing with the recent data of prospective trials. The emerging role of upfront systemic therapy as an alternative treatment to local treatment will be discussed mainly for NSCLC, as for breast cancer and melanoma. Several issues will be developed concerning radiosurgery (SRS): its role for multiple brain metastases, its integration with surgery (upfront SRS vs surgery? preoperative versus postoperative SRS?), and technical aspects (target volumes? Single vs multiple fractions?). Presentations will emphasize these topics in the perspective of radiation toxicities (neurocognitive impairment and radiation necrosis).

*Chair: M. Niyazi (Germany)*

*Co-chair: G. Louvel (France)*

11:00 > Whole brain irradiation with hippocampal avoidance <i>Speaker: A. Grosu (Germany)</i>	<b>SP-0693</b>
11:18 > Radiosurgery alone in multiple brain metastases <i>Speaker: J. Zindler (The Netherlands)</i>	<b>SP-0694</b>
11:36 > Systemic treatment as alternative or addition to radiotherapy <i>Speaker: N. Andratschke (Switzerland)</i>	<b>SP-0695</b>
11:54 > Integration of surgery and radiosurgery <i>Speaker: S. Blamek (Poland)</i>	<b>SP-0696</b>

● SYMPOSIUM

**Improving delineation in RT: not only for the doctor**

**11:00 - 12:15 | Space 1-2**

Our current state of the art radiotherapy techniques provided the means to deliver dose conformal to the target at sub-millimeter precision. However, the target and normal structures as such still contain a significant level of uncertainty, and delineation can therefore be seen as the weakest link in the radiotherapy chain.

Apart from generating consensus delineation guidelines and organizing education, advances in imaging can play an important role in reducing interobserver variability. Also, dedicated software tools for delineation including auto-contouring can contribute to better and more consistent delineation practice.

This session will provide an introduction to interobserver variability measures and implications, show the value of DECT and MR techniques for delineation, and finally place delineation uncertainty in the bigger picture of uncertainties in radiotherapy.

*Chair: T. Nyholm (Sweden)*

*Co-chair: C. Brouwer (The Netherlands)*

- 11:00 > How to handle clinical inter-observer variation in contouring assessment

*Speaker: M. Gooding (United Kingdom)*

**SP-0697**

- 11:18 > CT-based delineation: What can we gain from state-of-the-art CT image acquisition and reconstruction techniques

*Speaker: C. Richter (Germany), F. Negwer, E.C. Troost, P. Wohlfahrt*

**SP-0698**

- 11:36 > Development of MR techniques focused on improved delineation

*Speaker: M. Philippens (The Netherlands)*

**SP-0699**

- 11:54 > The future of margins in the era of new (multi-modality) imaging technology

*Speaker: J. Stroom (Portugal), S. Vieira, C. Greco*

**SP-0700**

● SYMPOSIUM

**A new era for radiotherapy (anthropomorphic) phantoms**

**11:00 - 12:15 | Space 3-4**

*Chair: L. Cozzi (Italy)*

*Co-chair: D. Franceschini (Italy)*



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| 11:00 > Personalized phantoms through 3D printing<br><i>Speaker: S. Crowe (Australia)</i>  | <b>SP-0701</b> |
| 11:15 > Do we need to touch? Latest developments in physical and digital phantoms for 4D radiotherapy<br><i>Speaker: C. McGarry (United Kingdom)</i> | <b>SP-0702</b> |
| 11:30 > MR Linac anthropomorphic end-to-end QA phantoms: IROC-Houston's experience<br><i>Speaker: A. Steinmann (USA), D. Followill</i>               | <b>SP-0703</b> |
| 11:45 > Phantoms in particle therapy to verify Monte Carlo dose calculation<br><i>Speaker: P. Wohlfahrt (Germany)</i>                                | <b>SP-0704</b> |
| 12:00 > Discussion   |                |

● DEBATE

**Workload/clinic logistics, and not technical uncertainties, are the main barrier to widespread implementation of adaptive RT practice**

**11:00 - 12:15 | Ambra 1-2**

There has been a lot of discussion amongst Radiation Therapy departments and the implementation of adaptive practice, concerning to workload/clinic logistics and not technical uncertainties.

In this session, we are approaching different perspectives about adapting a radiation therapy treatment to each patient, since it may require special education for RTT's and new organization paradigms. Can we really implement adaptive RT practice to our departments, in a daily basis, or is it impossible? Shall we change our capacity of conceiving a RT plan and change it, during the treatment, aiming to achieve different and better results to the patients?

RTT's Michael Velec, from Canada and Elizabeth Forde, from Ireland, will be the specialists who will answer our doubts and questions, and maybe, promote changes in our departments.

*Chair: I. Lobato (Portugal)*

*Co-chair: B. Bak (Poland)*

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|--|----------------|
| 11:00 > For the motion: practicalities and not technical uncertainties limit the clinical implementation of adaptive radiotherapy<br><i>Speaker: M. Velec (Canada), E. Forde</i> | <b>SP-0705</b> |
| 11:20 > Against the motion<br><i>Speaker: E. Forde (Ireland)</i>   | <b>SP-0706</b> |

- 11:40 > For the motion rebuttal: Practicalities and not technical uncertainties limit the clinical implementation of adaptive RT  
*M. Velec (Canada)*
- 11:50 > Against the motion rebuttal  
*E. Forde (Ireland)*
- 12:00 > Discussion
- > Debates and closing remarks

● CLOSING DEBATE

**Data mining or data farming?**

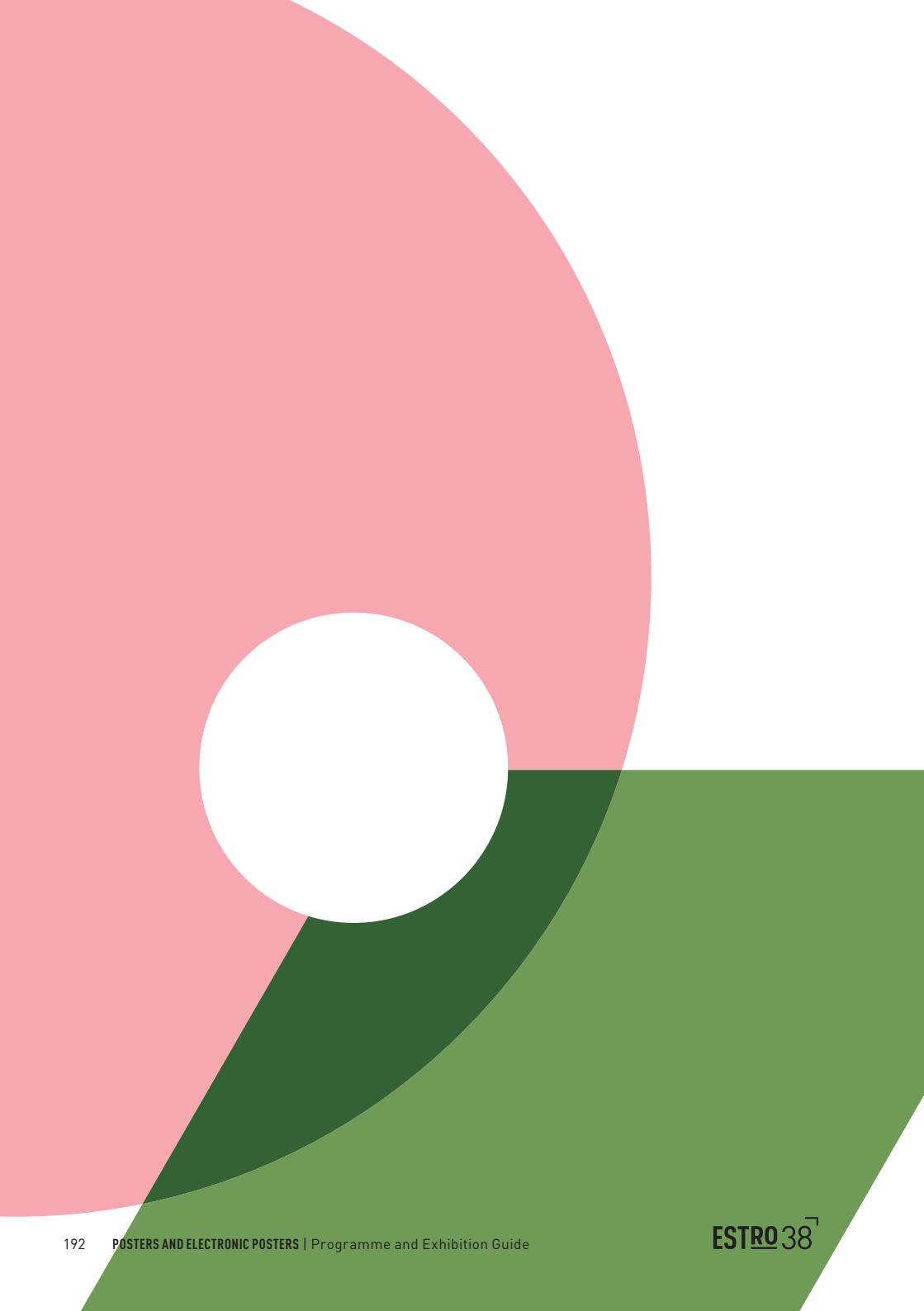
**12:20 - 13:20 | Space 1-2**

How do we best provide evidence that can help us to shape future radiotherapy: through access to large amounts of retrospective data (data mining) or by investing in high quality (hypothesis driven) prospective data collection (data farming)? Currently, only a fraction of radiotherapy patients enter clinical protocols - what are the priorities to improve on this? Furthermore, much of the progress in radiotherapy is aimed towards reduction of morbidity. What is the role of data mining versus data farming on addressing questions on morbidity and does patient reported outcome play a role in data mining/farming?

*Chair: U. Ricardi (Italy)*

*Chair: B. Slotman (The Netherlands)*

- 12:20 > For the motion  
*Speaker: Y. Lievens (Belgium)*
- 12:35 > Against the motion  
*Speaker: P. Blanchard (France)*
- 12:50 > For the motion rebuttal  
*Speaker: A. Dekker (The Netherlands)*
- 13:05 > Against the motion rebuttal  
*Speaker: M. Aznar (United Kingdom)*



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# **POSTERS AND ELECTRONIC POSTERS**

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Posters

194

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Electronic posters

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# Posters

● POSTER

**Clinical track: Head and Neck**

- > External beam radiotherapy for metastatic lesions of differentiated thyroid cancer  
*M. Kenji (Japan), Y. Hamamoto, Y. Urashima, N. Takata, K. Kikuchi, M. Miyagawa, T. Mochizuki* PO-0709
- > IMRT+Carbon Ion Boost for Adenoid Cystic Carcinoma of the Minor Salivary Glands of the Oral Cavity  
*K. Lang (Germany)* PO-0710
- > Second Primary Cancer in Salivary gland cancer in South Korea: A Nationwide Population-based Study  
*J. Heo (Korea Republic of), Y. Oh, O.K. Noh, M. Chun, O. Cho* PO-0711
- > A new prediction model for patient reported xerostomia; external validation in postoperative setting  
*H.P. Van der Laan (The Netherlands), L. Van den Bosch, A. Van der Schaaf, R.J.H.M. Steenbakkers, H.P. Bijl, M. Dieters, J.G.M. Van den Hoek, S. Both, E. Schuit, J.A. Langendijk* PO-0712
- > PDRN-based cream in the prevention and treatment of radiodermatitis in H&N cancer: our experience.  
*E. Pastore (Italy), A. Rese, G. Panelli, A. Pepe, D. Toledo, V. Iorio* PO-0713
- > Toxicity profile of a SBRT boost as first-line treatment in oropharyngeal cancer patients  
*W. Heemsbergen (The Netherlands), S. Baker, S. Petit, J. Nuyttens, G. Verduijn* PO-0714
- > Nutritional intervention in head and neck cancer patients undergoing radiotherapy  
*L. Gutierrez Bayard (Spain), M.D.C. Salas Buzón, S. Garduño Sánchez, M.J. Macias Lozano, R. Rodríguez Sánchez, S. Sayago Gil, V. Díaz Díaz, E. González Calvo, I. Villanego Beltrán, A. Ruiz Herrero, M. Lorente Sánchez, J. Jaén Olasolo* PO-0715

- > Skull-base chordoma treated with proton and carbon ion radiotherapy : CNAO clinical experience  
*A. Iannalni, E. D'ippolito (Italy), V. Vitolo, B. Vischioni, M.R. Fiore, M. Bonora, S. Ronchi, A. Barcellini, R. Petrucci, S. Molinelli, A. Mirandola, S. Russo, A. Facoetti, A. Vai, E. Mastella, G. Viselner, G. Magro, M. Ciocca, L. Preda, F. Valvo, R. Orecchia*  
**PO-0716**
- > Addition of chemotherapy to hyperfractionated radiotherapy in advanced head and neck cancer  
*H. Jan, T. Balint, E. Boelke (Germany), D. Freddy Noel, B. Wilfried, K. Kai, M. Christiane*  
**PO-0717**
- > Patterns of care for local recurrence of NPC after definite IMRT – a study by the HKNPCSG  
*W.T. Ng (Hong Kong (SAR) China), E.C. Wong, L.L. Chan, A.K. Cheung, J.C. Chow, D.M. Poon, J.W. Lai, C.L. Chiang, K.H. Au, A.W. Lee*  
**PO-0718**
- > head and neck contour peer review improves quality of radiotherapy targets  
*L. Mcgee (USA), J. Rwigema, M. Halyard, T. DeWees, J. Gagneur, S. Patel*  
**PO-0719**
- > Tumor volume/metabolism improve prognostication of anatomy-based stage for nasopharyngeal cancer?  
*Y. Jeong (Korea Republic of), K.K. Lee, S.R. Moon, S.Y. Noh, J. Kwak, S. Lee*  
**PO-0720**
- > Prognostic Value of Inflammatory Markers in Patients with Head and Neck Cancer  
*J. Mrochem-Kwarcia (Poland), T. Rutkowski, A. Wygoda, A. Chmura, K. Składowski*  
**PO-0721**
- > Carbon ion radiotherapy for adenoid cystic carcinoma in the head-and-neck  
*A. Hasegawa (Japan), B. Vischioni, M. Bonora, S. Ronchi, S. Molinelli, M. Ciocca, A. Facoetti, F. Valvo, P. Fossati, B. Alicja Jereczek, M. Koto, T. Kamada, J. Mizoe, R. Orecchia*  
**PO-0722**
- > Benefits of deep learning for delineation of organs at risk in head and neck cancer  
*J. Van der Veen, S. Willems, D. Robben, W. Crijns, F. Maes, S. Nuyts (Belgium)*  
**PO-0723**
- > Multimodality imaging employing FDG-PET/CT paves the way for de-escalation of the elective dose  
*S. Van den Bosch (The Netherlands), P.A.H. Doornaert, C.H.J. Terhaard, J.H.A.M. Kaanders*  
**PO-0725**





- > Lower toxicity incidence after SPECT/CT-guided elective nodal irradiation for head and neck cancer  
*P. De Veij Mestdagh (The Netherlands), W.V. Vogel, M.L. Donswijk, E. Lamers, C. Carbaat, W.H. Schreuder, M.W.M. Van den Brekel, A. Al-Mamgani*  
PO-0726
- > Voice outcome following radiotherapy or laser microsurgery in patients with early glottic cancer  
*A. Allajbej (Italy), F. Patani, S. Di Biase, D. Fasciolo, C. Di Carlo, C. Rosa, L. Gasparini, M. Di Francesco, G. Falcone, G. Quaternato, A. Croce, A. Di Pilla, M. Trignani, L. Caravatta, D. Genovesi*  
PO-0727
- > Reirradiation of salivary gland tumors with carbon ion radiotherapy (CIRT) at CNAO  
*B. Vischioni, B. Dhanireddy, M. Bonora, S. Ronchi, V. Vitolo, M.R. Fiore, E. D'Ippolito (Italy), R. Petrucci, C. Severo, E. Ciurlia, A. Hasegawa, A. Iannalffi, F. Valvo, R. Orecchia*  
PO-0728
- > Prognostic factors analysis in a cohort of Nasopharyngeal cancer patients with 5-year follow-up  
*N.A. Iacovelli (Italy), A. Cavallo, A. Cicchetti, L. Ferella, N. Facchinetti, T. Giandini, S. Meroni, D.A. Romanello, P. Bossi, L. Licita, E. Pignoli, C. Fallai, E. Orlandi*  
PO-0729
- > NTCP model for penetration/aspiration after (chemo)radiation including DVH parameters  
*A. Gawryszuk (The Netherlands), H.P. Van der Laan, R.J.M. Steenbakkers, J.G.M. Van den Hoek, H.P. Bijl, J.A. Langendijk*  
PO-0730
- > Transition from anatomical to geometric expansion modality for high-risk CTV in oropharyngeal cancer  
*P. Bonomo (Italy), I. Desideri, C. Becherini, L. Visani, V. Salvestrini, M. Mariotti, P. Garlatti, L. Dominici, L. Livi*  
PO-0731
- > NTCP model for osteoradionecrosis after definitive radiotherapy in head and neck cancer patients  
*N. Den Haan (The Netherlands), L. Van den Bosch, A. Van den Hoek, H. Bijl, R. Steenbakkers, M. Dieters, H.P. Van der Laan, H. Langendijk*  
PO-0732
- > Non-invasive imaging for tumor hypoxia: a novel validated CT and FDG-PET-based Radiomic signature  
*S. Sanduleanu (Belgium), A. Jochems, T. Upadhyaya, A. Even, R. Leijenaar, F. Dankers, R. Klaassen, H. Woodruff, M. Hatt, H. Kaanders, O. Hamming-Vrieze, H. Van Laarhoven, R. Subramiam, S. Huang, B. O'Sullivan, S. Bratman, L. Dubois, R. Miclea, D. Di Perri, X. Geets, D. De Ruysscher, F. Hoebers, P. Lambin*  
PO-0733

## ● POSTER

**Clinical track: CNS**

- > Patterns of Care in the Management of WHO Grade II and III Spinal Ependymomas  
*D. Yebo (USA), K. Liao, B.A. Guadagnolo, G. Rao, A. Bishop, C. Chung, J. Li, C.E. Tatsui, L. Rhines, S. Ferguson, A. Paulino, A. Ghia*  
**PO-0734**
- > Cognitive function after radiation therapy for brain tumours  
*L. Haldbo-Classen (Denmark), A. Amidi, L. Wu, S. Lukacova, G. Von Oettingen, R. Zachariae, J. Kallehauge, M. Høyer*  
**PO-0735**
- > Radiation necrosis after a combination of EBRT and iodine-125 brachytherapy in gliomas  
*L. Hadi (Germany), D. Reitz, R. Bodensohn, O. Roengvoraphoj, M. Niyazi, C. Belka, F. Kreth, S.B. Nachbichler*  
**PO-0736**
- > Retrospective analysis of hypofractionated stereotactic radiotherapy for tumors larger than 2 cm  
*Y. Koide (Japan), T. Kodaira, H. Tachibana, H. Tanaka, N. Tomita*  
**PO-0737**
- > Extent of resection is potent prognostic factor next to molecular subtype in low-grade glioma  
*J. Choi (Korea Republic of), S.H. Kim, J.H. Chang, S.H. Park, C. Suh*  
**PO-0738**
- > Sense and radiosensitivity – CyberKnife® stereotactic radiotherapy in patients with meningiomas  
*H. Grzbiela (Poland), R. Tarnawski, E. Nowicka, M. Gawkowska, S. Owczarek, M. Stapor-Fudzinska*  
**PO-0739**
- > Can HSRS on tumor bed replace WBRT in resected brain metastases? Results of a phase II study  
*P. Navarría (Italy), E. Clerici, C. Franzese, G.R. D'Agostino, T. Comito, F. De Rose, D. Franceschini, C. Iftode, A. Tozzi, F. Pessina, L. Bello, S. Cozzi, I. Renna, L. Di Brina, M. Scorsetti*  
**PO-0740**
- > Active spot-scanning proton therapy for intracranial meningiomas: CNAO experience  
*E. D'Ippolito (Italy), A. Iannalifi, M. Bonora, B. Vischioni, M.R. Fiore, S. Ronchi, V. Vitolo, A. Barcellini, R. Petrucci, A. Mirandola, D. Maestri, G. Magro, A. Facoetti, G. Viselner, M. Ciocca, L. Preda, F. Valvo, R. Orecchia*  
**PO-0741**
- > The survival impact of the time between surgery and chemo-radiotherapy in Glioblastoma patients  
*O. Kaidar-Person (Israel), I. Zur, T. Tzuk-Shina*  
**PO-0742**



- > Single dose versus FSRT for brain metastases: a retrospective study  
*C. De la Pinta Alonso (Spain), E. Fernández, M. Martin, R. Hernanz, C. Vallejo, M. Martín, A.B. Capúz, J.A. Rojo, I. Villoodre, S. Sancho* **PO-0743**
- > Efficacy of single-fraction or fractionated SRS combined with CPIs in melanoma brain metastases  
*G. Minniti (Italy), D. Arzellini, C. Reverberi, F. Bianciardi, B. Tolu, C. Scaringi, M. Osti, P. Gentile* **PO-0744**
- > Fractionated SRS (fSRS) or surgery plus fSRS to resection cavity for NSCLC large brain metastases  
*G. Minniti (Italy), C. Scaringi, D. Arzellini, F. Bianciardi, B. Tolu, R. Morace, M. Osti, P. Gentile* **PO-0745**
- > The utility of functional magnetic resonance imaging in target delineation of high-grade gliomas  
*L. Qian (China), Q. Fei, Y. Zhang, W. Guo, X. Bian, L. Yin, P. Yan, T. Wang, P. Qian, Z. Guo, X. He* **PO-0746**
- > Results at long-term after linac-based radiosurgery of vestibular schwannomas  
*P. Anselmo (Italy), M. Casale, F. Trippa, F. Arcidiacono, S. Fabiani, A. Di Marzo, L. Draghini, S. Terenzi, E. Maranzano* **PO-0747**
- > Prognostic factors of distant brain failure free survival after stereotactic RT for brain metastasis  
*Y. Pin (France), M. Loo, A. Paix, P. Meyer, D. Antoni, F. Proust, G. Noël* **PO-0748**
- > New aspects regarding the treatment of glioblastoma  
*C. Matuschek, B. Tamaskovics, E. Boelke (Germany), W. Budach, F. Djiepmo, J. Haussmann, A. Kumar, H. Pokhylevych, D. Schomer, A. Hayman* **PO-0749**
- > VMAT for CNS tumors and alopecia: results of an observational study and new constraints for the scalp  
*S. Scoccianti (Italy), R. Grassi, P. Marco, F. Terziani, G. Simontacchi, C. Talamonti, G. Caramia, M. Lo Russo, M.A. Teriaca, E. Scoccimarro, C. Saieva, L. Cosi, S. Pallotta, L. Livi* **PO-0750**
- > Neutrophil lymphocyte ratio and Platelet lymphocyte ratio as a prognostic factor in brain metastases  
*A. Niiya (Japan), K. Murakami, R. Kobayashi, K. Toyofuku, E. Nishimura, M. Kato, Y. Ozawa, H. Shinjo, K. Miyaura, M. Morota, T. Serizawa, Y. Ito, A. Imai, Y. Kagami* **PO-0751**

- > Hypofractionated stereotactic radiotherapy for inoperable arteriovenous malformations  
*T. Takahashi (Japan), T. Yamano, K. Nishimura, S. Ueno, K. Washizu, R. Soda, S. Kondo, N. Utsumi, M. Shimbo, S. Hatanaka, M. Hariu*
- PO-0752**
- > radiotherapy quality assurance-POLCA trial-patients with anaplastic oligodendroglioma tumors  
*L. Feuvret (France), H. Douzane, C. Jenny, A. D'Hombres, L. Padovani, M. Aumont, G. Noel, J. Jacob, F.G. Riet, C.H. Canova, C. Dehais, F. Fauchon, Y. Meng, F. Dhermain*
- PO-0753**
- > Radiation-induced nausea and vomiting: how to delineate the Dorsal Vagal Complex?  
*A. Beddok (France), J. Faivre, A. Coutte, J. Le Guévelou, J. Welmant, J. Clavier, S. Guihard, G. Janoray, V. Calugaru, Y. Pointreau, A. Lacout, J. Salleron, M. Lefranc, D. Hasboun, H. Duvernoy, J. Thariat*
- PO-0754**
- > Patterns of Re-irradiation for Recurrent Gliomas and Validation of a Prognostic Score  
*J. Verhoeff (The Netherlands), C. Post, M. Kramer, E. Smid, H. Van der Weide, K. Kleynen, M. Heesters*
- PO-0755**
- > Evaluating the DS-GPA in patients with 1-10 brain metastases treated with stereotactic radiosurgery  
*S. Nagtegaal (The Netherlands), A. Claes, T. Snijders, J. Verhoeff*
- PO-0756**
- > Radiosurgery for cranial and spinal haemangioblastomas: monoinstitutional analysis  
*V. Pinzi (Italy), A. Viola, E. De Martin, C. Iezzoni, M. Cerniauskaitė, M. Marchetti, L. Fariselli*
- PO-0757**

● POSTER

**Clinical track: Haematology**

- > Whole brain RT plus concomitant Temozolamide in PCNSL after MTX-HD: a prospective phase II study  
*F. Catucci (Italy), S. Chiesa, M. Giraffa, E. Maiolo, F. Beghella, T. Zinicola, S. Hohaus, V. Rufini, V. Valentini, M. Balducci*

**PO-0758**

## ● POSTER

**Clinical track: Breast**

- > Radiotherapy After Primary CHEMotherapy (RAPCHEM): protocol adherence in a Dutch registration study  
*L. Boersma (The Netherlands), P. Elkhuizen, R. Houben, E. Van Leeuwen, S. Linn, L. De Munck, R. Pijnappel, L. Strobbe, T. Van Dalen, J. Verloop, A. Voogd, J. Wessling, P. Poortmans*  
**PO-0759**
- > Heterogeneity of Radiosensitivity, Recurrence, and PD-L1 in Breast Tumor Single Cell RNA-Seq Data  
*B. Jang (Korea Republic of), W. Han, I.A. Kim*  
**PO-0760**
- > Hypofractionated whole breast irradiation safety after breast-conserving surgery for young patients  
*I. Meattini (Italy), Y. Kirova, C. Saieva, L. Visani, E. Olmetto, V. Salvestrini, J. Kim, W. Jung, I. Desideri, A. Fourquet, P. Poortmans, L. Livi, K. Kim*  
**PO-0761**
- > Low predictive value of mean heart dose for coronary artery dosimetry in breast cancer radiotherapy  
*S. Jacob (France), J. Camilleri, S. Derreumaux, V. Walker, O. Lairez, M. Lapeyre, E. Bruguière, A. Pathak, M. Bernier, D. Laurier, J. Ferrières, D. Broggio, G. Jimenez*  
**PO-0762**
- > Prognostic role of platelets-to-lymphocytes and neutrophil-to-lymphocytes ratio in breast cancer  
*J.R. Scognamiglio (Italy), M. Tirozzi, A. Romano, M. Caroprese, E. Zanella, E. Scipilliti, R. Mancuso, A. Farella, R. Solla, C. Oliviero, S. Clemente, R. Pacelli, M. Conson*  
**PO-0763**
- > The effect of automatic heart contouring on model performance in predicting acute coronary events  
*D. Spoor (The Netherlands), F. Peters, V. Van den Bogaard, A. Van der Schaaf, B. Ta, R. Vliegenthart, R. Kiekels, H. Langendijk, J. Maduro, M. Sijtsema, A. Crijns*  
**PO-0764**
- > Oncological and cosmetic outcome after IOERT as a boost in a large cohort of breast cancer patients  
*M. Machiels (The Netherlands), R. Weytjens, K. Erven, J.M. Westerhoff, S. Amrouch, J. Bosiers, L. Verkinderen, J. Hauspy, P. Van Dam, P. Dirix, M. Vos, P. Huget, L. Dirix, P. Meijnders, S. Van Laere, P.B. Vermeulen, C. Billiet*  
**PO-0765**
- > The Italian Society of Radiation and Clinical Oncology (AIRO): snapshot on breast cancer management  
*E. Gregucci (Italy), A. Fozza, S. Falivene, D. Smaniotto, A. Morra, A. Daidone, R. Barbara, A. Ciabattoni*  
**PO-0766**

- > Long-term results of adjuvant hypofractionated radiotherapy for breast cancer in elderly patients.

*M.J. García Anaya (Spain), I. García Ríos, S. Segado, Á. Fernández Forné, C. Jódar López, J.A. Medina Carmona*

PO-0767

● POSTER

**Clinical track: Lung**

- > High Heart Dose Affects Overall Survival in Lung Cancer Patients Undergoing Radiation Therapy.

*M. Fatyga (USA), S. Schild, J. Niska, M. Herman, J. Li, X. Liu*

PO-0768

- > Lung Organ-at-Risk volumes – The need for a better definition in the era of 4DCT

*S. Vinod (Australia), C. Choong, P. Vial, T. Kron, D. Ball*

PO-0769

- > Clinical Outcomes of Concurrent Chemoradiation vs RT alone in Elderly Patients with Stage III NSCLC

*D.Y. Kim (Korea Republic of), J. Kim, C. Song, J.S. Lee*

PO-0770

- > Cardiac event after radical radiotherapy for lung cancer - initial results from a multi-centre study

*E. Sun (United Kingdom), K. Banfill, S. Falk, M. Alan, L. John, W. Robert, A. Azadeh, S. Matthias, V.H. Marcel, F. Corinne, F. Kevin*

PO-0771

- > Role of Prophylactic Cranial Irradiation in Extensive Disease Small Cell Lung Cancer

*J. Chung (Korea Republic of), S.Y. Kang, G.J. Cheon, H. Wu, Y.S. Weo, D. Kim, H.J. Kim*

PO-0772

- > CBCT is not valid for response evaluation after chemoradiotherapy for locally advanced NSCLC

*G. Persson (Denmark), M. Pøhl, L. Nygård, S.R. De Blanck, J. Scherman, S.W. Langer, K. Richter Larsen, P.F. Clementsen, L. Specht, B.M. Fischer, M.C. Aznar, M. Josipovic*

PO-0773

- > Outcomes of IMRT/VMAT vs 2D/3D-conformal thoracic radiation in limited stage small-cell lung cancer

*T.S. Toh (United Kingdom), A. Bang, D. Pinto, H. Katrina, C. Brown, W. Xu, G. Liu, B. Lok*

PO-0774

- > Palliative lung radiotherapy: audit of prescribing practice and survival analysis

*T. Lewis (United Kingdom), J. Kennedy, G. Price, T. Mee, K. Kirkby, N. Kirkby, D. Woolf, N. Bayman, C. Chan, J. Coote, C. Fairve-Finn, M. Harris, A. Hudson, L. Pemberton, A. Salem, H. Sheikh, H. Mistry, D. Cobben*

PO-0775

- > Neutrophil-to-lymphocyte ratio dynamics predict for survival in lung cancer treated with SBRT

*M. Chowdhary (USA), R. Dhawan, J. Switchenko, S. Tian, K. King, M. Batus, M. Fidler, P. Bonomi, N. Sen, K. Patel, M. Khan, M. Gaurav*

**PO-0776**

- > Predicting overall survival after radiotherapy for brain metastases in patients with NSCLC

*N. Knotter (The Netherlands), N. Horeweg, I. Coremans, R. Wijggenraad, Y. Van der Linden*

**PO-0777**

- > New prognostic factors in the SBRT treatment of early stage non-small cell lung cancer

*J. Di Muzio (Italy), S. Badellino, M. Levis, L. Delsedime, C. Mantovani, M. Volante, M. Papotti, U. Ricardi*

**PO-0778**

- > Current management of limited-stage SCLC and CONVERT trial impact: an EORTC LCG survey

*A. Levy (France), L.E.L. Hendriks, C. Le Péchoux, S. Falk, B. Besse, S. Novello, A.C. Dingemans, B. Hasan, M. Reck, T. Berghmans, C. Faivre-Finn*

**PO-0779**

- > Prognostic value of PD-L1 expression in locally advanced NSCLC treated with chemoradiotherapy

*K. Gennen (Germany), L. Kösmann, C. Eze, M. Dantes, O. Roengvoraphoj, J. Taugner, J. Neumann, E. Mille, A. Tufman, R.M. Huber, M. Orth, S. Reu, M. Niyazi, C. Belka, F. Manapov*

**PO-0780**

- > 30 Gy single dose SBRT: Outcome in a large series of patients with lung oligometastatic disease

*L. Nicosia (Italy), L. Agolli, M. Valeriani, C. Reverberi, S. Bracci, L. Marinelli, V. De Sanctis, E. Cortesi, M. Martelli, C. De Dominicis, M.F. Osti*

**PO-0781**

- > External validation of NTCP models for pneumonitis in lung cancer patients receiving proton therapy

*A. Niezink (The Netherlands), V. Jain, O. Chouvalova, R. Wijsman, C. Muijs, M. Frick, A. Doucette, C. Simone, C. Chinniah, J. Widder, J. Langendijk, A. Van der Schaaf, A. Berman*

**PO-0782**

- > Standardizing mediastinal nodal CTV delineation in Stage III NSCLC: results of a two-phase dummy run

*F. Charlier (Belgium), V. Remouchamps, M. Lambrecht, X. Geets, E. Hortobágyi, Y. Lievens, L. Moretti*

**PO-0783**

- > Repeat Stereotactic Body Radiation Therapy for Salvage of Local Failure after Definitive Lung SBRT

*W. Kennedy (USA), P. Gabani, J. Nikitas, C. Robinson, J. Bradley, M. Roach*

**PO-0784**

- > Clinical significance of treatment related lymphopenia in lung SBRT and a method to ameliorate them

*K. Wijesooriya (USA), J. Colen, T. McMullen, S. Liyanage, C. Alonso, K. Romano, S. Peach, P. Read, J. Larner*

PO-0785

● POSTER

**Clinical track: Upper GI (oesophagus, stomach, pancreas, liver)**

- > Hemostasis radiotherapy for inoperable gastric cancer: A prospective study

*O. Tanaka (Japan), A. Sugiyama, T. Omatsu, T. Taniguchi, K. Ono, Y. Kunishima, M. Matsuo*

PO-0786

- > Adjuvant chemoradiation in resected gallbladder cancer: A prognostic model for overall survival

*C. Solé (Chile), L. Vargas, V. Solé, F. Larsen, S. Solé*

PO-0787

- > Preliminary analysis of PET/CT imaging on radiation field and relapse rates in esophageal cancer

*E. Jimenez-Jimenez (Spain), P. Mateos, N. Aymar, R. Roncero, I. Ortiz, J. Pardo, S. Sabater*

PO-0788

- > Evaluation of Hepatic Toxicity after Repeated Stereotactic Body RT for Hepatocellular Carcinoma

*S.M. Yoon, S. Lee (Korea Republic of), H. Kim, J. Jung, J. Kwak, B. Cho*

PO-0789

- > A nationwide analysis evaluating a role of local treatment including external RT for BCLC C HCCs

*C.H. Rim (Korea Republic of), L. Jeongshim*

PO-0790

- > Neoadjuvant treatment potentially improves outcome in resectable pancreatic cancer: meta-analysis

*E. Versteijne (The Netherlands), J.A. Vogel, M.G. Besselink, O.R. Busch, J.W. Wilmink, J.G. Daams, C.H. Van Eijck, B. Groot Koerkamp, C.R. Rasch, G. Van Tienhoven*

PO-0791

- > A randomized clinical trial on radiosensitizer effects of LMWH in Chemoradiation of esophageal SCC

*S.A. Javadinia (Iran Islamic Republic of), A. Taghizadeh Kermani, S. Hosseini, A. Fanipakdel, M. Joudi Mashhad, A. Gholami*

PO-0792

- > Nodal CTV selection according to primary tumor location and pT-stage for biliary tract cancers

*J. Socha (Poland), D. Surdyka, L. Kępka*

PO-0793

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- > Postoperative Chemoradiotherapy in Gastric Cancer with Poor Response to Neoadjuvant Chemotherapy  
*Y. Kundel (Israel), B. Brenner, G. Perel, N. Gordon, R. Levin* PO-0794
  - > Prediction of severe lymphopenia during chemoradiotherapy for esophageal cancer  
*P. Van Rossum (The Netherlands), W. Deng, D. Routman, A. Liu, C. Xu, Y. Shiraishi, M. Peters, K. Merrell, C. Hallemeier, R. Mohan, S. Lin* PO-0795
  - > Carbotaxol definitive chemoradiotherapy for inoperable oesophageal cancer: UK multicentre study  
*R. Owens (United Kingdom), C. Cox, S. Gomberg, S. Prince, T. Bird, N. Dorey, U. MacGregor, H. Al-Chamali, C. Hurt, S. Mukherjee* PO-0796
  - > Impact of 99mTc-GSA SPECT image-guided inverse planning on DFH parameters for SBRT planning for HCC  
*R. Toya (Japan), T. Saito, Y. Kai, S. Shiraishi, T. Matsuyama, T. Watakabe, F. Sakamoto, N. Tsuda, Y. Shimohigashi, Y. Yamashita, N. Oya* PO-0797
  - > Response assessment to neoadjuvant chemoradiotherapy for esophageal cancer using PET/CT and DW-MRI  
*A. Borggreve (The Netherlands), L. Goense, P.S.N. Van Rossum, S.E. Heethuis, R. Van Hillegersberg, J.J.W. Lagendijk, A.L.H.M.W. Van Lier, S. Mook, J.P. Ruurda, M. Van Vulpen, F.E. Voncken, B.M.P. Aleman, A. Bartels-Rutten, J. Ma, P. Fang, B.C. Musall, S.H. Lin, G.J. Meijer* PO-0798
  - > Treatment outcomes of nodal positive unresectable thoracic esophageal carcinoma  
*T. Huang (Taiwan), S. Li, Y. Chen, H. Lu, C. Lo, F. Fang, S. Chou, Y. Wang* PO-0799
  - > Radiation dose escalation in pancreatic cancer: a propensity-score matching study  
*X. Zhu (China), C. Yangsen, Z. Xianzhi, S. Yuxin, J. Xiaoping, Q. Shuiwang, C. Fei, J. Zhen, F. Fang, G. Lei, Z. Huojun* PO-0800
  - > Esophageal Cancer: One Organ, Two Histologies, One Treatment Strategy: Why?  
*M. Lamande (Belgium), L. Grandjean, E. Gonse, D. Van Daele, J. Collignon, M. Polus, C. Loly, J. Vanderick, P. Coucke, P. Martinive* PO-0801
  - > Lung dose was associated with severe lymphopenia in esophageal cancer undergoing trimodality therapy  
*J. Lin (Taiwan), J. Lee, C. Cheng, T. Chang, Y. Chen* PO-0802

- > Endoluminal brachytherapy with induction chemotherapy and definitive chemoradiation in Ca.Esophagus  
*S. Raghunath (India), R. Tiwari, G. Narayanan, B. Vishwanathan, R. Sultana*  
**PO-0803**
- > Re-irradiation with SBRT for In-field Recurrence of Pancreatic Cancer After Prior SBRT  
*Y. Shen (China), X. Zhu, X. Ju, Y. Cao, S. Qing, F. Cao, H. Zhang*  
**PO-0804**
- > Analysis of esophageal cancer patients treated with neoadjuvant therapy who never made it to surgery  
*M. Thomas (Belgium), L. Depypere, J. Moons, W. Coosemans, T. Lerut, H. Prenen, K. Haustermans, H. Van Veer, P. Nafteux*  
**PO-0805**
- > Impact of Hospital Volume and Trimodality in Survival Outcomes for Esophageal Cancer  
*M. Bringel Oliveira Duarte (Brazil), J. Barreto Campello Carvalheira, E. Baldon Pereira*  
**PO-0806**
- > Heterogeneous FDG-guided dose escalation in definitive oesophageal radiotherapy: a feasibility study  
*H.R. Mortensen (Denmark), M. Nordmark, D.S. Møller, S.N. Risum, E. Holtved, M. Nielsen, B. Weber, M. Josipovic, L. Hoffmann*  
**PO-0807**
- > Definitive involved-field radiotherapy for esophageal cancer: are we missing the target?  
*C. Viveiros (Portugal), G. Fernandez, C. Pedro, A. Pimenta, L. Mirones, M. Fortunato, F. Santos*  
**PO-0808**
- > Gross Tumor Volume delineation in pancreatic cancer using MRI: final results of a multicenter study.  
*L. Caravatta (Italy), F. Cellini, N. Simoni, C. Rosa, R.M. Niespolo, M. Lupattelli, V. Picardi, G. Macchia, A. Sainato, G. Mantello, F. Dionisi, M.E. Rossetto, V. Fusco, F. Navarria, A. De Paoli, A. Guido, C. Vecchi, R. Basilico, R. Cianci, A. Delli Pizzi, M. Di Nicola, G.C. Mattiucci, V. Valentini, A.G. Morganti, D. Genovesi*  
**PO-0809**
- > Outcome following definitive radiotherapy in oesophageal cancer: A single UK centre experience  
*S. Mehta (United Kingdom), A. Mcpartlin, C. Hodgson, G. Radhakrishna, L. Bhatt, H. Sheikh*  
**PO-0810**
- > SBRT compared to sorafenib in locally advanced hepatocellular carcinoma: a propensity score analysis  
*E. Gkika (Germany), T. Brunner, N. Abbasi-Senger, H. Alheit, W. Baus, O. Blanck, S. Gerum, M. Guckenberger, D. Habermann, C. Ostheimer, O. Riesterer, J. Tamihardja, D.J. Pinato, L. Rimassa, T. Pressiani, M. Schulteiss, R. Sharma, M.E. Burlone, M. Pirisi, M. Kudo, J.W. Park, C. Neumann-Haefelin, A. Grosu, R. Thimme, D. Bettinger*  
**PO-0811**



- > Pathological validation of endoscopically placed fiducials on tumor borders in esophageal cancer  
*M. Machiels (The Netherlands), M.L. Van Montfoort, N.B. Thuijs, M.I. Van Berge Henegouwen, J.E. Van Hooft, T. Alderliesten, S.L. Meijer, M.C.C.M. Hulshof*
- PO-0812
- > A Phase I/II Study of durvalumab and stereotactic radiotherapy in locally advanced pancreatic cancer  
*R. Tuli (USA), N. Nisen, S. Lo, V. Placencio, G. Gresham, A. Hendifar*
- PO-0813

● POSTER

**Clinical track: Lower GI (colon, rectum, anus)**

- > Clinical target volume in radiation therapy for organ preservation in T2 rectal cancer  
*J. Socha (Poland), L. Pietrzak, A. Zawadzka, A. Paciorkiewicz, A. Krupa, K. Bujko*
- PO-0814
- > Stereotactic radiation therapy in colorectal cancer brain metastasis: a multicentric cohort  
*A. Paix (France), F. Thillays, J. Biau, N. Vulquin, I. Pop, K. Debbi, A.L. Grosu, G. Noël*
- PO-0815
- > Adaptive radiotherapy concomitant with chemotherapy as preoperative treatment for rectal cancer  
*P. Passoni (Italy), N. Slim, C. Fiorino, C. Guminia, M. Ronzoni, V. Burgio, A. Fasolo, F. De Cobelli, A. Palmisano, U. Elmore, P. De Nardi, A.M. Tamburini, A. Vignali, R. Rosati, R. Calandrino, N. Di Muzio*
- PO-0816
- > PHASE II study about adaptive high dose radiotherapy in high risk rectal cancer  
*A. Guido (Italy), V. Panni, L. Fuccio, L. Giaccherini, D. Cuicchi, P. Castellucci, S. Fanti, F. Coppola, F. Di Fabio, G. Poggiali, G. Macchia, F. Deodato, V. Picardi, M. Boccardi, S. Cilla, A. Arcelli, G.P. Frezza, A.G. Morganti, S. Cammelli*
- PO-0817
- > Comparison of three different approaches for bowel delineation in patients with rectal cancer  
*E. Rijkmans (The Netherlands), B.B.D. Otto, J.R.N. Van der Voort van Zyp, R.T.H. Zinkstok, F.P. Peters, C.A.M. Marijnen*
- PO-0818

- > Stereotactic Radiation Therapy in Oligometastatic Colorectal Cancer: 102 patients and 150 lesions  
*M.A. Zerella (Italy), V. Dell'Acqua, A. Surgo, F. Kraja Pupuleku, J. Kobiela, P. Spychaliski, C.M. Francia, D. Ciardo, C. Fodor, F. Pansini, S. Vigorito, F. Cattani, M.C. Leonardi, B.A. Jereczek Fossa*
- PO-0819**
- > Effect of short-course radiotherapy on postoperative complications in locally advanced rectal cancer  
*S. Hoendervangers (The Netherlands), C. Sparreboom, H. Van Grevestein, L. Verkooijen, J. Lange, P. Doornbosch, M. Intven*
- PO-0820**
- > Long-term outcome of an organ preservation strategy following chemoradiotherapy in rectal cancer  
*E. Palazzari, A. Lauretta, F. Navarría (Italy), R. Innocente, C. Bellucco, C. Bampo, L. Balestreri, F. Matrone, G. Fanetti, A. Revelant, R. Cannizzaro, V. Canzonieri, A. Buonadonna, J. Polesel, G. Bertola, A. De Paoli*

● POSTER

**Clinical track: Gynaecological (endometrium, cervix, vagina, vulva)**

- > Muscle density loss during cancer therapy for advanced endometrial cancer portends poor survival  
*J. Lee (Taiwan), J. Lin, C. Chang, M. Wu, Y. Chen*
- PO-0822**
- > Relevance of time interval and thermal dose for the clinical outcome of cervical carcinoma patients  
*M. Kroesen (The Netherlands), T. Mulder, N. Holthe, A. Aangeenbrug, J.W. Mens, L. Van Doorn, M. Paulides, E. Oomen-de Hoop, R. Vernhout, L. Lutgens, G. Van Rhoon, M. Franckena*
- PO-0823**
- > Postoperative VBT vs EBRT/VBT in patients with early stage of uterine carcinoma - our update results  
*A. Masarykova (Slovakia), D. Scepanovic, M. Pobijakova, A. Hanicova, M. Fekete*
- PO-0824**
- > Differential impact of GLUT1 overexpression between HPV16-positive and -negative cervical cancer  
*B.H. Kim (Republic of Korea), J.H. Chang*
- PO-0825**
- > On the value of a prognostic tumour score in locally advanced cervical cancer  
*J.C. Lindgaard (Denmark), P. Petric, A.M. Lindgaard, K. Tanderup, L.U. Fokdal*
- PO-0826**

- > Comparison of clinical examination and MRI for local cervical cancer staging (FIGO and T(NM))  
*J. Knoth (Austria), R. Pötter, I. Jürgenliemk-Schulz, C. Haie-Meder, L. Fokdal, A. Sturdza, P. Hoskin, U. Mahantshetty, B. Segedin, K. Bruheim, E. Wiebe, B. Rai, R. Cooper, E. Van der Steen-Banasik, E. Van Limbergen, B. Pieters, M. Sundset, L.T. Tan, R. Nout, K. Tanderup, C. Kirisits, N. Nesvacil, J.C. Lindegaard, M. Schmid* **PO-0827**
- > Chronic Lower Extremity Lymphedema in Gynecologic Cancer Patients : EBRT versus Brachytherapy  
*W.I. Chang (Korea Republic of), H. Kang, H.J. Kim, K.S. Seo, H.S. Kim* **PO-0828**
- > MRI-based texture analysis of lymph node for predicting clinical outcome in cervical cancer patients  
*S. Park (Korea Republic of), M.H. Hahm, S. Na, G.O. Chong, S.Y. Jeong, J.E. Lee, M.K. Kang, M.Y. Kim, J. Kim* **PO-0829**
- > Assessment of setup margins and additional subsite anisotropic margin expansions in cervical IGRT  
*P. Naga CH, U. Mahantshetty, A. Nachankar, Y. Ghadi, L. Scaria, D. Aravindakshan, S. Sastri, L. Gurram, S. Shrivastava, P. Naga Ch (India)* **PO-0830**
- > Effect of pre-treatment hematological indices on survival in cervical cancer  
*U. Mahantshetty (India), P. Naga CH, L. Gurram, R. Hawaldar, S. Chopra, S. Gupta, J. Ghosh, J. Bajpai, S. Gulia, J. Agarwal* **PO-0831**
- > Para-aortic lymphadenectomy and recurrence patterns in locally advanced cervical cancer  
*M.M. Soraya (Spain), D.C. Moreno Santiago, J. Giralt Lopez de Sagredo, R. Verges Capdevilla* **PO-0832**
- > Development of a nomogram for predicting overall survival in patients with Cervical cancer  
*A.B.A. Osong (Belgium)* **PO-0833**

● POSTER

**Clinical track: Prostate**

- > Virtual imaging for patient information on radiotherapy planning and delivery for prostate cancer.  
*J. Sulé-Suso (United Kingdom), J. Bisson, S. Jassal, M. Martínez, N. Huxley, C. Ellis, D. Chambers, K. Fields, C. O'Donovan, C. Edwards, S. Vengalil, R. Bhana* **PO-0834**

- > 68GaPSMA11 PET/CT in prostate cancer patients with biochemical recurrence: PET positivity predictors  
*R. Parise (Italy), S. Bartocini, A. Guarneri, D. Deandreis, B. Lillaz, S.D. Solla, L. Spinelli, D. Nicolotti, E. Pilati, M. Bellò, R. Passera, P. Gontero, G. Bisi, U. Ricardi*  
**PO-0835**
- > Outcomes and factors by risk group after prostate brachytherapy: Cohort study in 2316 patients  
*N. Katayama (Japan), K. Nakamura, A. Yorozu, T. Kikuchi, T. Magome, S. Saito, T. Dokiya, M. Fukushima, S. Kanazawa*  
**PO-0836**
- > Dose-effect relationship for early late incontinence after IMRT in post-prostatectomy patients  
*P. Gabriele, F. Munoz, D. Cante, B. Avuzzi, C. Bianconi, F. Badenchini, B. Farina, P. Farina, E. Garibaldi, T. Giandini, G. Girelli, V. Landoni, A. Magli, A. Maggio, E. Moretti, B. Noris Chioda, E. Petrucci, P. Salmoiraghi, E. Villa, J.M. Waskiewicz, N.G. Di Muzio, T. Rancati, C. Fiorino (Italy), C. Cozzarini*  
**PO-0837**
- > Castrate testosterone predicts biochemical relapse free survival in non-metastatic prostate cancer  
*G. Ozigit (Turkey), P. Hurmuz, D. Yuce, F. Akyol*  
**PO-0838**
- > Correlation of recalculated-dose based on CBCT and toxicity in postoperative prostate cancer VMAT  
*P. Buranaporn (Thailand), T. Jaikuna, P. Dankulchai*  
**PO-0839**
- > Two StereoTactic Ablative Radiotherapy Treatments for Localized Prostate Cancer (2STAR)  
*Y. Alayed (Canada), P. Cheung, W. Chu, H. Chung, M. Davidson, A. Ravi, J. Helou, L. Zhang, A. Mamedov, A. Commissio, K. Commissio, A. Loblaw*  
**PO-0840**
- > Salvage SBRT for local prostate cancer recurrence after radiotherapy: a GETUG retrospective study  
*G. Martinage (France), G. Janoray, D.P. Rojas, D. Zerini, F. Goupy, R. De Crevoisier, E. Bogart, G. Calais, A. Toledano, L. Chauveinc, N. Scher, P.Y. Bondiau, J.M. Hannoun-Levi, M. Silva, E. Meyer, P. Nickers, T. Lacornerie, E. Lartigau, B.A. Jereczek-Fossa, D. Pasquier*  
**PO-0841**
- > Real-Time tracking improves treatment: The TROG Stereo Prostate Ablative Radiotherapy with KIM trial  
*P. Keall (Australia), D.T. Nguyen, R. O'Brien, E. Hewson, H. Ball, P. Poulsen, J. Booth, P. Greer, P. Hunter, L. Wilton, R. Bromley, J. Kipritidis, T. Eade, A. Kneebone, G. Hruby, T. Moodie, A. Hayden, S. Turner, S. Arumugam, M. Sidhom, N. Hardcastle, S. Siva, K. Tai, V. Gebski, J. Martin*  
**PO-0842**

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- > Toxicity of a brachytherapy boost for prostate cancer patients  
*L. Bokhorst* (The Netherlands), S. Van der Pol, C. Niël, C. Hoekstra  
PO-0843
  - > Target motion mitigation and dose painting in prostate cancer SBRT: results from a Phase II study  
*C. Greco* (Portugal), O. Pares, N. Pimentel, V. Louro, B. Nunes, J. Sroom, S. Viera, D. Mateus, Z. Fuks  
PO-0844
  - > What is the dosimetric benefit of daily position control imaging for prostate cancer radiotherapy?  
*M. Splinter* (Germany), T. Bostel, C. Lang, P. Häring, N. Bougatf, J. Debus, N.H. Nicolay  
PO-0845
  - > Dosimetric effects of a novel concept of adaptive radiotherapy for prostate cancer patients  
*M. Splinter* (Germany), T. Bostel, C. Lang, P. Häring, J. Debus, N.H. Nicolay  
PO-0846
  - > Rapid modulation of PSMA expression by ADT: Serial PSMA PET in men commencing androgen blockade  
*L. Emmett* (Australia), V. Chalasani, A. Kneebone, G. Hruby, A.M. Joshua  
PO-0847
  - > Early mortality of prostatectomy vs. radiotherapy as a primary treatment for prostate cancer  
*D. Medenwald* (Germany), K. Medenwald, A. Glowka, D. Vordermark, C. Dietzel  
PO-0848
  - > Pattern of Relapse After Metastases Directed Therapy in Oligorecurrent Prostate Cancer  
*I. San Miguel* (Spain), D. Büchser, F. Suarez, F. Casquero, I. Fernandez, E. Rodeño, R. Ortiz de Zarate, R. Llarena, J. Garcia Olaverri, L. Martinez-Indart, P. Bilbao, A. Gomez De Iturriaga  
PO-0849
  - > Comparison of self-reported acute urinary incontinence in pts treated with adjuvant or salvage IMRT  
*F. Munoz, D. Cante, E. Garibaldi, A. Peruzzo, E. Petrucci, E. Delmastro, G. Sanguineti, A. Faiella, B. Avuzzi, B. Noris Chiorda, T. Giandini, V. Vavassori, E. Villa, G. Girelli, B. Farina, J.M. Waskiewicz, A. Magli, E. Moretti, R. Valdagni, C. Bianconi, F. Badenchini, N. Di Muzio, T. Rancati, C. Fiorino, C. Cozzarini* (Italy)  
PO-0850
  - > Quality of life after whole pelvis RT for prostate cancer: results from a prospective study  
*G. Sanguineti, D. Cante, F. Munoz, A. Faiella, E. Petrucci, A. Peruzzo, E. Garibaldi, P. Gabriele, B. Avuzzi, T. Giandini, B. Noris Chiorda, V. Vavassori, E. Villa, P. Salmoiragh, G. Girelli, J.M. Waskiewicz, A. Magli, E. Moretti, R. Valdagni, C. Bianconi, F. Badenchini, N. Di Muzio, T. Rancati, C. Fiorino, C. Cozzarini* (Italy)  
PO-0851

- > Stereotactic Body Radiation Therapy for Unfavorable Prostate Cancer: Large institutional experience  
*N. Aghdam* (USA), S. Katarian, M. Danner, M. Ayoob, T. Yung, S. Lei, D. Kumar, B.T. Collins, J. Lischalk, A. Dritschilo, S. Suy, J. Lynch, S.P. Collins  
**PO-0852**
- > Bladder and urethra subregions predicting urinary toxicity after prostate cancer radiotherapy  
*E. Mylona* (France), O. Acosta, T. Lizee, J. Castelli, C. Lafond, G. Crehange, N. Magne, S. Chiavassa, S. Supiot, R. De Crevoisier  
**PO-0853**
- > Extreme vs moderate hypofractionation for localized Pca: a Propensity Score Matching Analisys  
*G. Marvaso* (Italy), D. Ciardo, S. Gandini, G. Riva, E. Frigo, D. Zerini, S. Comi, R. Cambria, O. De Cobelli, R. Orecchia, B.A. Jereczek-Fossa  
**PO-0854**
- > Development and Validation of a Prostate Cancer Patient Decision Aid: Towards Participative Medicine  
*A. Ankolekar* (The Netherlands), B. Vanneste, E. Bloemen, J. Van Roermund, E. Van Limbergen, K. Van de Beek, V. Zambon, M. Oelke, A. Dekker, P. Lambin, R. Fijten, A. Berlanga  
**PO-0855**
- > Metastasis-directed therapy for oligoprogressive castration refractory prostate cancer  
*C. Bergheen* (Belgium), S. Joniau, P. Ost, K. Poels, W. Everaerts, K. Haustermans, G. De Meerleer  
**PO-0856**
- > MRI-derived radiomics to select patients with high-risk prostate cancer for adjuvant radiotherapy  
*V. Bourbonne* (France), M. Vallières, F. Lucia, G. Fournier, A. Valéri, D. Visvikis, V. Tissot, O. Pradier, M. Hatt, U. Schick  
**PO-0857**
- > Dosimetric correlation analysis of observed toxicities in prostate cancer patients treated with SBRT  
*N. Pienimäki* (Finland), K. Vuolukka, J. Heikkilä, J. Palmgren, J. Seppälä  
**PO-0858**
- > Validation of genetic variants associated to late severe toxicity after prostate cancer RT  
*A. Cicchetti* (Italy), T. Rancati, F. Ballarini, M. Dispinzieri, T. Giandini, B. Avuzzi, C. Cozzarini, C. Fiorino, R. Valdagni  
**PO-0859**
- > Improving consistency of proximal seminal vesicle delineation for prostate SBRT  
*K. Morrison* (United Kingdom), N. Van As  
**PO-0860**



- > Analysis of nodal and prostatic bed RT in oligorecurrent PC patients treated with PSMA-PET-guided RT  
*S. Kirste (Germany), S. Kroese, C. Henkenberens, N. Schmidt-Hegemann, M. Vogel, J. Becker, H. Christiansen, S. Combs, A. Müller, C. Belka, M. Guckenberger, A. Grosu*  
**PO-0861**
- > P2 RCT of Home-based physical activity in pts treated by ADT & EBRT for localised prostate carcinoma  
*C.P. Doyle (Ireland), P. Thirion, B. O'Neill, M. Dunne, V. Curtis*  
**PO-0862**

● POSTER

**Clinical track: Urology-non-prostate**

- > Adaptive radiotherapy for carcinoma of the urinary bladder: Long term outcomes with dose escalation  
*P. Gupta (India), V. Murthy, K. Baruah, R. Krishnatry, G. Bakshi, G. Prakash, M. Pal, A. Joshi, K. Prabhush*  
**PO-0863**
- > Normal tissue sparing with diffusion weighted MRI informed tumour boost in bladder radiotherapy  
*K. Chan (United Kingdom), K. Warren-Oseni, H. Abdel-Aty, A. Dunlop, D. McQuaid, M. Koh, A. Sohaib, R. Huddart, S. Hafeez*  
**PO-0864**

● POSTER

**Clinical track: Skin cancer / malignant melanoma**

- > Curative HDR brachytherapy (HDR-BT) for non-melanoma skin cancers (NMSC)  
*B. Emami (USA), C. Hentz, I. Rashed, K. Stang, A. Gliniewicz, M. Mysz, D. Eilers, R. Tung*  
**PO-0865**
- > Cost-effectiveness analysis of stereotactic radiotherapy in melanoma brain metastases  
*A. Paix (France), F. Thillays, F. Courtault-Deslandes, I. Pop, J. Biau, O. Briard, A.L. Grosu, E.A. Sauleau, G. Noël*  
**PO-0866**

## ● POSTER

**Clinical track: Sarcoma**

- > Prognostic impact of the "Sekhar Grading System for Cranial Chordomas" - an attempt at validation  
*A. Hottinger (Switzerland), B. Bojaxhiu, M. Walser, B. Bachtiary, A. Pica, D.C. Weber*
- PO-0867
- > Total Marrow Irradiation in Myeloma Multiple patients candidate to allogeneic transplant  
*A. Chiara (Italy), S. Broggi, M. Paselli, I. Dell'oca, M. Azizi, G. Salvadori, S. Sellì, M. Marcatti, A. Assanelli, J. Peccatori, M. Cattaneo, F. Ciceri, N. Di muzio*
- PO-0868

## ● POSTER

**Clinical track: Paediatric tumours**

- > Reducing pulmonary and renal toxicity in children receiving TBI with forward planned IMRT  
*M. Bishr (Egypt), E. Nicholson, E. Durie, M. Potter, M. Ethell, C. Anthias, C. Messiou, I. Johnson, S. Eagle, W. Ingram, F. Saran, H. Mandeville*
- PO-0869
- > Treatment Outcomes for Pediatric Basal Ganglia Germinomas: A single institute experience in Taiwan  
*Y. Kang (Taiwan), S. Lin, Y. Lee, F. Chang, M. Liang, H. Chen, Y. Liu, T. Wong, Y. Chen*
- PO-0870
- > Efficacy of radiotherapy boost in incompletely resected paediatric ependymoma: a retrospective study  
*M. Ramos Albiac (Spain), B. Gutiérrez, N. Mestre, M. Mota-Foix, S. Pérez-Hoyos, A. Llort, P. Cano, J. Giralt*
- PO-0871
- > Hematological toxicity of 3DCRT and VMAT craniospinal irradiation in pediatric medulloblastoma  
*B. Diletto (Italy), E. Pecori, O. Alessandro, S. Meroni, T. Giandini, C. Stucchi, C. Cavatorta, E. Schiavello, V. Biassoni, M. Massimino, E. Pignoli, L. Gandola*
- PO-0872
- > Associations between vessel volume and neurocognition In children treated with proton therapy  
*A. Srivastava (USA), J. Contreras, H. Heimos, S. Perkins*
- PO-0873

- > The feasibility of MR-Linac treatment planning in childhood abdominal Neuroblastoma  
*M. Llewelyn* (United Kingdom), G. Smyth, N. Lavan, S. Nill, U. Oelfke, H. Mandeville  
**PO-0874**
- > Development of pituitary deficits after radiotherapy in pediatric patients after long follow-up  
*C. Satragno* (Italy), E. Tornari, S. Barra, F. Giannelli, L. Belgioia, M. Giaccardi, N. Di Iorgi, M.L. Garre, R. Haupt, R. Corvò  
**PO-0875**

● POSTER

**Clinical track: Palliation**

- > Stereotactic Body Radiation Therapy for thoracic nodes metastases, a multi-institutional experience  
*D. Franceschini* (Italy), F. Bianciardi, R. Mazzola, F. De Rose, P. Gentile, F. Alongi, M. Scorsetti  
**PO-0876**
- > Utilization of short course palliative radiation therapy in breast cancer bone metastasis  
*P. Gabani* (USA), B. Fischer-Valuck, W. Kennedy, L. Ochoa, M. Thomas, M. Daly, I. Zoberi, C. Abraham  
**PO-0877**
- > Implementing a dedicated inpatient radiation team with multidisciplinary palliative care rounds  
*D. Mark* (USA), P. Gilbo, S. Joseph, A. Goenka, B. Bloom  
**PO-0878**
- > Mobile health for monitoring of health status in palliative care patients: a feasibility study  
*M. Pavic* (Switzerland), V. Klaas, G. Theile, J. Kraft, G. Tröster, M. Guckenberger  
**PO-0879**
- > Validation of a predictive model for survival in patients receiving radiotherapy for bone metastases  
*K. Yasui* (Japan), H. Katagiri, T. Onoe, H. Ogawa, H. Harada, H. Asakura, S. Maki, A. Nakura, Y. Ito, M. Hirata, S. Murayama, Y. Honda, M. Miyagi, J. Wasa, H. Murata, M. Takahashi, T. Nishimura  
**PO-0880**
- > Outcomes of oligometastatic bone disease treated with conventional or stereotactic radiotherapy  
*S. Van de Ven* (The Netherlands), J.M. Van der Velden, W.S.C Eppinga, D.H.J.G Van den Bongard, H.M. Verkooijen  
**PO-0881**
- > Outcome and Toxicity of Hypofractionated Image-Guided SABR for Spinal Oligometastases  
*C. Billiet* (Belgium), C. Mercier, F. Vandaele, P. Vermeulen, S. Van Laere, P. Huget, D. Verellen, P. Dirix  
**PO-0882**

- > Phase II trial of stereotactic body radiation therapy for abdomino-pelvic lymph node oligometastases  
*C. Franzese (Italy), T. Comito, A. Tozzi, F. De Rose, P. Navarria, P. Mancosu, S. Tomatis, M. Scorsetti*

PO-0883

- > Predicting 30-day mortality for palliative radiotherapy  
*A. Witztum (USA), S. Wu, E. Gennatas, G. Valdes, T. Solberg, S. Braunstein*

PO-0884

● POSTER

### Clinical track: Elderly

- > Comprehensive geriatric assessment tools for elderly patients with early NSCLC treated with SBRT  
*E. Cuccia (Italy), A. Donofrio, V. Valenti, A. Tripoli, N. Luca, A. Palmeri, G. Terranova, E. Quartuccio, G. Napoli, G. De Gregorio, D. Cespuglio, G. Mortellaro, G. Ferrera, A. Lo Casto*

PO-0885

● POSTER

### Clinical track: Other

- > Partial tumor irradiation exploiting immuno-mediated effects: tumor microenvironment as a new oar  
*S. Tubin (Austria)*
- > Radiation toxicity in patients with collagen vascular disease: Meta-analysis of case-control studies  
*P. Shaikh (USA), F. Alite, V. Bakalov, B. Emami, J. Vargo, M. Wu, G. Jacobson, W. Small, M. Harkenrider*
- > Stereotactic body radiotherapy for refractory ventricular tachycardia: clinical outcomes  
*R. Jumeau (Switzerland), M. Ozsahin, J. Schwitter, F. Duclos, V. Vallet, M. Zeverino, R. Moeklili, E. Pruvot, J. Bourhis*
- > Breathing modulation in patients treated for mobile tumours: moving forward to clinical integration  
*G. Van Ooteghem (Belgium), D. Dasnoy-Sumell, G. Liistro, E. Sterpin, G. Xavier*
- > Abscopal effects in metastasized cancer patients treated with PD-1 inhibition and radiation therapy  
*M. Trommer (Germany), S.Y. Yeo, T. Persigehl, A. Bunck, M. Schlaak, H. Grüll, S. Theurich, M. Von Bergwelt, J.M. Herter, E. Celik, S. Marnitz, C. Baues*

PO-0886

PO-0887

PO-0888

PO-0889

PO-0890

## ● POSTER

**Physics track: Basic dosimetry and phantom and detector development**

- > Radiochromic film based output measurement for radio-biological experiments at low energy photons  
*N. Tomic* (Canada), L. Lieng, M. Lecavalier, J. Seuntjens, R. Apardian, S. Devic PO-0891
- > On the orientation of ionization chambers in dosimetry of small photon fields  
*B. Casar* (Slovenia), E. Gershkevitsh, I. Mendez PO-0892
- > Absolute dosimetry with polymer gels – A TLD reference system  
*A. Schwahafer* (Germany), P. Mann, C. Karger PO-0893
- > Characterization of a multilayer ionization chamber for relative depth-dose curves in particle beams  
*A. Vai* (Italy), D. Maestri, G. Magro, A. Mairani, E. Mastella, A. Mirandola, S. Molinelli, S. Russo, M. Togno, S. La Civita, M. Ciocca PO-0894
- > Anthropomorphic breathing phantom with lung and liver components for testing MR-guided radiotherapy  
*E. Colvill* (Switzerland), M. Krieger, Y. Zhang, S. Safai, D.C. Weber, A.J. Lomax, G. Fattori PO-0895
- > Motorised 3D printed water tank designed for measurements in MR linear accelerators  
*H.L. Riis* (Denmark), P.F. Lange, T.L. Schierbeck, L. Gregorius, F. Mahmood, U. Bernchou, C. Brink, A.S. Bertelsen PO-0896
- > Development of an anthropomorphic lung phantom for imaging and radiotherapy  
*A. Weidner* (Germany), A. Runz, W. Johnen, G. Echner PO-0897
- > Advanced Diamond Dosimeter for quality Assurance in Radiotherapy  
*C. Talamonti* (Italy), K. Kanxheri, S. Sciortino, S. Lagomarsino, L. Alunni Solestizi, M. Caprai, M. Ionica, M. Casati, S. Calusi, M. Mangoni, S. Pallotta, L. Servoli PO-0898

## ● POSTER

**Physics track: Dose measurement and dose calculation**

- > Validation of dose calculation accuracy on daily cone-beam CT scans in the thoracic region

*L. Hoffmann (Denmark), M. Alber, U.V. Elstrøm, L.P. Kaplan, D.S. Møller*

PO-0899

- > The magnitude of dose calculation errors as a component of IROC phantom failures

*S. Edward (Denmark), M. Glenn, P.A. Balter, J.M. Pollard-Larkin, C.B. Peterson, R.M. Howell, D. Followill, S.F. Kryx*

PO-0900

- > 2D solid-state array detectors: a technique for in-vivo dose verification at varying effective area

*G. Biasi (Australia), K. Utitsarn, M. Petasecca, M. Carolan, V.L. Perevertaylo, W.A. Tomé, M.L.F. Lerch, T. Kron, A.B. Rosenfeld*

PO-0901

- > The ACDS approach to measuring dose to bone and comparing to TPS reported dose to water and medium

*J. Lye (Australia), M. Shaw, J. Lehmann, A. Alves, R. Brown, C. Davey, F. Kadeer, J. Kenny, J. Supple*

PO-0902

- > AcurosXB dose verification of ultra-small lung lesions with EBT-XD film in a heterogeneous phantom

*M. Öllers (The Netherlands), A. Swinnen, F. Verhaegen*

PO-0903

- > Benchmarking of a module for Monte Carlo simulation of proton transport in the PENELOPE code

*N. Verbeek (Germany), S. Smyczek, J. Wulff, C. Bäumer, B. Timmermann, L. Brualla*

PO-0904

- > Validation of a 4D Monte Carlo optimization and planning feature for CyberKnife lung treatment

*S. Trivellato (Italy), E. Rondi, S. Vigorito, E. Miglietta, F. Castellini, G. Piperno, A. Ferrari, B.A. Jereczek-Fossa, F. Cattani*

PO-0905

- > Perturbation techniques for optimizing IAEA phase spaces for different medical linacs

*J.C. Martins (Germany), R. Saxena, S. Neppl, A. Alhazmi, M. Reiner, C. Belka, K. Parodi*

PO-0906

- > Gafchromic EBT3 film for absolute dosimetry in proton therapy based on averaging of beam quality

*A. Resch, P. Heyes, H. Fuchs, D. Georg, P. Hugo (Austria)*

PO-0907

- > Determination of surface dose in pencil beam scanning proton therapy  
*A. Kern (Germany), C. Bäumer, K. Kröninger, L. Mertens, B. Timmermann, J. Walbersloh, J. Wulff*  
**PO-0908**
- > Development and experimental validation of a user code for time-resolved Monte Carlo simulations  
*P. Sibol (Denmark), C.E. Andersen, C.F. Behrens, R.O. Cronholm, E. Heath*  
**PO-0909**
- > Lumbosacral proton therapy treatment of a patient with large spine metal implants  
*C. Peucelle (France), A. Gérard, D. Maneval, M. Vidal, A. Falk, J. Héault*  
**PO-0910**
- > Choose before you measure. Setting gamma parameters for different QA devices on the basis of ROC  
*M. Giżyńska (The Netherlands), D. Blatkiewicz, M. Bukat, M. Gil-Ulkowska, S. Maluszczak, A. Paciorekiewicz, D. Szałkowski, A. Walewska*  
**PO-0911**

● POSTER

#### Physics track: Radiation protection, secondary tumour induction and low dose

- > Effect of Heart Anatomy on Radiation Related Cardiac Risk in the Childhood Cancer Survivor Study  
*R. Howell (USA), J. Bates, L. Qi, B. Hoppe, C. Lee, S.A. Smith, K.C. Oeffinger, L.S. Constine, W.M. Leisenring, D.A. Mulrooney, T.M. Gibson, G.T. Armstrong, Y. Yasui*  
**PO-0912**
- > Cancer risk after breast proton therapy considering physiological and radiobiological uncertainties  
*A. Raptis (Sweden), J. Ödén, O. Ardenfors, A. Flejmer, I. Toma-Dasu, A. Dasu*  
**PO-0913**
- > Patient specific organ dose evaluation in cone beam CT  
*A. Sardo (Italy), F.R. Giglioli, E. Gallio, V. Rossetti, C. Fiandra, O. Rampado*  
**PO-0914**

● POSTER

#### Physics track: Treatment plan optimisation: algorithms

- > Integral multi-scenario robustness evaluation of anatomical robust optimization in head and neck  
*M. Cubillos Mesías (Germany), E.G.C. Troost, F. Lohaus, L. Agolli, M. Rehm, C. Richter, K. Stützer*  
**PO-0915**

- > Energy layer switching sequence optimization algorithm for an efficiency proton arc therapy delivery  
*X. Ding (USA), X. Li, G. Liu, C. Stevens, D. Yan, P. Kabolizadeh* **PO-0916**
- > Deep Convolutional Network with transfer learning for dose prediction in VMAT prostate treatments  
*P.G. Franco (Spain), E.M. Ambroa, J. Perez-Aluja, M. Ribas, M. Colomer* **PO-0917**
- > Optimal parameters to perform the Pseudo Skin-Flash on VMAT on breast radiotherapy  
*M. Lizondo (Spain), A. Latorre-Musoll, N. Espinosa, A. Coral, C. Cases, N. Jornet, P. Carrasco, P. Delgado-Tapia, A. Ruiz-Martinez, I. Valverde-Pascual, M. Barcelo, M. Ribas* **PO-0918**
- > Automatic radiotherapy treatment planning using Particle Swarm Optimization  
*L.A. Künzel (Germany), S. Leibfarth, O.S. Dohm, A. Müller, D. Zips, D. Thorwarth* **PO-0919**

**● POSTER****Physics track: Treatment planning: applications**

- > Knowledge-based planning significantly reduces dose to organs at risk for lung cancer  
*L. Hoffmann (Denmark), M.M. Knap, D.S. Møller* **PO-0920**
- > Assessment of CT-based imaging biomarker of COPD in IGRT planning for lung cancer patient  
*T. Shiinoki (Japan), Y. Yuasa, K. Fujimoto* **PO-0921**
- > Knowledge-based optimization of an adaptive, early-regression-guided, technique for rectal cancer  
*R. Castriconi (Italy), C. Fiorino, S. Broggi, P. Passoni, N. Di Muzio, R. Calandriano, G.M. Cattaneo* **PO-0922**
- > How can a limited number of proton slots be optimally used in combined proton-photon treatments?  
*S. Fabiano (Switzerland), M. Bangert, N. Andratschke, M. Guckenberger, J. Unkelbach* **PO-0923**
- > Viability of standardized FFF VMAT TBI treatment plans for extended SSD delivery based on AP-width  
*R. Frederick (Canada), A. Hudson, G. Pierce* **PO-0924**
- > On the ability of a knowledge based planning process to improve itself  
*A. Fogliata (Italy), G. Reggiori, C. Franzese, D. Franceschini, S. Tomatis, M. Scorsetti, L. Cozzi* **PO-0925**



- > A novel approach to automatic planning: robust templates for lung VMAT SBRT  
*L. Marrazzo (Italy), C. Arilli, S. Calusi, M. Casati, C. Talamonti, P. Bonomo, L. Livi, S. Pallotta*  
**PO-0926**
- > Lower dose to hippocampi and other OARs with IMPT than with VMAT and IMRT for skull-base meningiomas  
*M. Florijn (The Netherlands), A.W.M. Sharfo, R.G.J. Wiggenraad, J.P.C. Van Santvoort, A.L. Petoukhova, M.S. Hoogeman, M.E. Mast, M.L.P. Dirkx*  
**PO-0927**
- > Treatment plan quality assessment for focal dose escalation in prostate cancer  
*M. Van Schie (The Netherlands), T. Janssen, D. Eekhout, I. Walraven, A. Kotte, L. Kerkmeijer, C. Draulans, K. Haustermans, R.J. Smeenk, U. Van der Heide*  
**PO-0928**
- > Focal boost dose escalated prostate SBRT on the Halcyon fast-rotating O-ring linac  
*R. De Roover (Belgium), W. Crijns, S. Michiels, C. Draulans, K. Poels, K. Haustermans, T. Depuydt*  
**PO-0929**
- > Knowledge-based planning of head and neck cancer; comparisons of target and normal tissue parameters  
*A.I.S. Holm (Denmark), L. Kaplan, U.V. Elstrøm, S.S. Korreman*  
**PO-0930**
- > Application of a thin, energy-layer specific multi-leaf collimator for proton pencil beam scanning  
*C. Winterhalter (Switzerland), G. Meier, D. Oxley, D.C. Weber, A. Lomax, S. Safai*  
**PO-0931**
- > Identification of modes of tumour changes in NSCLC during radiotherapy  
*L.M. Amugongo (United Kingdom), E. Vasquez Osorio, A. Green, D. Cobben, V.H. Marcel, A.M. Alan*  
**PO-0932**
- > Single isocenter SRS for multiple brain metastases: dosimetric comparison of DCAT and VMAT  
*J. Hofmaier (Germany), R. Bodensohn, S. Garry, M. Reiner, M. Eder, Y. Dinc, S. Corradini, C. Belka, M. Niyazi*  
**PO-0933**
- > Physical and biological doses with increasing number of proton beams for pediatric brain irradiation  
*L. Toussaint (Denmark), D.J. Indelicato, K.S. Holgersen, J.B.B Petersen, C.H. Stokkevåg, Y. Lassen-Ramshad, O. Casares-Magaz, C. Pedro, R. Mikkelsen, A. Vestergaard, H. Hasle, L.P. Muren*  
**PO-0934**

- > Implementation of an in-house solution for motion management-based treatment planning  
*D. Dechambre* (Belgium), A. Delor, F. Vanneste, X. Geets PO-0935
- > To be or not to be homogeneous in SBRT plans? a systematic multi-planning study  
*P. Mancosu* (Italy), G. Reggiori, A. Gaudino, F. Lobefalo, L. Paganini, V. Palumbo, A. Stravato, S. Tomatis, M. Scorsetti PO-0936
- > Can butterfly VMAT in DIBH reduce dose of LAD in left breast cancer radiotherapy?  
*M. Maffei* (Italy), S. Bou Selman, S. Hofer, M. Haller, P. Ferrari PO-0937
- > Spine SBRT plan comparison for Cyberknife and VMAT delivery incorporating intrafraction PTV margin  
*T. Oshea* (United Kingdom), C. Jones, C. Meehan PO-0938
- > Suspected impact of linear energy transfer on treatment related toxicities from proton therapy  
*J. Ödén* (Sweden), E. Traneus, P. Witt Nyström, I. Toma-Dasu, A. Dasu PO-0939
- > The effects of Bragg curve degradation in proton therapy of bronchial carcinomas  
*V. Flatten* (Germany), K. Baumann, U. Weber, S. Lautenschläger, F. Eberle, R. Engenhart-Cabillic, K. Zink PO-0940
- > Can dose gradient-based plan optimisations compete with autoplanning for optimal prostate plans?  
*D. Schuring* (The Netherlands), A. Van Nunen, F. Van Aarle, T. Jongsma-van Nunen, T. Budiharto PO-0941
- > Optimization of adaptive aperture margins in robustly optimized pencil beam scanning proton plans  
*G. Vilches Freixas* (The Netherlands), M. Unipan, I. Rinaldi, J. Martens, C. Ares, G. Bosmans PO-0942
- > Harmonization of proton planning for H&N cancer using PBS: First report of the IPACS collaboration  
*M. Stock* (Austria), J. Gora, A. Perpar, P. Georg, G. Kragl, E. Hug, V. Vondracek, J. Kubes, C. Algranati, M. Cianchetti, M. Amichetti, T. Kajdrowicz, R. Kopec, P. Olko, K. Skowronska, U. Sowa, E. Gora, K. Kisielewicz, B. Sas-Korcynska, T. Skora, A. Bäck, M. Gustafsson, M. Sooaru, P. Witt Nyström, T. Björk Eriksson PO-0943
- > Proton therapy for esophageal cancer; variable relative biological effect and heart dose  
*C. Skinnerup Byskov* (Denmark), A. Ivalu Sander Holm, S.S. Korreman, L. Hoffmann, M. Nordsmark, D. Sloth Møller PO-0944



- > Stochastic Frontier Analysis to predict sparing of organs-at-risk for VMAT-treated prostate cancer  
*A. Kroshko (Canada), O. Morin, L. Archambault*  
PO-0945
- > Inter-fraction robustness of DECT-based H&N proton therapy with reduced range uncertainty margins  
*S. O'Reilly, C. Cheng (USA), A. Lalonde, B. Burgdorf, W.J. Zou, L. Yin, S. Swisher-McClure, A. Fotouhi Ghiam, J.N. Lukens, A. Lin, L. Dong, B.K.K. Teo*  
PO-0946

● POSTER

### Physics track: Radiobiological and predictive modelling, and radiomics

- > The impact of dose deviations arising within the dosimetry chain on clinical outcomes  
*M. Bolt (United Kingdom), A. Nisbet, T. Chen, C. Clark*  
PO-0947
- > Predicting lung function post-RT in lung cancer using multivariate and principal component analysis  
*Y. Dong, M. Tawhai, C. Veiga, T. Doel, D. Landau, J. McClelland, K. Burrowes (New Zealand)*  
PO-0948
- > Improved external validation performance of predictive radiomics models using statistical methods  
*A. Chatterjee (Canada), M. Vallières, A. Dohan, I. Levesque, Y. Ueno, S. Saif, C. Reinhold, J. Seuntjens*  
PO-0949
- > Determining the radiodensity range for data-driven quantification of radiation-induced lung fibrosis  
*L.M. Wang v, A. Chatterjee, A. Semionov, J. Tsui, S. Lee, I. Yang, Y. Al Bulushi, J. Seuntjens, N. Ybarra*  
PO-0950
- > How to build accurate prediction models without sharing patient data across hospitals?  
*I. Zhovannik (The Netherlands), Z. Shi, F. Dankers, T. Deist, A. Traverso, P. Kalendralis, R. Monshouwer, J. Bussink, R. Fijten, H. Aerts, A. Dekker, L. Wee*  
PO-0951
- > CT-based Radiomics Predicting HPV Status in Head and Neck Squamous Cell Carcinoma  
*Z. Shi (The Netherlands), C. Zhang, M. Welch, P. Kalendralis, W. Leonard, A. Dekker*  
PO-0952

- > Are quality assurance phantoms useful to assess radiomics reproducibility? A multi-center study  
*A. Traverso (The Netherlands), I. Zhovannik, Z. Shi, P. Kalendralis, R. Monshouwer, M. Starmans, S. Klein, E. Pfaehler, R. Boellaard, A. Dekker, L. Wee*  
**PO-0953**
- > A Prediction Model of Acute Esophageal Toxicity in Esophageal Squamous Cell Carcinoma Patients  
*L. Jiang (China), S. Lu, J. Lu, W. Hu, J. Wang, Y. Chen, K. Zhao*  
**PO-0954**
- > Radiomics signature as predictors of survival and local control after pancreatic carcinoma SBRT  
*L. Cozzi (Italy), T. Comito, A. Fogliata, C. Franzese, D. Franceschini, C. Bonifacio, A. Tozzi, L. Di Brina, E. Clerici, S. Tomatis, G. Reggiori, F. Lobefalo, A. Stravato, P. Mancosu, A. Zerbi, M. Sollini, K. Margarita, A. Chiti, M. Scorsetti*  
**PO-0955**
- > Non Invasive Grading of Non-Small Cell Lung Cancer Using Machine Learning Models Based on Radiomics  
*S. Aouadi (Qatar), R. Hammoud, T. Torfeh, N. Al-Hammadi*  
**PO-0956**
- > Radiomics study from the dose-painting multicenter phase III trial on newly diagnosed glioblastoma  
*E. Tensaouti (France), J. Bailleul, E. Martin, F. Desmoulin, S. Ken, J. Desrousseaux, L. Vieillevigne, J. Lotterie, V. Lubrano, I. Catalaa, G. Noël, G. Truc, M. Sunyach, M. Charissoux, N. Magné, P. Auberdiac, T. Filleron, P. Peran, E. Cohen-Jonathan Moyal, A. Laprie*  
**PO-0957**
- > Mortality Risk Stratification Model based on Radiomics Only: Analysis of Public Open Access HNC Data  
*Z. Shi (The Netherlands), C. Zhang, T. Zhai, M. Welch, L. Wee, A. Dekker*  
**PO-0958**
- > Robust features selection in Apparent Diffusion Coefficient (ADC) maps of cervix cancer patients  
*A. Traverso (The Netherlands), M. Kazmierski, Z. Shi, J. Weiss, S. Fiset, L. Wee, A. Dekker, D. Jaffray, K. Han*  
**PO-0959**
- > Automated sarcopenia assessment and its predictive power in lung cancer radiotherapy patients  
*A. Green (United Kingdom), C. Cipriano, E. Vasquez Osorio, J. Weaver, M. Van Herk, A. McWilliam*  
**PO-0960**
- > MR-Δimage biomarkers to identify partial HNC responders that advance to complete responders  
*L.V. van Dijk (The Netherlands), T. Zhai, M. Van Dijk, H.P. Bijl, J.G.M. Vemer-van der Hoek, M. Dieters, N.M. Sijtsema, R.J.H.M. Steenbakkers, J.A. Langendijk*  
**PO-0961**



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- > Bladder changes during first week of RT for prostate cancer determine the risk of urinary toxicity  
*O. Casares Magaz* (Denmark), R. G. Raidou, N. J. Pettersson, V. Moiseenko, J. Einck, A. Hopper, R. Knopp, L. P. Muren PO-0962
  - > A novel normalisation technique for voxel size dependent radiomic features in oesophageal cancer  
*P. Whybraj* (United Kingdom), C. Parkinson, K. Foley, J. Staffurth, E. Spez PO-0963
  - > Stability and prognostic significance of CT radiomic features from oesophageal cancer patients  
*C. Piazzese* (United Kingdom), P. Whybraj, R. Carrington, T. Crosby, J. Staffurth, K. Foley, E. Spez PO-0964
  - > How to find the best radiomics features for prediction of overall survival in SBRT for HCC?  
*P. Fontaine* (France), O. Acosta, F. Riet, J. Castelli, K. Gnep, A. Simon, A. Depeursinge, R. De Crevoisier PO-0965
  - > Prediction of Locoregional Control in Hepatocellular Carcinoma After SBRT with Deep Learning  
*L. El Naga* (USA), R. Ten Haken PO-0966
  - > Prediction of treatment outcome for head and neck cancers using radiomics of PET/CT images  
*A. Rosvoll Groendahl* (Norway), A.D. Midtfjord, G.S. Elvatun Rakha Langberg, O. Tomic, U.G. Indahl, I. Skjei Knudtsen, E. Malinen, E. Dale, C.M. Futsaether PO-0967
  - > Prostate-specific phantom for radiomic features quality assurance  
*S. Osman* (United Kingdom), E. Russell, R.B. King, A.J. Cole, C. McGrath, S. Jain, A.R. Hounsell, K.M. Prise, C.K. McGarry PO-0968
  - > Sensitivity analysis of an in silico model of prostate tumour growth and response to radiotherapy  
*C. Sosa Marrero* (France), Ó. Acosta, M. Castro, A. Hernández, N. Rioux-Leclercq, R. Mathieu, F. Paris, R. De Crevoisier PO-0969

● POSTER

**Physics track: Intra-fraction motion management**

- > Advances in intra-fraction movement detection during stereotactic radiosurgery  
*O. Semeniuk* (Canada), P. Sadeghi, J.D. Farah, J. Robar PO-0970

- > Capacitive monitoring system for intrafraction rotation detection during frameless radiosurgery  
*P. Sadeghi (Canada), O. Semeniuk, R. James*  
**PO-0971**
- > Intrafraction prostate motion effects with or without ERB in highly hypofractionated proton therapy  
*L.G.M. Zwart (The Netherlands), C.L. Brouwer, P. Klinker, C.H. Slump, K.K. Wang, N. Vapiwala, J.A. Langendijk, S. Both, S. Aluwini*  
**PO-0972**
- > Residual intra-fraction error in non-immobilized patients treated with tracked robotic spinal SBRT  
*E. Rossi (Italy), C. Fiorino, A. Fodor, G.M. Cattaneo, C. Deantoni, A. Sbalchiero, A. Tavilla, N.G. Di Muzio, R. Calandrino, S. Broggi*  
**PO-0973**
- > Intra-fractional stability of Deep Inspiration Breath Hold during RT for lung and lymphoma cancer  
*D. Sloth Møller (Denmark), M.L. Schmidt, T. Rakvilde, P.R. Poulsen, J. Hansen, E.S. Worm, H.H. Schmidt, M.M. Knap, A. Safwat, H.K. Rose, L. Hoffmann*  
**PO-0974**
- > Feasibility of single-camera intra-bore surface scanning in an O-ring linac  
*L. Delombaeerde (Belgium), S. Petillion, C. Weltens, T. Depuydt*  
**PO-0975**
- > Validation of respiratory motion modeling through repeated 4DMRI in the abdomen: preliminary results  
*G. Meschini (Italy), C. Paganelli, G. Fontana, A. Pella, A. Mancin, A. Vai, M. Riboldi, F. Valvo, G. Baroni*  
**PO-0976**
- > Improved 4D proton dosimetry via correlation with beam delivery details using log-files  
*N. Kostiukhina (Austria), H. Palmans, S. Waid, M. Stock, D. Georg, B. Knäusl*  
**PO-0977**
- > Accurate positioning with decreased treatment time using surface guided tomotherapy  
*A. Haraldsson (Sweden), S. Ceberg, C. Crister, S. Engelholm, S.Å.J. Bäck, P.E. Engström*  
**PO-0978**
- > The Use of Triggered Imaging for Intrafraction Target Verification in Liver SBRT Breathhold  
*M. Walb, (USA) K. Jethwa, S. Park, C. Hallemeier, D. Pafundi*  
**PO-0979**



## ● POSTER

**Physics track: Adaptive radiotherapy and inter-fraction motion management**

- > Dosimetric comparison of library of plans and online MRI-guided radiotherapy of cervical cancer  
*J. Visser* (The Netherlands), P. De Boer, K.F. Crama, Z. Van Kesteren, C.R.N. Rasch, L.J.A. Stalpers, A. Bel PO-0980
- > Role of on-table plan adaptation in MR-guided ablative radiation therapy for central lung tumors  
*T. Finazzi* (The Netherlands), M. Palacios, F. Spoelstra, C. Haasbeek, A. Bruynzeel, B. Slotman, F. Lagerwaard, S. Senan PO-0981
- > The dosimetric impact of geometric image distortions in slice-based 4D-MRI on the MR-linac  
*M. Fast* (The Netherlands), R. Keesman, W. Van den Wollenberg, C. Juan-Cruz, T. Van de Lindt, U. Van der Heide, J. Sonke PO-0982
- > Accumulating delivered dose to the rectum using finite element analysis improves toxicity prediction  
*L. Shelley* (United Kingdom), D. Noble, M. Romanchikova, K. Harrison, A. Bates, M. Sutcliffe, S. Thomas, N. Burnet, R. Jena PO-0983
- > Univariate toxicity associations are stronger with delivered than planned dose in HNC patients.  
*D. Noble* (United Kingdom), K. Harrison, A. Hoole, M. Wilson, S. Thomas, A. Bates, L. Shelley, N. Burnet, R. Jena PO-0984
- > Online-adaptive proton therapy: assessing accuracy of robust dose restoration in lung patients.  
*E. Borderías* (Belgium), E. Sterpin, X. Geets, K. Bernatowicz, K. Souris PO-0985
- > Inter-fraction anatomical changes in pediatric abdominal tumors during photon and proton therapy  
*F. Guerreiro* (The Netherlands), E. Seravalli, G.O. Janssens, J.H. Maduro, C.L. Brouwer, E.W. Korevaar, A.C. Knopf, B.W. Raaymakers PO-0986
- > Rotational setup errors in breast cancer radiotherapy: the effect on treatment margins.  
*J. Seppala* (Finland), K. Vuolukka, T. Viren, J. Heikkilä, J. Honkanen, A. Pandey, A. Al-Gburi, M. Shah, S. Sefa, T. Koivumäki PO-0987
- > CBCT-based library of plans approach in gastric cancer radiotherapy: proof of concept  
*M. Bleeker* (The Netherlands), K. Goudschaal, A. Bel, J. Sonke, M.C.C.M. Hulshof, A. Van der Horst PO-0988

- > Deep learning improves robustness of contour propagation for online adaptive IMPT of prostate cancer  
*M. Elmahdy (The Netherlands), T. Jagt, R. Zinkstok, C. Marijnen, M. Hoogeman, M. Staring*  
**PO-0989**
- > Positioning uncertainties for pediatric craniospinal irradiation and the impact of image guidance  
*D. Gasic (Denmark), A. Haraldsson, N.P. Brodin, K. Nysom, T. Björk-Eriksson, P. Munck af Rosenschöld*  
**PO-0990**
- > A decision-support tool to select patients who may benefit from online adaptation in pancreatic SBRT  
*A. Magallón Baro (The Netherlands), P.V. Granton, M.T.W. Milder, M. Loi, A.G. Zolnay, J.J. Nuyttens, M.S. Hoogeman*  
**PO-0991**
- > Investigating 4D Cone Beam CT reconstruction for moving targets at a scanned proton gantry system  
*L. Den Otter (The Netherlands), K. Chen, G. Janssens, A. Meijers, S. Both, J.A. Langendijk, L.R. Rosen, H.T. Wu, A. Knopf*  
**PO-0992**
- > Uncertainty estimation of dose accumulation with deformable image registration in head & neck region  
*T. Kanehira (The Netherlands), S. Kranen, J. Sonke*  
**PO-0993**
- > Registration accuracy of 4D-MRI in lung acquired on the MR-linac  
*M. Rossi (The Netherlands), M. Fast, T. Van de Lndt, M. Nowee, J. Belderbos, F. Lalezari, J. Sonke*  
**PO-0994**
- > An extension of van Herk's margin recipe to explicitly account for time trends in tumor set-up.  
*M. Gizińska (The Netherlands), B. Heijmen, P. Kukolowicz*  
**PO-0995**
- > A knowledge-based tool to estimate the gain of re-planning strategy for Head and Neck (HN) ART  
*E. Cagni, A. Botti, M. Orlandi, R. Sghedoni, E. Spezi, M. Iori (Italy)*  
**PO-0996**
- > A Synthetic Generative Adversarial Network for Semantic Lung Tumor Segmentation  
*V. Kearney (USA), J.W. Chan, S. Haaf, S.S. Yom, T. Solberg*  
**PO-0997**
- > Setup and range robustness recipes for skull-base meningioma IMPT using Polynomial Chaos Expansion  
*C. Ter Haar, S. Habrake (The Netherlands), n, D. Lathouwers, R. Wiggenraad, S. Krol, Z. Perkó, M. Hoogeman*  
**PO-0998**



## ● POSTER

**Physics track: Quantitative functional and biological imaging**

- > Functional Avoidance planning allows for lung dose reduction in radiotherapy of lung cancer

*K. Farr (Denmark), K. West, R. Yeghiaian-Alvandi, D. Farlow, R. Stensmyr, A. Chicco, E. Hau*

PO-0999

- > Vascular responses in normal brain tissue after combined immunotherapy and SRS to brain metastases

*L. Nilsen (Norway), E. Grøvik, I. Digernes, C. Saxhaug, A. Latysheva, O. Geier, T.P. Hellebust, D.O. Sætre, B. Breivik, K.D. Jacobsen, Å. Helland, K.E. Emblem*

PO-1000

## ● POSTER

**Physics track: Imaging acquisition and processing**

- > Combined image-based and biomechanical deformable image registration of extreme anatomical changes.

*M. Nix (United Kingdom), S. Gregory, M. Aldred, L. Aspin, B. Al-Qaisieh, J. Lilley, A. Appelt, P. Dickinson, L.*

PO-1001

- > Pseudo Computed Tomography generation using 3D deep learning – Application to brain radiotherapy

*E. Alvarez Andres (France), L. Fidon, M. Vakalopoulou, G. Noël, S. Niyoteka, N. Benzazon, E. Deutsch, N. Paragios, C. Robert*

PO-1002

- > A deep learning based auto-segmentation for GTVs on NPC MR images

*E. Xiangyu (China), Y. Hongmei, H. Weigang, W. Jiazhou*

PO-1003

- > Simulation of tissue dependent magnetic field susceptibility effects in MRI guided radiotherapy

*C. Kroll (Germany), M. Opel, C. Paganelli, F. Kamp, S. Neppi, G. Baroni, O. Dietrich, C. Belka, K. Parodi, M. Riboldi*

PO-1004

- > Evaluating different generator networks of a conditional generative adversarial network

*L. Fetty (Austria), P. Kuess, N. Nesvacil, T. Nyholm, D. Georg, H. Furtado*

PO-1005

- > Comparison of deep learning with three other methods to generate pseudo-CT for MRI-only radiotherapy

*A. Largent (France), A. Barateau, J. Nunes, C. Lafond, P.B. Greer, J.A. Dowling, H. Saint-Jalmes, O. Acosta, R. De Crevoisier*

PO-1007

- > Image quality characterisation of a proton gantry-mounted cone-beam CT system  
*K. Andersson (Sweden), C. Vallhagen Dahlgren, A. Dasu* PO-1008
- > Comparison of automatic tumour segmentation approaches for head and neck cancers in PET/CT images  
*A. Rosvoll Groendahl (Norway), M. Mulstad, Y. Mardal Moe, I. Skjei Knudtsen, T. Torheim, O. Tomic, U.G. Indahl, E. Malinen, E. Dale, C.M. Futsaether* PO-1009
- > Clinical evaluation of deep learning delineation of head and neck OARs.  
*W. van Rooij (The Netherlands) H. Ribeiro Branda, A. Delaney, B. Slotman, W. Verbakel, M. Dahele* PO-1010
- > Calibration and validation of ion stopping power prediction with Philips IQon Spectral CT  
*F. Faller (Germany), B. Ackermann, G. Pahn, M. Alber, W. Stiller, A. Mairani* PO-1011
- > Dual-energy computed tomography for improved delineation in postoperative brain-tumor patients  
*P. Wohlfahrt (Germany), L. Agolli, M. Krause, K. Pilz, C. Richter, E.G.C. Troost* PO-1012

● POSTER

**Physics track: Implementation of new technology, techniques, clinical protocols or trials (including QA & audit)**

- > Unscheduled interruptions and total treatment time for VMAT prostate treatments  
*E.M. Ambroa Rey (Spain), J. García-Miguel Quiroga, A. Ramirez Muñoz, D. Navarro Giménez, R. Gómez Pardos, M. Colomer Truyols* PO-1013
- > Novel independent dosimetry audit based on end-to-end testing in proton beam therapy  
*A. Carlino (Austria), H. Palmans, C. Gouldstone, P. Trnkova, S. Vatnitsky, M. Stock* PO-1014
- > Design of 2.5 MeV electron beam applicator for < 5 mm thick superficial lesions  
*A. Valve (Finland), H. Nurmi, A. Kulmala, S. Koskenmies, M. Tenhunen* PO-1015
- > Segmentation of CT images with AI: compensating annotation uncertainties using contour augmentation  
*U. Javaid (Belgium), D. Dasnoy, J. Lee* PO-1016



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- > Towards magnetically focused proton minibeam: investigating the limits of a clinical PBS nozzle  
*T. Schneider (France), L. De Marzi, A. Patriarca, Y. Prezado* PO-1017
  - > Current status of pediatric image-guided radiation therapy in Europe: An international survey  
*C. Windmeijer (The Netherlands), A. Bel, R. De Jong, B. Balgobind, G. Collaboration, C. Rasch, I. Van Dijk* PO-1018
  - > The elephant plot: Differentiating between early recurrence and Benign Lung Injury after SABR  
*L. Phillips (United Kingdom), H. Wang, P. Evans, V. Ezhil, H. Saxby, C. South, M. Hussein, A. Nisbet, S. Alobaidli, E. Chandy* PO-1019
  - > The Sicily Dosimetric Project: a multi-institutional project on IMRT/VMAT lung treatment  
*C. Marino (Italy), E. Bonanno, N. Cavalli, G.R. Borzì, A. Brogna, R. Costa, V. D'Antoni, I. Fazio, G. Iacoviello, S.I. Illari, S. Mele, A. Rabito, N. Romeo, V. Salamone, L. B. Tonghi* PO-1020
  - > Influence of beamline and scanning magnets on the magnetic fringe field at a proton PBS nozzle  
*S. Gantz (Germany), L. Riemann, J. Smeets, J. Pawelke, A. Hoffmann* PO-1021
  - > A study on the image registration accuracy of intrafraction cone beam computed tomography images  
*S. Arumugam (Australia)* PO-1022
  - > Continuous Positive Airway Pressure for respiratory gating in lymphomas: a workflow analysis  
*F. Giglioli (Italy), E. Gallio, M. Levis, P. Solidoro, C. Fiandra, S. Bartocinici, V. De Luca, C. Cavallin, G. Iorio, R. Parise, G. Furfaro, U. Ricardi* PO-1023
  - > Solutions for MR-based RT planning with an open low field scanner using neural network tools  
*L. Fetty (Austria), M. Buschmann, G. Heilemann, P. Kuess, T. Nyholm, H. Herrmann, D. Georg, N. Nesvacil* PO-1024
  - > The impact of dose to medium on the results of a national spine SBRT dosimetry audit  
*J. Lee (United Kingdom), R. Patel, D. Eaton, C. Clark* PO-1025
  - > Evaluation of a microdiamond detector for a national spine SBRT end to end dosimetry audit  
*R. Patel (United Kingdom), J. Lee, D. Eaton, C. Clark* PO-1026

- > IMRT in breath hold for left breast cancer patients: surface tracking and clinical implementation  
*M. Cardoso, S. Vieira, A. Martins, A. Soares, M. Possanzini, J. Morales, C. Greco (Portugal)* PO-1027
- > Absolute validation of MR versus radiation iso-center on a high-field MR linac  
*U. Bernchou, A. Bertelsen, H.L. Riis, H.R. Jensen, C.R. Hansen, F. Mahmood, C. Brink (Denmark)* PO-1028
- > The use of Elekta Agility MLC Dynamic log files for VMAT QA  
*M. Picioli, K. Torzsok, A. Ruiz Plata, F. Marangoni, H. Broque, J. Aponte (Chile)* PO-1029
- > Absolute validation of Multi Leaf Collimator (MLC) positions on a high-field MR linac  
*A. Bertelsen (Denmark), U. Bernchou, H.L. Riis, C. Brink* PO-1030
- > Automated patient specific collision prevention: the future of noncoplanar SRS planning  
*T. Mann (Canada), K. Thind, N. Ploquin* PO-1031
- > The potential of CBCT for setup and treatment verification in proton therapy for prostate cancer  
*E. Fura (Sweden), A. Dasu, A. Ureba, U. Isacsson, S. Johansson* PO-1032
- > What is required to make logfile-based Monte Carlo a viable QA method for realtime plan adaptation?  
*S. Klüter (Germany), C.K. Spindeldreier, A. Fees, G. Major, J. Debus, M. Alber* PO-1033
- > Development of predictive daily machine quality assurance system to predict forthcoming failures  
*T. Fuangrod (Thailand), W. Puyati, A. Khawne, M. Barnes, P. Greer* PO-1034
- > Linac commissioning methodology for the Elekta Unity MR Linac  
*I. Hanson (United Kingdom), S. Nill, J. Chick, U. Oelfke* PO-1035
- > Deep Learning for automatic contouring of clinical target volumes in breast cancer patients  
*P. Poortmans (France), A. Henry Alexandre, P. Aljabar, R. Baggs, M. Gooding, M. Leclerc-Chalvet, Y. Kirova* PO-1036
- > *In silico* analysis of MR-only planning for simulation-free MR-guided spine SBRT  
*O. Green (USA), L. Henke, S. Rudra, A. Price, S. Mutic, C. Robinson* PO-1037



- > MR-only Radiation Therapy: a silent patient-friendly workflow using a light-weight, flexible coil

*C. Cozzini (Germany), C. Bobb, M. Engström, S. Kaushik, R. Molthen, D. Rettman, V. Goruganti, W. Chiang, F. Wiesinger*

PO-1038

- > Spine SBRT with Halcyon™: Plan Quality, Delivery Accuracy, and Speed

*H. Petroccia (USA), I. Malajovich, C. Wang, K. Teo, D. Lei, T. Li*

PO-1039

● POSTER

### Brachytherapy: Breast

- > Partial breast irradiation with interstitial multicatheter HDR BT for breast cancer

*N. Cihoric (Switzerland), A. Tsikkinis, D. Terribilini, D. M. Aebersold, K. Lössl*

PO-1040

● POSTER

### Brachytherapy: Gynaecology

- > Benefit of interstitial needles supplementing the ring applicator in cervical cancer brachytherapy

*J. Ståhl Kornerup (Norway), E. Thorstensen Andersen, S. Danielsen, A. Dybdahl Wanderås, M. Sundset, K. Fjellanger, M. Eidem, A.B. Langeland Marthinsen*

PO-1041

- > Toxicity results after Electronic Brachytherapy treatment in endometrial cancer patients

*A. Miranda Burgos (Spain), A. Méndez Villamón, M. Gascón Ferrer, A. Campos Bonel, B. García Gimeno, S. Lozares Cordero, J.A. Font Gómez, R. Ibáñez Carreras, M. Tejedor Gutiérrez*

PO-1042

- > Vaginal Cuff treatment with Electronic Brachytherapy in Gynaecologic Cancer: Our experience

*A. Miranda Burgos (Spain), A. Méndez Villamón, R. Ibáñez Carreras, M. Gascón Ferrer, A. Campos Bonel, E. Muñoz Sanz, S. Lozares Cordero, A. Gandía Martínez, M. Tejedor Gutierrez*

PO-1043

## ● POSTER

**Brachytherapy: Head and neck**

- > Salvage brachytherapy for oral or oropharyngeal tumor in a previously irradiated volume  
*P. Pierre-Marie (France), M. Mounie, B. Fleury, S. Racadot, J. Suchaud, P. Pommier*
- > Retreatment using Ru-106 or I-125 plaque in uveal melanoma locally recurrent after brachytherapy  
*L. Tagliaferri (Italy), M.M. Pagliara, B. Fionda, A. Scupola, L. Azario, M.G. Sammarco, R. Autorino, V. Lancellotta, S. Cammelli, C.G. Caputo, R. Martinez-Monge, G. Kovács, M.A. Gambacorta, V. Valentini, M.A. Blasi*

PO-1044

PO-1045

## ● POSTER

**Brachytherapy: Physics**

- > Precision of source tracking in brachytherapy with scintillation detectors  
*J. Johansen (Denmark), H.M.L. Rosales, M. Overgaard, E.B. Jørgensen, G. Kertzscher, S. Beddar, K. Tanderup, L. Beaulieu*
- > Evaluation of ACE dose calculation model on HDR treatments delivered with a multichannel applicator  
*M. Carrara (Italy), P. Caricato, T. Giandini, C. Tenconi, A. Cerrotta, B. Papalardi, F. Piccolo, C. Fallai, E. Pignoli*
- > Variability in catheter reconstruction for multi-catheter interstitial brachytherapy  
*K. Kallis (Germany), T. Kaltsas, S. Kreppner, M. Lotter, V. Strnad, R. Fietkau, C. Bert*
- > Assessing PTV margin adequacy in permanent breast seed implant for complex target geometries  
*A. Guebert (Canada), A. Frederick, M. Roumeliotis, T. Meyer, S. Quirk*
- > A gynecological multichannel applicator including a real-time treatment verification system  
*A. Romanyukha, M. Carrara (Italy), T. Giandini, M. Petasecca, T. Al-Salmani, D. Cutajar, A. Cerrotta, B. Pappalardi, F. Piccolo, E. Pignoli, A. Rosenfeld*
- > Quality analysis automation of a prostate low dose rate seed implant using clustering methods  
*D. Rodriguez Latorre (Spain)*

PO-1046

PO-1047

PO-1048

PO-1049

PO-1050

PO-1051

- > Is there a clinically meaningful change in anatomy during planning of US HDR prostate brachytherapy?  
*A. David, V. Brennan, G. Cohen, A. Damato (USA)*

PO-1052

● POSTER

### **Brachytherapy: Prostate**

- > Efficacy/toxicity after high dose rate brachytherapy as monotherapy for localized prostate cancer  
*S. Novikov (Russian Federation), S. Kanaev, M. Gotovchikova, R. Novikov, D. Ilin, M. Girshovitch*

PO-1053

- > LDR versus HDR brachytherapy boost in prostate cancer patients - a retrospective analysis  
*S. Rodda (Canada), L. Murray, D. Bottomley, P. Bownes, C. Wilkinson, E. Adiotomre, B. Al-Qaisieh, E. Dugdale, O. Hulson, J. Mason, J. Smith, A. M Henry*

PO-1054

- > High-dose rate brachytherapy boost for T3 prostate cancer patients: a single institution experience  
*M. Xu (USA), D. Diao, A. Lazar, K. Shinohara, A. Chang, A. Cunha, I. Hsu*

PO-1055

- > Ultra-Focal Salvage HDR-brachytherapy for recurrent prostate cancer: a single institution experience  
*C. Salembier (Belgium), A. Rijnders, C. Assenmacher, M. Debecker, I. Tshiakatumba, A. Gulyban, O. Michel*

PO-1056

- > Salvage high-dose-brachytherapy for recurrent prostate cancer patients: 10 years of experience  
*P. Lelek (Poland), M. Stankiewicz, T. Krzysztofiak, S. Kellas- Slezcka, M. Fijałkowski, P. Wojcieszek*

PO-1057

- > Long-term outcomes of LDR compared to hypofractionated EBRT for intermediate-risk prostate cancer  
*N. Sanmamed Salgado (Canada), L. Joseph, J. Crook, J. Borg, P. Chung, P. Warde, A. Di Tomasso, A. Berlin, M. Patel, A. Bayley, C. Catton, J. Helou*

PO-1058

- > Separation and rectal dosimetry with a hydrogel spacer inserted during prostate HDR brachytherapy  
*R. Davda (United Kingdom), D. Pendsé, A. Mitra, M. Prentice, L. Melcher, N. Rosenfelder, M. Singhera, R. Patel, M. Boutros, C. Allen, H. Payne*

PO-1059

● POSTER

**Brachytherapy: Miscellaneous**

- > Role of intraluminal brachytherapy as palliative treatment in advanced esophageal cancer

V. Pareek (India), R. Bhalavat, M. Chandra, C. Bakshi, N. Bhamhani

**PO-1060**

- > Brachytherapy for bladder rhabdomyosarcoma in children: initial single institutional experience

A. Slocker Escarpa (Spain), E. Iraolagoitia Lasa, J. Mases Rosines, D. Najjari Jamal, M. Vancells, J. Mora, F. Pino, C. Gullón, C. Gutierrez Miguelez

**PO-1061**

- > Brachytherapy in patients with bowen disease

J.L. Munoz Garcia (Spain), M.A. Gonzalez Ruiz, J. Quiros Rivero

**PO-1062**

- > Single-fraction low-energy electronic brachytherapy for conjunctival lymphoma

G. Sarria (Germany), C. Cabrera, G.J. Sarria, M. Buitrago, P. Fuentes Rivera, S. Serpa, F. Giordano

**PO-1063**

- > Reducing dysphagia with palliative 2D HDR brachytherapy improves survival in esophageal cancer

W. Burchardt (Poland), A. Chyrek, J. Skowronek

**PO-1064**

● POSTER

**Radiobiology track: Radiobiology of normal tissues**

- > Multiparametric radiobiological parameters implementation to predict radiation-induced side effects

M. Ben Kacem (France), M. Benadjoud, F. Soysouvanh, M. Dos Santos, G. Tarlet, V. Buard, A. François, O. Guipaud, F. Milliat, V. Paget

**PO-1065**

● POSTER

**Radiobiology track: Radiobiology of stem cells (cancer and normal tissue)**

- > The unique DDR mechanisms of human induced pluripotent stem cells (hiPSC)-derived chondrocytes

E. Stelcer (Poland), K. Katarzyna, S. Wiktoria M.

**PO-1066**

- > High expression of CCND2 in glioblastoma is associated with an increased risk of early mortality

C. Bouchart (Belgium) A. Trépanat, M. Hein, D. Van Gestel, P. Demetter

**PO-1067**

## ● POSTER

**Radiobiology track: Radiobiology of particles and heavy ions**

- > Very high yield of double strand breaks found at the distal end of the proton Bragg peak

*N.F.J. Edin (Norway), A.M. Rykkeliid, A. Görgen, A. Baker, S. Siem, K. Ytre-Hauge, E. Malinen*

PO-1068

- > RBE calculation for hadrontherapy by the BIANCA biophysical model

*M.P. Carante (Italy), F. Ballarini*

PO-1069

## ● POSTER

**Radiobiology track: Radiation-induced signalling pathways**

- > Identification of biologically active factors in ionizing radiation regulated secretome

*M. Pruscha (Switzerland)*

PO-1070

- > RIBE alters biological properties of the wound fluids

*K. Kulcenty (Poland), I. Piotrowski, D. Murawa, W. Suchorska*

PO-1071

## ● POSTER

**Radiobiology track: Immuno-radiobiology**

- > INTRABEAM: precision hypo-fractionated radiotherapy with a systemic immune response

*I. Linares (Spain), M.Á. Berenguer, E. Martínez, M. Laplana, R. Cañas, S. Comas, H. Pérez-Montero, M. Ventura, F. Guedea*

PO-1072

- > Biomathematical modeling of fractionated irradiation on immunogenic cell death induction *in vitro*

*E. Eckert (Germany), L. Bardoscia, P. Hausmann, Z. Daniel, D. Thorwarth, S.M. Huber*

PO-1073

- > Radiotherapy and immuno-check point inhibitors for brain metastases. A mono-institutional analysis

*C. Di Carlo (Italy), F. Patani, D. Fasciolo, S. Di Biase, C. Rosa, A. Allajbej, L. Gasparrini, P. Di Marino, M. De Tursi, L. Caravatta, M. Trignani, D. Genovesi*

PO-1074

● POSTER

**Radiobiology track: Radiation and tumour metabolism**

- > CBX4 contributes to radioresistance of esophageal squamous cell carcinoma by targeting autophagy  
*H. Zhu (China), L. Chu, Q. Liu, H. Zhu, S. Lai, K. Zhao* PO-1075
- > Concomitant association of T-DM1 and radiation: An *in vitro* study on HER2 breast cancer cells  
*M. Fabien (France), Y. Kirova, P. Verrelle, M. Teulade-Fichou, F. Mégnin-Chanet* PO-1076
- > The heterogeneous metabolic and mutational landscape of non-small cell lung carcinomas  
*T. Van Zon-Meijer (The Netherlands), W. Peeters, M. Looijen-Salamon, R. Biemans, L. Dubois, P. Span, J. Bussink* PO-1077
- > Superparamagnetic Iron Oxide Nanoparticle Mediated Radiosensitization at Megavoltage Radiation  
*E. Korkmaz Kiraklı, G. Takan, S. Hoca, F.Z. Biber Müftüler, A. Yurt Kılçar, S. Arun Kamer, Y. Anacak (Turkey)* PO-1078
- > Metabolic changes with the administration of radiotherapy in lung, head and neck cancer patients  
*E. Rodríguez-Tomàs, M. Murcia, M. Argués, I. Dolz, M. De Abreu, G. Baiges-Gaya, N. Cabré, F. Luciano-Mateo, L. Torres-Royo, M. Árquez, J. Gómez, J. Acosta, D. Gómez, C. Jordi, J. Jorge, S. Sabater, M. Arenas Prat (Spain)* PO-1079



● POSTER

**Radiobiology track: DNA damage response**

- > Does hyperthermia clinically alter the α/β? Insights from thermoradiotherapy vs. radiotherapy trials  
*N.R. Datta (Switzerland), S. Bodis* PO-1080
- > Biological interaction of a static magnetic field (SMF) with ionizing irradiation  
*T. Schmid (Germany), F. Hellmundt, S. Lemmer, K. Ilicic, M. Melzner, S. Bartzsch, J.J. Wilkens, S.E. Combs* PO-1081
- > Dihydroouabain is a novel radiosensitizer identified by high throughput screening  
*Z. Li (Japan), K. Tamari, Y. Seo, K. Minami, Y. Takahashi, K. Otani, O. Suzuki, F. Isohashi, K. Ogawa* PO-1082

- > The dual inhibitor BEZ235 radiosensitizes HNSCC cells due to impairment of the DSB repair  
*A. Arenz, V. Balzer, K. Dreffke, T. Rieckmann, S. Köcher, E. Dikomey, R. Engenhart-Cabillic, A. Wittig, U. Schötz (Germany)*
- PO-1083
- > Poly ADP-ribose polymerase-1 inhibitors enhance soft tissue sarcoma radiosensitivity: *in vivo* study  
*M. Mangoni (Italy) M. Sottilli, G. Salvatore, D. Pezzulla, S. Lucidi, M.A. Teriaca, V. Maragna, A. Peruzzi, M. Perna, G. Stocchi, F. Terziani, G. Caramia, R. Grassi, C. Talamonti, G. Beltrami, D. Campanacci, D. Greto, L. Livi*
- PO-1084
- > Prolonged trifluridine/tipiracil treatment radiosensitises colorectal cancer cells  
*K. Rothkamm (Germany), T. Rieckmann, S. Christiansen, A. Brinker, A. Stein, U. Schumacher, T. Frenzel, C. Petersen, S. Burdak-Rothkamm*
- PO-1085

#### ● POSTER

#### Radiobiology track: Biological therapies (e.g. viruses, vaccines)

- > Antitumor Efficacy of Combined Gene and Radio – Therapy in Animals  
*O. Bezburodova (Russian Federation), I. Alexeenko, A. Gevorkov, E. Nemtsova, A. Boyko, E. Khmelevskiy, R. Yakubovskaya, A. Pankratov, A. Kaprin, E. Sverdlov*

PO-1086

#### ● POSTER

#### Radiobiology track: Radiation response biomarkers

- > The interaction between miR-221 overexpression and radiosensitivity in mamma carcinoma cell lines  
*E. Hirmer (Germany), R. Kell, S. Winkler, K. Winkler, L. Mutschelknaus, S. Mörtl, M. Atkinson, S. Combs, T. Schmid, N. Anastasov*

PO-1087

PO-1088

PO-1089

- > A second (third, fourth...) look at the *In Vitro* Clonogenic Assay  
*R. Koch* (Germany), *C. Harmel, I. Dokic, A. Abdollahi, M. Alber, E. Bahn*

PO-1090

## ● POSTER

**RTT track: Patient preparation, positioning and immobilisation**

- > Multimedia assisted information to patients with prostate cancer undergoing curative radiotherapy  
*S. Rahbek* (Denmark) *I. Nordentoft*
- > The influence of a 6D couch and an individual head support on positioning in Head and Neck cancer  
*M. Rodrigues* (The Netherlands), *S. Veen, J. Van Egmond, M. Van Hameren, T. Van Oorschot, S. De Vet, J. Van Santvoort, R. Wiggenraad, M. Mast*
- > Comparison of conventional dark tattoo ink versus invisible tattoo ink for breast radiotherapy  
*L.H. Lim* (Singapore), *P.P.E. Pang, F.Y. Wong*
- > Use of an individual abdominal corset in patients with upper-GI tumors treated with proton therapy  
*J. Thiele* (Germany), *S. Schneider, C. Valentini, F. Lohaus, S. Sarah, D. Haak, M. Krause, A. Hoffmann, E. Troost*
- > Time management and hands-on experience with ELEKTA Unity 1.5T MRI-Linac  
*C. Marks* (Germany), *A. Stolte, D. Thorwarth, L.H. Braun, S. Boeke, D. Wegener, J. Boldt, C. Ortinau, M. Kammler, B. Holl-Henkel, C. Gani, D. Zips, M. Nachbar, O. Dohm, D. Mönnich*

PO-1091

PO-1092

PO-1093

PO-1094

PO-1095

## ● POSTER

**RTT track: Imaging acquisition and registration, OAR and target definition**

- > Geometrically correct MR imaging with optimal Signal to Noise Ratio for Hippocampus delineation  
*S. Takken* (The Netherlands), *M. Frantzen-Steneker, T. Vijlbrief-Bosman, L. Ter Beek, M. Kwint, J. Belderbos, U.A. Van der Heide*
- > Interobserver variability in tumor bed contouring for breast cancer: comparison between RTO and RTT  
*E. La Rocca* (Italy), *M. Dispinzieri, T. Giandini, V. Lici, S. Frasca, F. Bonfantini, R. Valdagni, L. Lozza, E. Pignoli, M.C. De Santis*

PO-1096

PO-1097

- 
- > GTV definition agreement in brain metastasis radiosurgery using 1.5T MRI-sim: a multi-observer study  
*J. Yuan, G.G. Lo, Y. Zhou (Hong Kong (SAR) China), O.L. Wong, W.W.K. Fung, K.F. Cheng, K.Y. Cheung, S.K. Yu* PO-1098
  - > A multi-center contouring study of spinal cord comparing myelo-CT and MRI fusion  
*H. Tanaka (Japan), H. Shimizu, T. Aoyama, H. Tachibana, Y. Koide, D. Katou, S. Adachi, R. Miyauchi, Y. Ooshima, T. Koidaira* PO-1099
  - > Validation of Atlas Based Segmentation for OAR in the brain  
*A. Van Nunen (The Netherlands), A. De Graaf, T. Budiharto, D. Schuring* PO-1100
  - > Feasibility of PSMA PET/CT for evaluation of radiotherapy toxicity in salivary glands  
*N. Bruin (The Netherlands), V. Mohan, J. Van de Kamer, A. Al-Mamgani, J. Sonke, W. Vogel* PO-1101
  - > Multi-atlas vs. single-atlas auto-segmentation for Head and Neck OARs: time efficiency and accuracy  
*D. Gugyérás (Hungary), A. Farkas, M. Csima, Z. Cselik, J. Hadjiev, A. Gulyban, F. Lakosi* PO-1102
  - > Introducing contrast-delayed magnetic resonance imaging in radiosurgery treatment of glioblastoma  
*F. Padelli (Italy), E. De Martin, Y. Mardor, D. Last, V. Pinzi, M.G. Bruzzone, L. Fariselli, V. Cuccarini, D. Aquino* PO-1103
  - > Implementing an automated target delineation service in multi-institutional environment in Finland  
*J. Heikkilä (Finland), H. Virsunen, L. Voutilainen, K. Vuolukka, A. Nevantaus, M. Haatanen, L. Sailas, J. Seppälä* PO-1104
  - > Impact of deviations in target volume delineation - time for a new RTQA approach?  
*S. Cox (United Kingdom), E. Miles, J. Staffurth, S. Gwynne* PO-1105

● POSTER

**RTT track: Treatment planning and dose calculation / QC and QA**

- > Comparison of hybrid IMRT techniques for breast SIB irradiation  
*C. Van den Beemd (The Netherlands), J. Penninkhof, N. Holtzer, M. Baaijens, B. Heijmen* PO-1106

- > Institutional experience of adaptation from IMRT to VMAT in post-operative cases of carcinoma tongue  
*K. Jain (India), P. Patel*  
PO-1107
- > Comparison of VMAT plans for spine SABR according to optimization algorithm PRO and PO  
*S. Son (Korea Republic of)*  
PO-1108
- > Plan quality and treatment time comparison between DCA and VMAT for cranial SRT  
*Y. Kato (Japan), D. Watanabe, R. Wakabayashi, M. Inohira, S. Itoya, J. Okubo, K. Miyamoto, S. Shimizu, Y. Oshiro*  
PO-1109
- > CT-based HDR brachytherapy for salvage prostate cancer: the way to avoid or delay hormonal treatment  
*N. Dunnewold (The Netherlands), E. Kouwenhoven, P. Koper, S. Van den Berg, J. Van der Klein, J. Noordermeer, N. Tak-Nobel, K. Van Wingerden, M. Mast, H. De Jager*  
PO-1110
- > Knowledge-Based Planning as a Real Time Review QA Feedback Tool in the TROG 1501 SPARK trial  
*O. Cook (Australia), A. Moore, R. Kaderka, K. Moore, P. Keall, J. Martin*  
PO-1111

● POSTER

**RTT track: Image guided radiotherapy and verification protocols**

- > Real-time online matching in high dose treatments: Do RTTs perform as well as physicians?  
*D. Levin (Israel), G. Grinfeld, G. Greenfeld, Y. Lipsky, S. Zalmanov-Faermann, Y. Tova, R. Pfeffer*  
PO-1112
- > Evaluation of CBCT and Orthogonal X-ray for Position verification in Radiotherapy of Prostate Cancer  
*S.Y. Ng (Hong Kong (SAR) China), V.W.C. Wu, G. Chiu*  
PO-1113
- > Organ motion characterization by a novel fiducial marker in esophageal cancer radiotherapy  
*H. Gripsgård (Norway), K.C.D. Pham, N.I. Glenjen, G.M. Engeseth, B.K. Abelseth, T.H. Sulen, U.Ø. Sølvik, L.B. Hysing*  
PO-1114
- > The UK lung SABR survey on behalf of the Advanced Radiotherapy Technologies Network  
*S. Brown (United Kingdom), M. Beasley, H. McNair, C. Faivre-Finn, K. Franks, L. Murray, M. Van Herk, A. Henry*  
PO-1115



- > Set-up in locoregional breast irradiation: reduced margins for subclavicular and axilar lymph nodes.

*M. Admiraal (The Netherlands), S. Hoek*

PO-1116

● POSTER

**RTT track: Motion management and adaptive strategies**

- > Dosimetric effect of parotid glands geometric modifications during the IMRT for NPC

*W. Mnejja, H. Daoud, (Tunisia) L. Farhat, N. Fourati, T. Sahnoun, W. Siala, J. Daoud*

PO-1117

- > Verification of new respiratory gating device for clinical use in proton therapy wobbler method

*L. Maeshima (Japan)*

PO-1118

- > strategies to mantain bladder and rectum volumes do not reduce the gtv movement for rectal cancer RT

*N. Espinosa (Spain), A. Coral, M. Lizondo, J. Balart, S. Bermejo*

PO-1119

- > Deformable-image-registration-based Adaptive Radiotherapy on Halcyon's MV CBCT system

*Y. Huang (China), H. Qiaoqiao, W. Hao, Z. Yibao*

PO-1120

- > Characterizing Dosimetric Uncertainties to Tumour Volume and Organs at Risk in Rectal Cancer

*O. Babatunde (United Kingdom), S. O'Cathail, R. Cooke, B. George, M. Robinson, F. Van den Heuvel, M. Hawkins*

PO-1121

● POSTER

**RTT track: Patient care, side effects and communication**

- > Assessment of bladder volume and urinary symptoms for patients undergoing prostate radiotherapy

*E.P.P. Pang (Singapore), M. Lian Chek Wang, J.K.L. Tuan, T.W.K. Tan, M.L.K. Chua, E.T. Chua, W.S. Looi, W.L. Nei, A. Hussain*

PO-1122

- > Could patient-related outcome measures help us in radiotherapy review clinics?

*M. Sivanandan (United Kingdom), C. Sharma, J. Christian*

PO-1123

- > A pilot study: Utilization of PROMs in hypo-fractionated radiotherapy for localized prostate cancer

*K. Crowther (United Kingdom), P. Shiels, A. Cole, P. Shepherd, S. Jain, D. Mitchell*

PO-1124

- > Helical Tomotherapy for patients with pectus excavatum treated for early stage breast cancer

*A. Alexandre (France), P. Dominique, F. Alain, K. Youlia M.*

PO-1125

● POSTER

**RTT track: Education and training/role development**

- > Caring for Patients with Dementia Undergoing Radiation Therapy - A National Audit

*A. O'Donovan, J. Flood (Ireland)*

PO-1126

- > The development and initial evaluation of a simulated clinical radiotherapy training centre

*S. Ketterer (United Kingdom), P. Bridge*

PO-1127

- > Clinical implementation of deformable image registration (DIR)

*C. Callie (Australia), G. Dinsdale, S. Deshpande, M. Jameson*

PO-1128

- > An analytical approach to aggregate patient workflows for system dynamics modelling of radiotherapy

*J. Lindberg, P. Holmström, S. Hallberg, T. Björk-Eriksson, C. Olsson (Sweden)*

PO-1129

- > Development of an e-learning program to enhance and maintain the knowledge of experienced RTT's

*J. Gornitzka (Denmark), L. Akselbo, M. Torp, V. Matthäi, T. Bjørn, K.L. Gottlieb*

PO-1130

● POSTER

**RTT track: Risk management/quality management**

- > Quality assurance of the pretreatment plan review in radiotherapy

*S.F. Huang (Taiwan), H.W. Cheng, C.Y. Kuo, C.C. Chang, L.J. Chen, J.T. Tsai*

PO-1131

- > RCT evidence in 2018 ASTRO/ASCO/AUA guidelines for hypofractionated radiotherapy in prostate cancer

*N. Williams (United Kingdom), C. Orczyk*

PO-1132

# Electronic posters

## ● ELECTRONIC POSTER

### Clinical track: Head and Neck

- > SPECT-CT visualization of lymph flow pattern for radiotherapy planning in patients with tongue cancer  
*S. Novikov* (Russian Federation), P. Krzhivitsky, Z. Radzhabova, M. Girshovitch, M. Kotov, O. Ponomareva, R. Nazhmutdinov, J. Melnik, S. Kanaev  
EP-1133
- > Head and neck cancer management in Chinese hospitals: a multicentre questionnaire-based survey  
*C. Wu* (China), G. Li  
EP-1134
- > Effect of Primary Treatment on Neck Dissection Choice in Nasopharyngeal Carcinoma Regional Failure  
*R. Sim* (Singapore), S. Mueller, G. Iyer, N.C. Tan, K.C. Soo, R.S. Mahalakshmi, H.K. Tan  
EP-1135
- > Management SCC unknown primary with contemporary diagnostic and radiotherapy techniques  
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*B. Salas (Spain), D.J. Domínguez Nuez, R. Cabrera, L. Ferrera, M. Lloret, P.C. Lara* EP-1163
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*J. Bhattacharya* (India), A. Jawade, P. Vijayaraghavan, T. Shahid, M. Mukherjee, R. Talukder, A. Samanta, C. Saikia, A. De, D. Barman, T. Ghosh, S. Sadhukhan  
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*M. Mukherjee* (India), J. Bhattacharya, T. Shahid, A. Samanta, L.N. Biswas, A. Ja-wade, A. De, D. Barman, T. Ghosh, S. Sadhukhan, P. Vijayaraghavan, R. Talukdar, C. Saikia, R. Rajan, R. Raj  
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*J. Bhattacharya (India), M. Mukherjee, V. Kumar K, R. Rajan, T. Shahid, S. Goswami, L. Naha Biswas, P. Chatterjee, S. Saha*  
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*S. Park (Korea Republic of), D. Oh, J.M. Noh, Y.C. Ahn, Y.H. Ko, M.K. Chung, H.S. Jeong, Y.I. Son, C. Baek*  
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*T. DeWees (USA), J. Rwigema, L. McGee, T. Nagel, M. Golafshar, S. Patel*  
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- > Different carotid contouring results in dosimetric variability and significant anatomical missing

*L. Ferella (Italy), F. Vittorini, E. Varrassi, P. Franzese, M. Di Staso, F. Marampon, C. Sorce, A. Chalaszczuk, G. Grimaldi, E. Di Cesare, E. Orlandi, V. Tombolini, C. Masciocchi, G.L. Gravina*

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*S. Ronchi, B. Vischioni, V. Vitolo, M. Bonora, A. Hasegawa, M.R. Fiore, A. Iannalfi, E. D'ippolito (Italy), R. Petrucci, A. Barcellini, S. Molinelli, D. Maestri, G. Viselner, A. Facoetti, M. Ciocca, L. Preda, F. Valvo, R. Orecchia*

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- > Adenoid cystic carcinoma of the head and neck treated with carbon ion radiotherapy at CNAO

*M. Bonora, B. Vischioni, D. Caivano, A. Hasegawa, V. Vitolo, S. Ronchi, E. D'ippolito (Italy), A. Iannalfi, M.R. Fiore, A. Barcellini, R. Petrucci, S. Russo, S. Molinelli, A. Vai, G. Viselner, A. Facoetti, M. Ciocca, L. Preda, F. Valvo, R. Orecchia*

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*A. Cavallo (Italy), N.A. Iacovelli, T. Rancati, N. Facchinetti, T. Di Florio, V. Doldi, E. Campi, N. Zaffaroni, T. Giandini, L. Ferella, D.A. Romanello, C.T. Delle Curti, P. Bossi, E. Pignoli, C. Fallai, R. Valdagni, E. Orlandi*

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- > Effect on local control of addition of chemotherapy to radiotherapy for T2 cancer of the hypopharynx

*S. Gaito (United Kingdom), S. Mehta, A. McWilliam, R. Almond, L.W. Lee, K. Garcez, D. Thomson, J. Price, K. Mais, A. McPartlin*

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- > Hair loss during intensity modulated radiotherapy for nasopharyngeal carcinoma

*N. Fourati (Tunisia), Z. Fessi, W. Mnejja, L. Farhat, T. Sahnoun, W. Siala, J. Daoud*

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- > Analysis of competing and tumor deaths and predictors factors in advanced head and neck cancer

*I. Zapata Martínez (Spain), I. Navarro Doménech, M. Álvarez Pérez, M.J. García Anaya, B.I. Pajares Hachero, M.D. Toledo Serrano, I. Jerez Sainz, R. Ordoñez Marmolejo, A. Otero Romero, R. Correa Generoso, I. García Ríos, A. Román Jobacho, J.A. Medina Carmona, J. Gómez-Millán Barrachina*

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*D. Alterio, E. D'ippolito (Italy), B. Vischioni, R. Ricotti, S. Gandini, M. Bonora, V. Vitolo, E. Mastella, G. Magro, S. Ronchi, P.F. Franco, U. Ricardi, M. Krengli, S. Comi, E. Verri, G. Ivaldi, B.A. Jereczek-Fossa, F. Valvo, R. Orecchia*

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*M.B. Sharma Grau (Denmark), K. Jensen, S.F. Urbak, M. Funding, A. Amidi, C.*

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*H. HA, S.E. Combs, S.U. Pigorsch (Germany)*

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*M. Echevarria (USA), L. Harrison, A. Trott, J. Caudell*

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- > Knowing the oropharyngeal cancer associated with the human papillomavirus

*L. Gutierrez Bayard (Spain), M.D.C. Salas Buzón, S. Garduño Sánchez, M.J. Macias Lozano, R. Rodríguez Sánchez, S. Sayago Gil, V. Díaz Díaz, E. Gonzalez Calvo, I. Villanego Beltrán, A. Ruiz Herrero, M. Lorente Sánchez, J. Jaén Olasolo*

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*J. Zheng (Canada), A. Flaman, D. Yegendorf, B. Purgina, S. Chakraborty, M. Gaudet, H. Alain*

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*P. Bonomo (Italy), C. Talamonti, L. Marrazzo, I. Desideri, D. Pezzulla, L. Dominici, A. Rampini, S. Bertocci, R. De Majo, C. Gasperi, A.S. Curion, L. Lastrucci, S. Pallotta, L. Livi, S. Caini*

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*A. Billfolk Kelly (Canada), L. Lin, W. Xu, S.H. Huang, R. Wu, A. Bayley, S. Bratman, J. Kim, M. Giuliani, J. Ringash, J. Waldron, B. O'Sullivan, J. Cho, D. Goldstein, A.A. Hosni, A. Hope*

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*A. Srivastava, (USA) J. Contreras, M. Daly, H. Gay, W. Thorstad, A. Apicelli*

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*F. Gregucci (Italy), H. Bahig, A.S. Mohamed, R. He, B.A. Elgohary, H. Lee, Y. Ding, J. Wang, H. Elhalawani, G.S. Ibbott, M. Chetvertkov, G. Bosco, S. Ikner, S.P. Ng, D.C. Fuller*  
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*M. El-Haddad (United Kingdom), O. AlSalih, L. Eley, E. Johnson, M. Chandrasekaran, K. Nyathi, H. Trieu, S. Kumar, C. Birch, F. Sheikh, H. Joy, P. Grundy, J. Ching, J. Duffill, S. Geoff*  
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*A. Di Marzo (Italy), F. Trippa, P. Anselmo, F. Arcidiacono, S. Terenzi, L. Draghini, M. Italiani, M. Casale, M. Muti, S. Fabiani, E. Maranzano*  
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*F. Alongi, F. Gregucci Ruggeri (Italy), R. Mazzola, N. Giaj-Levra, M. Rigo, V. Figlia, L. Nicosia, S. Corradini, F. Ricchetti, R.*  
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*H. Kahl (Germany), S. Sabine, M. Heiko, G. Ute, K. Ina, H. Volkmar, M. Christoph, B. Ansgar, K. Jürgen, S. Georg*  
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*A. Sharma, L. Mountjoy (USA), R. Butterfield, N. Zhang, H. Ross, S. Schild, J. Ashman, T. Daniels, H. Paripati, M. Mrugala, S. Vora, N. Patel, R. Zimmerman, T. Sio, A. Porter*  
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*G. Riva (Italy), A. Ferrari, S. Durante, D. Ciardo, G. Piperno, M.C. Leonardi, S. Vigorito, E. Rondi, R. Orecchia, B.A. Jereczek-Fossa*  
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*C. De la Pinta Alonso (Spain), R. Hernández, E. Fernández-Lizarbe, M. Martín, C. Vallejo, M. Martín Martín, A.B. Capúz, S. Barrio, M. Torres, S. Sancho*  
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*C. Straube (Germany), S. Antoni, P. Schaffer, J. Gempt, C. Zimmer, B. Meyer, S.E. Combs, F. Schmidt-Graf*  
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*P. Windisch (Germany), M. Röhrich, S. Regnery, E. Tonndorf-Martini, T. Held, K. Lang, D. Bernhardt, S. Rieken, U. Haberkorn, J. Debus, S. Adeberg*  
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*S. Yomo (Japan)*  
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- > Reirradiation of recurrent gliomas with CyberKnife® SRS/SRT: a monoinstitutional experience  
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*K. Takehana (Japan), M. Uto, K. Ogura, Y. Arakawa, Y. Mineharu, T. Mizowaki*  
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- > Initial Clinical Experience of Carbon Ion Re-Irradiation of Recurrent High-Grade Glioma  
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*W.C. You (Taiwan), C. Chen, J. Lin* EP-1222
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*S. Rogers (Switzerland), N. Lomax, S. Alonso, B. Eberle, S. Gomez Ordonez, J. Schürkens, E. Rabe, J. Fandino, O. Riesterer, G. Lutters, S. Bodis* EP-1223
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*M. Mukherjee (India), J. Bhattacharya, T. Shahid, V. Kontham, R. Rajan, R. Talukdar, A. De* EP-1224
- > Stereotactic Radiotherapy for Spine metastases using Brainlab® Elements Spine: preliminary results  
*N. Giaj Levra (Italy), M. Rigo, V. Figlia, R. Mazzola, L. Nicosia, F. Ricchetti, R. Ruggieri, F. Alongi* EP-1225
- > Survival in patients with melanoma brain metastases treated by stereotactic radiotherapy  
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*M. Cantarella Pajari (Italy), F. Pasqualetti, A. Gonnelli, A. Molinari, F.* EP-1227
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*H. Kahl Pajari (Italy), H. Müller, V. Heidecke, G. Stüben x* EP-1228
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*P. Matteucci (Italy), B. Santo, E. Ippolito, P. Zuccoli, G.M. Petrianni, P. Trecca, S. Gentile, M. Miele, S. Palizzi, L. Trodella, R.M. D'Angelillo, S. Ramella*  
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*C. Cavallin (Italy), C. Mantovani, G.C. Iorio, I. Chiovatero, S. Martini, V. De Luca, C. Palladino, M. Levis, F. Franchino, R. Rudà, U. Ricardi*  
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*O. Kjartansdottir (United Kingdom), A. Williamson, A. Patibandla, S. Currie, R. Carruthers, A. Chalmers, A. James, S. Nowicki*  
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*K. Nikitin (Russian Federation), A. Belyashova, A. Golanov, S. Zolotova*  
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*J. Manjali (Russian Federation), T. Gupta, J. Goda Sastri, G. Chinnaswamy, V. M Patil, R. Krishnatry x*  
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*F. Beghella Bartoli (Italy), T. Zinicola, S. Chiesa, F. Catucci, M. Giraffa, C. Mazzarella, D. Marchesano, N. Dinapoli, F. D'Alò, S. Hohaus, V. Valentini, M. Balducci*  
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*K. Kessel (Germany), H. Fischer, T. Voglhuber, C. Diehl, C. Straube, W. Weber, S.E. Combs*  
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*G. Martinage (France), J. Geffrelot, D. Stefan, E. Bogart, E. Rault, N. Reynolds, E. Emery, S. Martinage Makhlof, R. Mouttou Audouard, L. Basson, X. Mirabel, E. Lartigau, D. Pasquier*  
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*Y. Wang (USA), C. Calbat, P. Allen, N. Guha, D. Gomez, J. Li*  
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*S. Delanian (France), P. Ding, H. Huet de Froberg, C. Boguszewski, P. Pradat*  
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*G. Fastner (Austria), R. Reitsamer, K. Peter, Z. Ingrid, C. Fussl, F. Zehentmayr, B. Grambozov, W. Hitzl, D. Murawa, A. Karczewska, P. Milecki, B. Urbański, E. Hager, J. Reiland, A. Ciabattoni, C. Matuschek, W. Budach, R. Brimmer, C. Schumacher, A. Ricke, U. Ricardi, V. Fusco, F. Sedlmayer*  
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*M. Nozaki (Japan), Y. Kagami, M. Takahashi, R. Machida, T. Shibata, Y. Ito, Y. Nishimura, Y. Kawaguchi, Y. Saito, Y. Nagata, Y. Matsumoto, T. Akimoto, M. Hoiraoka*  
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*J.S. Kim (Korea Republic of), K. Kim, K.H. Shin, J.H. Kim, S.S. Kim, T.H. Kim, Y.B. Kim, W. Park, J.H. Kim*  
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*E. La Rocca (Italy), M. Dispinzieri, E. Meneghini, A. Fiorentino, F. Bonfantini, S. Di Cosimo, M. Gennaro, V. Cosentino, M. Sant, E. Pignoli, R. Valdagni, L. Lozza, M.C. De Santis*  
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*E. La Rocca (Italy), M. Dispinzieri, E. Meneghini, A. Fiorentino, F. Bonfantini, S. Di Cosimo, M. Gennaro, V. Cosentino, M. Sant, E. Pignoli, R. Valdagni, L. Lozza, M.C. De Santis*  
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*M.W.T. Chao (Australia), S. Spencer, C. Kai, C. Baker, S. Jassal, M. Law, M. Cheng, N. Zantuck, V. Yu, D. Stoney, S.W. Loh, E. Bevington, G. Chew, A. Hyett, M. Guerrieri, H. Ho, M. Ng, J. Wasiak, F. Foroudi*

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*M. Boccardi (Italy), F. Bracone, F. Deodato, A. De Curtis, G. Macchia, S. Cilla, A. Di Castelnuovo, A. Ianiro, C. Cerletti, A.G. Morganti, M.B. Donati*

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*A. Prescott (USA), J. Strauss, E. Donnelly, M. Gentile, R. Patel, D. Lipps, S. Oza*

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- > Phase I dose escalation trial using single fraction Stereotactic PBI for early stage breast cancer

*A. Rahimi (USA), N. Kim, A. Spangler, M. Leitch, P. Alluri, X. Gu, C. Ahn, S. Goudreau, S. Seiler, D. Farr, R. Wooldridge, B. Haley, S. Bahrami, D. Chen, R. Rao, R. Timmerman*

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- > Radiation Treatment Standards and Techniques in Breast Cancer in German speaking countries

*M. Mayinger (Switzerland), C. Straube, D. Habermehl, S.E. Combs*

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- > Zinc-L-Carnosine prevents dysphagia in breast cancer patients treated with adjuvant radiotherapy

*S. Saldi (Italy), E. Perrucci, V. Lancellotta, I. Palumbo, L. Falcinelli, C. Mariucci, S. Chierchini, V. Bini, C. Aristei*

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- > Hybrid intensity modulated radiation therapy for treatment of cancer of left breast after mastectomy

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- > Prognosis of patients with breast ductal carcinoma-in-situ who underwent breast-conserving surgery

*S. Kuo (Taiwan), S.H. Cheng, L. Tseng, Y. Chang, F. Ou-Yang, Y. Kuo, Y. Chang, H. Yeh, C. Hsieh, M. Yeh, H. Chen, W. Chang, S. Chen, C. Huang*

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*E. Bonzano (Italy), M. Guenzi, R. Corvò* EP-1296
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*K. Verhoeven* (The Netherlands), R. Houben, K. Limpens, M. Velders, F. Visser, G. Vilches-Freixas, C. Ares, G. Bosmans, L. Boersma

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*E. Sperk* (Germany), M. Pez, G. Welzel, A. Keller, Y. Abo-Madyan, M. Ehmann, B. Tuschy, S. Berlit, M. Sütterlin, F.A. Giordano, F. Wenz

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- > Gated treatment of left-sided breast cancer: evaluation of lung movement, irradiated volume and mass

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- > Deep inspiration breath-hold technique versus free breathing in RT treatment of left-sided breast

*N. Jankarashvili* (Georgia), I. Sikharulidze, R. Sreseli, N. Kartvelishvili, M. Topeshashvili

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- > positional analysis of a personalized breast immobilization technique for whole breast irradiation

*T. Chen* (Taiwan), M. Chung, D. Tien, R. Wang, J. Chiou, T. Kuo-Hsiung, L. Long-Sheng

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- > Are OAR dose constraints for radical 3DCRT breast plans achievable? A one-year retrospective review

*S. McCauley*, B. O'Connell, C. Lyons, R. Evans (United Kingdom)

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- > Toxicity evaluation of a hypofractionated WBRT with SIB for breast cancer using TomoDirect

*S. Dicuonzo, M.C. Leonardi, S. Raimondi, E. Miglietta* (Italy), M.A. Gerardi, A. Morra, V. Dell'Acqua, A. Surgo, D.P. Rojas, F. Pansini, R. Luraschi, F. Cattani, C. Fodor, P. Veronesi, R. Orecchia, B.A. Jereczek-Fossa

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- > POLO concept: salvage whole breast radiotherapy with Tomotherapy after intraoperative radiotherapy

*M.A. Gerardi, M.C. Leonardi, E. Miglietta* (Italy), G. Riva, A. Morra, S. Dicuonzo, A. Camarda, A. Casbarra, C. Fodor, R. Orecchia, B.A. Jereczek-Fossa

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- > Evaluation of MRI-based guidelines for contouring tumors for preoperative partial breast irradiation

*J. Vasmel* (The Netherlands), M. Groot Koerkamp, A. Kirby, N. Russell, S. Shaitelman, D. Vesprini, C. Anandadas, A. Currey, B. Keller, L. Braunstein, K. Han, A. Kotte, S. De Waard, M. Philippens, A. Houweling, H. Verkooijen, D. Van den Bongard

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*T. Ip (Chile), G. Martínez, C. Sánchez, R. Fernández, L. Bravo, M. Pinto, E. Vinés, T. Merino* EP-1320
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*A. Ranger (United Kingdom), A. Dunlop, E. Donovan, E. Harris, N.M. DeSouza, H. McNair, A. Kirby*  
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- > A Dosimetric Study of Heart and Lung Dose in Breast Radiotherapy-Our Institutional Experience  
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EP-1324
- > Personalized Medicine in breast cancer: a nomogram from prognostic score to deescalate radiotherapy  
*F. Marazzi, A. Mulè, V. Masiello (Italy), R. Masetti, R. Barone, G. Franceschini, F. Cacciatori, F. Moschella, C. Cannatà, L. Boldrini, G. Mantini, D. Smaniotto, V. Valentini*  
EP-1325
- > Assessment of rigorous dosimetry guidelines for a multi-institutional, phase II APBI clinical trial  
*S. Quirk (Canada), P. Grendarova, A. Guebert, A. Frederick, I.A. Olivotto, M. Roumeliotis*  
EP-1326
- > Impact of neoadjuvant radiotherapy in locally advanced breast carcinoma  
*C. Sousa (Portugal), L. Pinto, M. Cruz, A. Neto, J. Bastos, C. Miranda, G. Melo, L. Khouri, P. Figueiredo, P. Alves*  
EP-1327
- > A comparison of voluntary vs ABC breath hold in combination with VMAT for pan lymph node breast RT  
*A. Ranger (United Kingdom), A. Dunlop, E. Donovan, E. Harris, N. DeSouza, H. McNair, A. Kirby*  
EP-1328
- > A Single Pre-Operative Radiation Therapy (SPORT) Phase 1 Trial For Low Risk Breast Cancer  
*C. Pembroke (United Kingdom), M. Yassa, C. Lambert, V. Panet-Raymond, S. Meterissian, F. Trembley, D. Anderson, P. Vavassis, T. Hijal*  
EP-1329
- > Intraoperative electron radiotherapy (IOERT) boost in early breast cancer: toxicity analysis  
*C. Vidali (Italy), Z. Pellin, M. Severgnini, S. Scromersi, M. Bortul*  
EP-1330
- > Accelerated hypofractionated Whole Breast Irradiation with Concurrent TB Boost: Toxicity & cosmesis  
*S. Lasheen (Egypt), S. Shams El Din, R. Moussa, M. Hassan, F. Hagag*  
EP-1331
- > An Urban Institution's Experience with the Oncotype DCIS Score: Predictors and Outcomes  
*T.Y. Andraos (USA), A. Orisamolu, J. Fox*  
EP-1332

- > Myocardial changes detected using Cardiac MRI in left breast patients treated with Radiation  
*S. Tang (Australia), E.S. Koh, R. Rai, J. Otton, D. Tran, G. Delaney, L. Holloway, B. Schmitt, G. Liney*

EP-1333

● ELECTRONIC POSTER

**Clinical track: Lung**

- > Risk factors for esophagitis after hypofractionated palliative (chemo)radiotherapy for NSCLC  
*C. Nieder (Norway), K. Imingen, B. Mannsåker, R. Yobuta, E. Haukland*

EP-1334

- > Interaction of V20 and SUVmax as a predictor of lung toxicity  
*D. Scepanovic (Slovakia), A. Masarykova, P. Povinec*

EP-1335

- > Immunogenic prognostic factors in patients with brain metastases from non-small cell lung cancer  
*H. Doi (Japan), K. Nakamatsu, S. Anami, T. Uehara, Y. Wada, K. Fukuda, M. Inada, K. Ishikawa, S. Kanamori, H. Monzen, Y. Nishimura*

EP-1336

- > IMRT/VMAT vs. 3DCRT: the pathological and the clinical outcomes in LANSCLC treated with trimodality  
*S. Appel (Israel), Y.R. Lawrence, Z. Symon, O. Haisraely, M. Perlman, E. Ofek, D. Alezra, T. Katzman, N. Honig, M. Ben-ayun, T. Rabin Alezra, S. Dubinsky, J. Kraitman, L. Tsvang*

EP-1337

- > Hypofractionated Chemoradiotherapy for stage-3 Non-small cell Lung cancer- Single centre experience  
*A. Patibandla (United Kingdom), N. Mohammed, I. Brisbane, P. McLoone, J. Hicks*

EP-1338

- > Clinical outcomes of stereotactic radiotherapy using flattening-filter-free in lung cancers.  
*T. Taweesakulvashra (Thailand), S. Kitpanit, A. Songthong, C. Chakkabat, N. Amornwichet, P. Alisanant, C. Nantavithya, C. Lertbutsayanukul, K. Shotelersuk, C. Khorprasert, D. Kannarunimit*

EP-1339

- > Lactate dehydrogenase predicts survival in small cell lung cancer patients with brain metastases  
*S. Anami (Japan), H. Doi, K. Nakamatsu, T. Uehara, Y. Wada, K. Fukuda, M. Inada, K. Ishikawa, S. Kanamori, Y. Nishimura*

EP-1340

- > Evaluation of tumor motion variability with and without abdominal compression plate in lung SBRT  
*K. Talapatra (India), V. Raturi, R. Vadgaonkar, S. Jadhav, P. Chadha, V. Mhatre, S. Pilakkal*

EP-1341

- > SBRT for central lung malignancies using a Simultaneous Integrated Protection (SIP) approach  
*R. Mazzola* (Italy), R. Ruggieri, F. Vanessa, R. Michele, G.L. Niccolò, R. Francesco, N. Luca, C. Stefanie, A. Filippo  
EP-1342
- > Multimodality repeated-ablative therapies in oligorecurrent pulmonary metastatic disease  
*A. Macagno* (France)  
EP-1343
- > Helical Tomotherapy based SBRT in early stage lung cancer: a mono-institutional study (2014-2018)  
*F. Pastore* (Italy), A. Rese, F. Francomacaro, F. Cammarota, G. Ametrano, D. Toledo, V. Iorio  
EP-1344
- > Serum Lactate Dehydrogenase: A Predictor of Therapeutic Response to Radiation Therapy in SCLC?  
*L. Ana Rita Carvalho da Costa* (Portugal), G. Sofia, A. Gonçalo, R. Darlene, F. Paula, M. Margarida, P. Gabriela  
EP-1345
- > A framework for systematic clinical evaluation of the MR-linac for treatment of lung cancer patients  
*D. Cobben* (United Kingdom), H. Bainbridge, J. Belderbos, P. Cheung, M. Dubec, D. Gomez, E. Gore, E. Knowles, F. Lalezari, U. Oelfke, J. Sonke, R. Tijssen, C. Van Es, M. Van Herk, A. Wetscherek, F. McDonald, C. Faivre-Finn  
EP-1346
- > "Risk adaptative" dose prescription in central NSCLC lesions in early stage NSCLC and lung metastases  
*M. Rigo* (Italy), N. Giaj-Levra, V. Figlia, R. Mazzola, L. Nicosia, F. Ricchetti, R. Ruggieri, F. Alongi  
EP-1347
- > Clinical outcome of one-fraction early-stage lung SBRT: is it an option in selected patients?  
*L. Rodrigues* (Portugal), T. Figueiredo, J. Gagean, C. Ferreira, S. Conde, L. Carvalho, J. Cardia  
EP-1348
- > Three-d Surface Imaging as preferred tool for patients' set up in frameless SBRT for lung cancer  
*C.M.E. Perotti* (Italy) C. Pisani, G. Loi, A. Belli, C. Bolchini, Y. Huang, J. Lyu, M. Krengli  
EP-1349
- > DART-bid by VMAT for locally advanced NSCLC: Low toxicity, encouraging survival and tumor control  
*K. Wurstbauer* (Austria), R. Pinter, M. Meinschad, M. Kazil, T. Hernler, P. Cerkli, T. Künzler, A. De Vries  
EP-1350



- > Long-term survival with FDG-PET directed therapy in NSCLC with synchronous solitary brain metastasis  
*S.J. Newman (Australia), N. Bucknell, M. Bressel, P. Tran, B. Campbell, N. Haghghi, D. Kok, M. MacManus, C. Phillips, M. Shaw, A. Wirth, G. Wheeler, D. Ball, S. Siva*  
EP-1351
- > Locally advanced NSCLC: performance status based eligibility for adjuvant check point inhibitor  
*G. Persson (Denmark), T. Schytte, A.L. Appelt, S. Borissova, C. Brink, T.S. Hansen, L. Hoffmann, M. Josipovic, A.A. Khalil, M.M. Knap, M.D. Lund, C.M. Lutz, D.S. Møller, T.B. Nielsen, M. Nielsen, W. Ottosson, M. Pøhl, J.B. Thomsen, O. Hansen*  
EP-1352
- > Lung cancer extracerebral oligometastases/oligoprogression stereotactic irradiation  
*M. Kissel (France), I. Martel-Lafay, J. Lequesne, J. Faivre, C. Le Péchoux, D. Stefan, V. Barraux, C. Loiseau, J. Grellard, S. Danhier, D. Lerouge, C. Chouaid, R. Gervais, J. Thariat*  
EP-1353
- > Impact of Pulmonary SABR on Pulmonary Function Tests: Report of a single institution experience  
*M. Keys (Ireland), S. O'Sullivan, R. Mc Dermott, N. Wallace, M. Dunne, J. Armstrong, P. Thirion*  
EP-1354
- > Oligo-progressive status exhibits unfavorable survival in pulmonary oligo-recurrence treated by SABR  
*H. Lee (Taiwan), J. Tsai, S. Chen, I. Lai, C. Chen, C. Ho, J. Chiou, Y. Kuo*  
EP-1355
- > Targeted therapy with or without Radiotherapy in EGFR/ALK mutant NSCLC with Brain Metastases  
*I. Ciscar García, M. Martín Martín (Spain)*  
EP-1356
- > Spinal metastases from non-small cell lung cancer; is it a surrogate of bad outcome?  
*L. Krozkin (Israel), I. Ospovat, D. Machievsky, E. Gez, S. Soifer, B. Corn, Y. Natan Hoz, O. Gutfeld, D. Limon*  
EP-1357
- > SBRT for de novo pulmonary tumors in patients with completely resected early stage NSCLC  
*Q. Zhao (China), J. He, Z. Zeng*  
EP-1358
- > DosimetricAppraisal of VMAT for Stereotactic Radiosurgery in Lung Lesions in Comparison to Robotic Radiosurgery  
*E. Erdogan (Turkey), P. Boydak, B. Eren, F. Aksaray*  
EP-1359
- > Salvage SBRT for postoperative recurrence of NSCLC  
*S. Aoki (Japan), H. Yamashita, W. Takahashi, K. Nawa, T. Ota, Y. Nozawa, S. Ozaki, T. Nakamoto, K. Nakagawa*  
EP-1360

- > Survival after two schedules of SBRT to centrally located lung tumors  
*M. Jelin, C. Kristiansen, S.S. Jeppesen, M. Nielsen, O. Hansen (Denmark)* EP-1361
- > Re-irradiation of whole brain for symptomatic progression in lung cancer patients  
*J.P. Agarwal, S. Karmakar, N. Mumudi, A. Tibdewal (India)* EP-1362
- > Stereotactic ablative radiotherapy for lung cancer in elderly patients  
*A. Revelant (Italy), M. Emilio, T. Marco, D.P. Antonino, G. Carlo, F. Giuseppe, P. Elisa, M. Fabio, N. Federico, Z. Umberto, P. Jerry, F. Giovanni* EP-1363
- > Haemoglobin and albumin levels, as clinical predictors in SBRT for early stage NSCLC  
*D.C. Moreno Santiago (Spain), A. Giraldo Marin, M. Ramos Albiac, J. Giralt Sagrera* EP-1364
- > SBRT as salvage therapy for oligometastatic pleural mesothelioma after initial curative therapy  
*C. Schröder (Switzerland), I. Opitz, M. Guckenberger, R. Stahel, W. Weder, R. Förster, N. Andratschke, O. Lauk* EP-1365
- > Repeated thoracic high-dose radiotherapy-Analysis of efficacy and safety including EQD2 sum plans  
*C. Schröder (Switzerland), I. Stiefel, S. Tanadini-Lang, I. Pytko, M. Guckenberger, N. Andratschke* EP-1366
- > Target volumes in adaptive treatment of NSCLC show large discrepancies among experts  
*R. Apolle (Germany), S. Appold, J. Bussink, C. Fairve-Finn, J. Khalifa, Y. Lievens, D. De Ruysscher, W. Van Elmpt, E.G.C. Troost* EP-1367
- > Circulating cell free DNA during chemo-radiotherapy in non-small cell lung cancer patients  
*L. Nygaard (Denmark), L. Ahlborn, G. Persson, D. Chandrananda, J. Langer, B.M. Fischer, M. Aznar, S. Langer, M. Gabrielaite, A. Kjær, N. Rosenfeld, F. Mouliere, O. Østrup, I. Vogelius, S. Bentzen* EP-1368
- > Heart delineations based on 3DCT, AVG and MIP scans: are they representative of the total motion?  
*E. Vasquez Osorio, H. McCallum, S. Iqbal, A. Bedair, A. McWilliam, G. Price, J. Byrne, D. Cobben (United Kingdom)* EP-1369
- > The impact of fractionation on lymphocyte counts in stage III NSCLC received chemoradiotherapy  
*Q. Zhao (China), J. He, Z. Zeng* EP-1370



- > Impact of target volume delineation on weekly simulation CT during conformal radiotherapy in NSCLC  
*S. Silipigni, A. Carnevale, C.G. Rinaldi, E. Ippolito, A. Di Donato, P. Matteucci, G.M. Petrianni, S. Palizzi, P. Trecca, B. Santo, L. Trodella, R.M. D'Angelillo, S. Ramella (Italy)*
- EP-1371
- > External Validation of a Survival Score for Limited Disease Small Cell Lung Cancer (LD-SCLC)  
*L. Käsmann (Germany), R. Abdo, C. Eze, M. Dantes, J. Taugner, K. Gennen, O. Roengvoraphoj, D. Rades, M. Niyazi, C. Belka, F. Manapov*
- EP-1372
- > Introducing PET CT in SBRT lung cancer follow-up: Preliminary results of our center protocol  
*J. Luna, D. Gonsalves (Germany), L. Guzman, M. Rincón, M. Montero, A. Ilundain, W. Vasquez, M.E. Lopez*
- EP-1373
- > ECOG-PS and its changes in inoperable stage III NSCLC patients treated with chemoradiotherapy  
*L. Käsmann (Germany), J. Taugner, C. Eze, M. Dantes, O. Roengvoraphoj, K. Gennen, M. Karin, A. Tufman, M. Niyazi, C. Belka, F. Manapov*
- EP-1374
- > Heterogeneity score in inoperable stage III NSCLC patients treated with definitive chemoradiotherapy  
*J. Taugner (Germany), L. Käsmann, C. Eze, M. Dantes, O. Roengvoraphoj, K. Gennen, M. Karin, A. Tufman, M. Niyazi, C. Belka, F. Manapov*
- EP-1375
- > Robotic SBRT with fiducial tracking for medically inoperable peripheral stage I NSCLC: final report  
*S. Kataria (USA), N. Aghdam, M. Repka, M. Marin, L. Campbell, S. Suy, S. Collins, E. Anderson, J. Lischalk, B. Collins*
- EP-1376
- > Role of psoas volume in locally advanced or metastatic NSCLC patients undergoing radiation therapy  
*V. Nardone (Italy), S. Falivene, Giugliano, Francesca Maria, F. Scala, Tini, Paolo, Pirtoli, Luigi, C. Guida, S. Cappabianca*
- EP-1377
- > Brain imaging pre/post treatment in cN2 non-small cell lung cancer treated with chemo-radiation  
*C.W.E. Chan (United Kingdom), H.W.G. Gan, P. Lyons, P. McLoone, N. Mohammed*
- EP-1378
- > RE-STARTing after lung cancer: impact of a wellbeing event on global health status of survivors  
*E. Ippolito (Italy), M. Fiore, C. Greco, S. Silipigni, B. Floreno, M. Miele, B. Santo, L. Trodella, R.M. D'Angelillo, S. Ramella*
- EP-1379

- > Intra-fractional Motion in Lung SBRT Treatments with Different IGRT Techniques  
*I.F. Durmus (Turkey), B. Tas, A. Okumus*  
EP-1380
- > Stereotactic Body Radiotherapy for Unresectable Locally-Advanced Non Small Cell Lung Cancer  
*F. Arcidiacono (Italy), M. Casale, P. Anselmo, F. Trippa, L. Draghini, S. Terenzi, A. Di Marzo, M. Italiani, S. Fabiani, E. Maranzano*  
EP-1381
- > Texture analysis of FDG-PET in NSCLC treated with SBRT:a validation study of two prognostic features  
*M. Bertolini, M. Galaverni (Italy), M. Manicone, I. Renna, P. Ciommella, L. Giaccherini, F. Bellafiore, G. Timon, F. Vigo, A. Rosca, D. Ramundo, M. Galeandro, M.P. Ruggieri, T. Palmieri, A. Botti, M. Orlandi, R. Sghedoni, E. Cagni, E. Grassi, F. Fioroni, A. Filice, M. Casali, M. Iori, C. Iotti*  
EP-1382
- > Analysing stage III cN2 NSCLC treated with surgery or concurrent chemo-radiation  
*P. Lyons (United Kingdom), H.W.G. Gan, C.W.E. Chan, E. McCully, S. Ansel, M. Philip, N. Mohammed*  
EP-1384
- > Does pneumonitis increase in irradiated lungs during immunotherapy?A generating hypotheses study  
*C. Mazzarella (Italy), A. Martino, A.R. Alitto, F. Preziosi, F. Catucci, A. Petrone, M. Campitelli, F. Marazzi, G.C. Mattiucci, G. Palazzoni, V. Valentini, G. Mantini*  
EP-1385
- > Stereotactic body radiation therapy for central early non small cell lung cancers- Yes! Its possible  
*R. Harjani Hinduja, J. Zheng, G. Cook, R. MacRae, J. Pantarotto (Canada)*  
EP-1386
- > Managing isolated local/regional recurrences after SBRT for inoperable early lung tumors -a dilemma  
*R. Harjani Hinduja (Canada), J. Zheng, J. Pantarotto, R. MacRae*  
EP-1387
- > SABR Following Pneumonectomy: A Systematic Review of Clinical and Toxicity Outcomes  
*A. Louie (Canada), A. Ariffin, F. Al-Shafa, R.G. Boldt, A. Warner, G. Rodrigues, D. Palma*  
EP-1388
- > Lowered Whole Brain Irradiation Dose for Non-Small Cell Lung Cancer Patients with Brain Metastases  
*Y. Wang (Taiwan)*  
EP-1389
- > Association between heart dose and survival for NSCLC patients underwent VMAT  
*C. Xie (China), X. Jin*  
EP-1390



- > Stereotactic body radiotherapy using a new real-time tumor tracking system and fiducial markers  
*Y. Hiroshima (Japan), K. Nitta, T. Saitoh, T. Ohno, K. Shinoda, Y. Tamaki*

EP-1391

● ELECTRONIC POSTER

**Clinical track: Upper GI (oesophagus, stomach, pancreas, liver)**

- > Preoperative image-guided identification of response to nCRT in esophageal cancer (PRIDE study)  
*A. Borggreve, I. Defize (The Netherlands), G. Meijer, H. Van Laarhoven, H. Langendijk, V. Mul, F. Voncken, M. Verheij, P.S.G. University Medical Center Utrecht, P.S.G. The Netherlands Cancer Institute, P.S.G. University Medical Center Groningen, P.S.G. Amsterdam University Medical Centers*

EP-1392

- > Prospective fiducial placement in liver tumours: Effectiveness, placement 'quality' & toxicities  
*K. Kataki (India), S. G, R. Madhavan, T. Tatineni, S. Pg, J. J, D. Dutta*

EP-1393

- > Prognostication of HCC with PVT treated with SBRT: Early results from a prospective study in India  
*T. Tatineni (India), K. Kataki, R. Madhavan, S. G, R. Das, D. Dutta x*

EP-1394

- > Radiation Dose to the Thoracic Vertebral Bodies is Associated with Acute Hematologic Toxicities  
*F. Lingli, D. Xiaobo (China)*

EP-1395

- > the role of multidisciplinary team in radiotherapy for esophageal cancer  
*S. Zhao Chen (China), S. Wang, F. Xu, Y. Han, W. Qi, K. Youlia, J.*

EP-1396

- > S-1 versus S-1 plus cisplatin concurrent radiationtherapy for esophageal cancer: a mid-term report  
*Y. Wen (China), Z. Zhao, Y. Chen, Y. Gui, X. He, Q. Yang, M. Sun, J. Miao, Q. Jia, H. Tian, X. Du*

EP-1397

- > Lymphopenia and accidental splenic doses for locally advanced gastric cancer  
*F. Sert (Turkey), D. Yalman, S. Ozkok*

EP-1398

- > A Pilot Study of Apatinib Combined with SBRT To Advanced Pancreatic Cancer  
*G. Ma (China), M. Shuo, Z. Shuman, X. Li-ang*

EP-1399

- > Comparing Treatment Plans for Proximal and Middle/Distal Stomach Cancer: IMRT, VMAT, and Tomotherapy  
*Y. Chen (Taiwan), J. Lin, S. Huang, Y. Chou, M. Li, J. Tsai*
- EP-1400
- > Practice-based clinical outcome of definitive radiation therapy for superficial esophageal cancer  
*T. Uno (Japan), H. Kobayashi, M. Watanabe-Nemoto, R. Harada, M. Saito, A. Kanazawa, Y. Iwai, K. Murakami, H. Matsubara*
- EP-1401
- > Hypofractionated radiotherapy for patients with bulky unresectable biliary tract cancer  
*W. Kong (China), J. Yang, J. Yan, J. Liu, Z. Xia, S. Li, Y. Qiu, B. Liu*
- EP-1402
- > Retrospective evaluation of usefulness of MR-guided adaptive radiotherapy of gastric MALT lymphoma  
*K. Okuma (Japan), H. Okamoto, K. Iijima, F. Nishioka, T. Kashihara, S. Shima, M. Uematsu, H. Igaki, Y. Nakayama, J. Itami, N. Murakami, S. Nakamura*
- EP-1403
- > SBRT as definitive treatment of adrenal gland metastases: a single center experience  
*O. Hernando Requejo, M. Aranguena (Spain), E. Sanchez Saugar, M. Lopez Gonzalez, X. Chen, R. Alonso Gutierrez, A. Montero Luis, R. Ciervide Jurio, J. Valero Albaran, M. Garcia-Aranda Pez, P. Fernandez Leton, J.M. Perez Moreno, J. Garcia Ruiz-Zorrilla, D. Zucca Aparicio, L. Alonso Iracheta, M.A. De la Casa de Julian, J. Marti Asenjo, B. Alvarez Rodriguez, A. Acosta Rojas, J. Plama Delgado, M.C. Rubio Rodriguez*
- EP-1404
- > Feasibility study of fiducial markers in oesophageal cancer radiotherapy  
*A. Morton (United Kingdom), D. McIntosh, S. Currie, A.J. Stanley, S. Paterson, D. Grose, H. Marashi, V. McLaren*
- EP-1405
- > Mapping Pattern of LNMs for Postoperative Radiotherapy in TESCC: Defining the Clinical Target Volume  
*J. Yu (China), C. Li, W. Ouyang, Y. Xu, J. Zhang, C. Xie*
- EP-1406
- > Sarcopenia is a weak prognostic factor before chemoradiotherapy of esophageal carcinomas  
*B. Bethsabee, Q. Laurent, C. Pierre, H. Valerie, G. Sophie, A. Thomas, L. Nelson, G. Jean-Marc, C. Hennequin (France)*
- EP-1407
- > Cardiac dose and treatment-elicited inflammation are related to poor survival in esophageal cancer  
*Y. Ho (Taiwan), J. Lin, T. Chou, L. Hung, C. Huang, C. Pi, T. Chang, M. Liu*
- EP-1408



- > QoL for Gem and ABX plus SBRT versus Gem and S-1 plus SBRT in metastatic pancreatic cancer  
*X. Zhu (China), C. Yangsen, Z. Xianzhi, S. Yuxin, J. Xiaoping, Q. Shuiwang, C. Fei, J. Zhen, F. Fang, J. Zhen, Z. Huojun*  
EP-1409
- > PET compared to CT in target delineation for SBRT of pancreas adenocarcinoma  
*C. De la Pinta Alonso (Spain), J.D. García, D. Sevillano, A. Martínez-Lorca, R. García, M. Martín, M. Martín, R. Hernanz, E. Fernández-Lizarbe, T. Muñoz, J.A. Domínguez, J.F. Crespo, C. Vallejo, A. Hervás, F. López, S. Sancho*  
EP-1410
- > What is the best imaging study to contouring liver metastases in SBRT?  
*C. De la Pinta Alonso (Spain), J.D. García, D. Sevillano, R. García, A. Martínez-Lorca, M. Martín, E. Fernández-Lizarbe, M. Martín, J.A. Domínguez, R. Hernanz, T. Muñoz, S. Sancho*  
EP-1411
- > Excellent pCR rate in patients with HCC after SBRT +/- TACE as bridging to liver transplantation  
*S. Gerum (Germany), C. Heinz, C. Belka, P.M. Paprottka, J. Neumann, E. De Toni, M. Guba, F. Roeder*  
EP-1412
- > Correlation between N-L Ratio,P-L Ratio and Survival in patients with LAPC: A new prognostic factor?  
*P. Trecca (Italy), M. Fiore, C. Greco, E. Ippolito, R.M. D'Angelillo, L. Trodella, S. Ramella*  
EP-1413
- > SBRT for the treatment of hepatocellular carcinoma: a retrospective multicenter study  
*N. Scher (France), F.G. Riet, G. Janoray, K. Debbi, S. Levy, P. Louisot, E. Chajon, E. Salame, I. Barillot, R. De Crevoisier, G. Calais, S. Chapet*  
EP-1414
- > Preliminary results of a phase II study of induction Folfirinox followed by chemoradiation in LAPC  
*P. Trecca (Italy), M. Fiore, R. Coppola, L.E. Trodella, R.M. D'Angelillo, L. Trodella, S. Ramella*  
EP-1415
- > Palliative Oesophageal Chemoradiotherapy: A Phase 1 Clinical Trial  
*Abstract withdrawn*  
EP-1416
- > Palliative Liver Radiotherapy (RT) of Advanced Hepatocellular Carcinoma (HCC) in Endemic Population  
*C.L. Chiang (Hong Kong (SAR) China), C.S. Yeung, N.S. Wong, K.C. Tsang, B.Y. Chan, S.K. Ho, C.H. Ho, F.A. Lee*  
EP-1417

- > Initial results of carbon ion radiotherapy combined with S-1 for locally advanced pancreatic cancer

*Y. Mori (Japan), M. Okamoto, H. Kiyohara, H. Katoh, K. Shibuya, T. Kaminuma, S. Shiba, N. Okano, T. Ohno, T. Nakano*

EP-1418

- > Salvage concurrent chemoradiotherapy for postoperative locoregional recurrence of esophageal cancer

*T. Kiritoshi (Japan), H. Yamashita, W. Takahashi, M. Ogita, K. Nakagawa, O. Abe*

EP-1419

- > Utility of FIB-4 index for hepatocellular carcinoma patients treated with proton beam therapy

*Y. Sekino (Japan), T. Okumura, N. Fukumitsu, T. Iizumi, D. Miyauchi, N. Mizoguchi, K. Murofushi, K. Ohnishi, M. Mizumoto, T. Nonaka, K. Nakai, H. Ishikawa, K. Tsuboi, H. Sakurai*

EP-1420

- > Combined chemoembolization and radiotherapy for hepatocellular carcinoma with portal vein thrombosis

*K. Treewatthanawong (Thailand), N. Amornwichet, A. Prayongra, P. Alisanant, C. Khorprasert, K. Shotelersuk*

EP-1421

- > Unresectable biliary cancer: results of a pooled analysis of combined chemoradiotherapy

*S. Bisello (Italy), A. Palloni, M. Buwenge, R. Autorino, F. Cellini, L. Tagliaferri, M. Gabriella, F. Deodato, V. Picardi, S. Mignona, S. Cilla, V. Perri, A. Tringali, A. Galuppi, G. Brandi, A.G. Morganti, S. Cammelli, V. Valentini, G.C. Mattiucci*

EP-1422

- > SBRT in locally advanced pancreatic cancer: a real-life study (PAULA-1)

*A. Arcelli (Italy), G. Macchia, A. Guido, F. Dalla Torre, S. Cilla, V. Scotti, M.E. Rosetto, I. Djan, S. Parisi, G.C. Mattiucci, M. Fiore, P. Bonomo, A. Bacigalupo, R.M. Niespolo, P. Gabriele, D. Francesco, N. Simoni, R. Mazzarotto, A.G. Morganti*

EP-1423

- > SBRT vs chemoradiation: a case-control study (PAULA-2)

*A. Arcelli (Italy), F. Bertini, A.G. Morganti, A. Guido, F. Deodato, S. Cilla, F. Dalla Torre, V. Scotti, M.E. Rosetto, I. Djan, S. Parisi, G.C. Mattiucci, M. Fiore, P. Bonomo, A. Bacigalupo, R.M. Niespolo, P. Gabriele, N. Simoni, R. Mazzarotto, G. Macchia*

EP-1424

- > MRI heterogeneity analysis for predicting response to neoadjuvant therapy in oesophageal cancer

*K. Owczarczyk (United Kingdom), C. Kelly-Morland, C. Yip, M. Siddique, N. Maisey, A. Qureshi, J. Gossage, G. Cook, V. Goh*

EP-1425



- > Post-operative radiotherapy in pancreatic cancer patients. a single institution experience  
*M. Caroprese* (Italy), M. Tirozzi, G. Porri, I.R. Scognamiglio, E. Toska, L. Faraci, A. Perillo, F. Pati, A. Farella, R. Solla, S. Clemente, M. Conson, R. Pacelli      EP-1426
- > Prognostic role of neutrophil-to-lymphocytes ratio in pancreatic cancer  
*M. Caroprese* (Italy), I.R. Scognamiglio, M. Tirozzi, F. Piccolo, E. Scipilliti, A. Roscigno, J. De Robbio, M.V. Agbaje Olufemi, M. Sorrentino, A. Farella, C. Oliviero, M. Conson, R. Pacelli      EP-1427
- > Volumetric modulated arc therapy (VMAT) in the treatment of oesophageal cancer patients  
*S. Martini* (Italy), G.C. Iorio, F. Arcadipane, P. Franco, U. Ricardi      EP-1428
- > IG-IMRT improves short-term survival for lymph node metastases from hepatocellular carcinoma  
*Z. Haige* (China), S. Jing, C. Yixing, Z. Zhaochong      EP-1429
- > Can SBRT improve the prognosis of unresectable pancreatic cancer? Clinical results on 106 patients  
*T. Comito* (Italy), C. Franzese, E. Clerici, P. Navarría, G.R. D'Agostino, S. Carrara, L. Rimassa, S. Tomatis, A. Zerbì, M. Scorsetti      EP-1430
- > Impaired health in long term survivors of esophageal cancer after neo-adjuvant chemoradiotherapy?  
*C. De Groot* (The Netherlands), K. Muijs, J. Plukker, P. Van Luijk, H. Langendijk, J. Beukema      EP-1431
- > Re-irradiation of abdominal malignancies: toxicity, cumulative dose and outcome  
*L. Caravatta* (Italy), F. Fiorica, F. Dionisi, C. Rosa, L. Boldrini, M. Lupattelli, D. Genovesi, M. Massaccesi      EP-1432
- > GTV contouring in hepatocellular carcinoma: a comparison between two imaging techniques  
*C. De la Pinta Alonso* (Spain), J.D. García, D. Sevillano, R. García, M. Martín Martín, M. Martín Sánchez, T. Muñoz, E. Fernández-Lizarbe, R. Hernández, J.A. Domínguez, C. Vallejo, S. Sancho      EP-1433
- > Neoadjuvant chemoradiotherapy in patients with esophageal or esophageal gastric junction cancer  
*N. Slim* (Italy), R. Tumminieri, P. Parise, E. Mazza, L. Albarello, F. Puccetti, A.M. Deli, E. Incerti, M. Azizi, I. Dell'oca, A. Cossu, M. Reni, R. Rosati, P. Passoni, N. Di Muzio      EP-1434

- > Impact of diabetes on outcome and toxicity of chemoradiation for esophageal squamous cell carcinoma  
*D. Bierbaumer* (Germany), S. Muench, B. Haller, D. Habermehl, P.T. Pfluger, K. Stemmer, S.E. Combs  
EP-1435
- > SBRT for large hepatocellular cancer unsuitable for other therapies: Results from a clinical audit  
*K. George* (India), S. Chopra, R. Engineer, K. Rajamanickam, S. Mehanery, K. Joshi, J. Swamidas, S. Patkar, P. Patil, V. Ostwal, S. Mehta, M. Goel  
EP-1436
- > The prognostic significance of neutrophil / lymphocyte ratio for SBRT of cholangiocellular carcinoma  
*N. Bartl* (Germany), S. Adebarh, S. Kirste, I. Popp, H. Schäfer, A. Grosu, T.B.B. Brunner, E. Gkika  
EP-1437
- > Safety and tolerability of liver re-irradiation using high dose SBRT  
*D. Gabrys* (Poland), R. Kulik, L. Dolla, K. Trela-Janus, A. Roch-Zniszczol, S. Blamek  
EP-1438
- > The role of FDG PET / CT in SBRT of primary tumors in the upper abdomen  
*N. Bartl* (Germany), S. Adebarh, S. Kirste, I. Popp, H. Schäfer, A. Grosu, T.B. Brunner, E. Gkika  
EP-1439
- > Early and late toxicity of hypofractionated stereotactic radiotherapy in hepatic tumors  
*M. Le Bon* (France), B. Celine, K. Fabrice  
EP-1440
- > Chemoradiotherapy with weekly Carboplatin and Paclitaxel in elderly patients with oesophageal cancer  
*S. Pan* (United Kingdom), M. Abraham, L. Bhatt, H. Sheikh, G. Radhakrishna  
EP-1441
- > Clinical and pathological response after neoadjuvant/radical CH-SBRT for pancreatic adenocarcinoma  
*X. Chen* (Spain), E. Sanchez, M. Lopez, O. Hernando, A. Montero, J. Garcia, M.A. De la Casa, M. Garcia Aranda, R. Ciervide, J. Valero, J. Palma, R. Alonso, J.M. Perez, D. Zucca, L. Alonso, P. Garcia de Acilu, J. Marti, P. Fernandez Leton, C. Rubio  
EP-1442
- > Real-time tumor tracking in pancreatic SBRT by percutaneous US-guide implantation of transponders  
*J.F. Castilla Martinez* (Spain), R. Chicas-Sett, J. Godoy, C. Hernandez, I. Morales-Orue, M. Zajac, J. Zafra, M. Lloret, P.C. Lara  
EP-1443

- > Clinical results of proton beam therapy for unresectable intrahepatic cholangiocarcinoma  
*S. Shimizu (Japan), T. Okumura, N. Mizoguchi, H. Numajiri, K. Murofushi, K. Onishi, Y. Oshiro, M. Mizumoto, T. Nonaka, H. Ishikawa, H. Sakurai* EP-1444
- > Gastroduodenal toxicity in patients having bile duct brachytherapy for perihilar cholangiocarcinoma  
*N. McDonnell (USA), C. Deufel, K. Merrell, M. Nebein Wittich, T. Whitaker, W. Harmsen, K. Fruth, M. Haddock, C. Hallemeier* EP-1445

● ELECTRONIC POSTER

**Clinical track: Lower GI (colon, rectum, anus)**

- > Clinical efficacy and safety of consolidative radiotherapy in the maintenance treatment of mCRC  
*Z. Lin (China), Z. Danyang, Y. Dandan, W. Jing, Z. Tao* EP-1446
- > Effect of waiting time to radiation on local control and overall survival in rectal cancer  
*A. Tangkananan, (Thailand) R. Jiratrachu* EP-1447
- > Preoperative VMAT with simultaneous integrated boost for locally advanced distal rectal cancer  
*Y. Yang (China), Q. Liu, P. Zhao, J. Qian, Q. Peng, Y. Zhu, L. Feng* EP-1448
- > Prognostic Value of Volumetric PET Parameters in Patients with Locally Advanced Rectal Cancer  
*E. Sert (Turkey), A. Oral, R. Savas, D. Yalman, S. Ozkok* EP-1449
- > How smoking status impacts patients undergoing radiochemotherapy for anal canal carcinoma?  
*L. Grandjean (Belgium), M. Lamande, E. Gonse, D. Van Daele, J. Collignon, M. Polus, C. Loly, L. Seydel, J. Vanderick, P. Coucke, P. Martinive* EP-1450
- > Impact of tobacco smoking on patient's outcome after (chemo)-radiotherapy for anal cancer  
*L. Jacques, H. Christophe, E. Isabelle, A. Laurent, G. Gael, G. Jean-Marc, G. Sophie, A. Thomas, V. Alain, C. Pierre, L. Quero (France)* EP-1451
- > Response after neoadjuvant radiochemotherapy as prognostic factor in locally advanced rectum cancer  
*S. Couto Gonçalves (Portugal), A. Ponte, M. Marques, J. Casalta-Lopes, I. Nobre-Góis, T. Teixeira, A. Barros, M. Borrego* EP-1452

- > Machine learning prediction of early distant progression after SBRT for colorectal cancer

*H. Chung (Canada), P. Lang, M. Kayvanrad, R. Thompson, W. Chu, E. Gennatas, G. Valdes, P. Cheung*

EP-1453

- > Multi-parametric MRI as a biomarker in anal cancer: a prospective trial

*M. Jones (Australia), G. Hruby, M. Kumar, A. Capp, S. Sridharan, C. Coolens, P. Stanwell, J. Arm, S. Gallagher, C. Holder, C. Oldmeadow, J. Martin*

EP-1454

- > Post chemoradiotherapy FDG-PET parameters predict for recurrence in anal cancer: a prospective trial

*M. Jones (Australia), G. Hruby, U. Metser, S. Sridharan, A. Capp, M. Kumar, S. Gallagher, N. Rutherford, C. Holder, C. Oldmeadow, J. Martin*

EP-1455

- > Clinical impact of re-irradiation with carbon ion radiotherapy for locally recurrent rectal cancer

*F. Valvo, A. Barcellini (Italy), V. Vitolo, M.R. Fiore, A. Iannalffi, B. Vischioni, A. Facoetti, M. Bonora, S. Ronchi, R. Petrucci, E. D'ippolito, A. Mirandola, S. Molinelli, S. Russo, G. Viselner, G. Magro, D. Maestri, M. Ciocca, L. Preda, R. Orecchia*

EP-1456

- > Moderate hypofractionation and SIB with volumetric modulated arc therapy (RapidArc) for anal cancer

*A. Tozzi (Italy), C. Iftode, S. Cozzi, G.R. D'Agostino, C. Franzese, L. Di Brina, T. Comito, F. De Rose, I. Renna, D. Franceschini, P. Navarria, E. Clerici, P. Mancosu, F. Lobefalo, A. Stravato, M. Scorsetti*

EP-1457

- > Acute toxicities comparing VMAT versus 3D-CRT in locally advanced rectal cancer

*M. Zimmermann (Germany), S. Weick, F. Exner, A. Richter, M. Flentje, B. Polat*

EP-1458

- > Impact of sentinel lymph-node biopsy and FDG-PET in staging and radiation treatment of anal cancer

*N. Slim (Italy), P. Passoni, R. Tummineri, C. Gumina, G.M. Cattaneo, P. De Nardi, C. Canevari, M. Ronzoni, C. Fiorino, E. Incerti, A.M. Tamburini, L. Gianolli, L. Gianni, R. Rosati, N. Di Muzio*

EP-1459

- > Internal Margin evaluation in prone or supine rectal cancer patients using CBCT

*C. Rosa (Italy), L. Gasparini, S. Di Biase, C. Di Carlo, A. Allajbej, F. Patani, D. Fasciolo, A. Vinciguerra, L. Caravatta, D. Genovesi*

EP-1460

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- > SBRT Pelvic re-irradiation: 2cm “rind” around PTV and small bowel dosimetry of rectal recurrences  
*S. O’Cathail* (United Kingdom), T. Smith, Y. Tsang, M. Harrison, M. Hawkins  
EP-1461
  - > Stereotactic body radiation therapy (SBRT) in metastatic colorectal cancer (MCRC)  
*G.R. Mireia* (Spain), M.A. Marina, H.M. Ana, S.A. Maria José, L.D.M. Miriam, C.F. Silvia, F.D. Amaya, H.P. Alejandro, L.T. José, C.H. Carlos  
EP-1462
  - > Radiation dose intensification in rectal cancer: a survey by the AIRO gastrointestinal study group.  
*L. Caravatta* (Italy), M.A. Gambacorta, G. Mantello, M. Lupattelli, M. Di Tommaso, R. Consuelo, G. Macchia, A. De Paoli, R.M. Niespolo, F. Dionisi, M.E. Rosetto, F. Valvo, M.F. Osti, A.G. Morganti, V. Valentini, D. Genovesi  
EP-1463
  - > A systematic literature review of rectal re-irradiation: tolerance and outcomes  
*L. Caravatta* (Italy), F. Fiorica, A.R. Alitto, C. Rosa, A. Nardangeli, F. Munoz, L. Bianco, L. Giaccherini, G. Timon, F. Dionisi, M. Massaccesi  
EP-1464
  - > Impact of diabetes on outcome and toxicity of neoadjuvant (chemo)radiation for rectal cancer  
*D. Bierbamer* (Germany), S. Muench, B. Haller, D. Habermehl, P.T. Pfluger, K. Stemmer, S.E. Combs  
EP-1465
  - > Preoperative chemoradiation with raltitrexed in locally advanced rectal cancer: a systematic review  
*E. Galofaro* (Italy), V. Panni, M. Buwenge, A. Guido, G. Macchia, F. Deodato, V. Picardi, M. Boccardi, S. Mignogna, C. Pozzo, F. Di Fabio, A.G. Morganti, S. Cammelli  
EP-1466
  - > KRAS mutation status as predictor factor in locally advanced rectal cancer  
*M. Campo* (Spain), S. Flamarique, A. Gemma, L. Alejandra, G. David, M. Fernando, M. Ainara, R. Maitane, R. Lombardo, A. Fernando  
EP-1467
  - > Radiomics versus volume reduction for rectal cancer response prediction in hybrid MR guided RT  
*L. Boldrini* (Italy), D. Cusumano, J. Lenkowicz, G. Chiloiro, C. Casà, C. Masciocchi, F. Cellini, N. Dinapoli, L. Azario, S. Teodoli, M.A. Gambacorta, M. De Spirito, V. Valentini  
EP-1468
  - > Radiation dose to pelvic floor muscles and functional outcome after treatment for anal cancer  
*C. Kronborg* (Denmark), P. Christensen, B.G. Pedersen, K.G. Spindler  
EP-1469

- > Response assessment in rectal cancer patients treated with MRI-guided RT: preliminary results  
*A. Re (Italy), G. Chiloiro, L. Boldrini, F. Cellini, M. Giraffa, P. De Franco, B. Corvari, E. Meldelesi, B. Fionda, D. Cusumano, S. Teodoli, V. Valentini, M.A. Gambacorta*  
**EP-1470**
- > Evaluating the safety & efficacy of neo-adjuvant chemotherapy in locally advanced rectal cancer  
*K. Saeed (Pakistan), T. Sadaf, A.S. Kazmi, S. Butt, A.A. Syed, M.A. Yusuf*  
**EP-1471**
- > Obesity and Colorectal Cancer: Impact of the Gut Microbiota  
*J. Gomez-Millan Barrachina (Spain), L. Sanchez-Alcoholado, A. Otero, R. Ordoñez, D. Castellano-Castillo, Y. Lupiañez-Perez, M.I. Queipo-Ortuño, A. Román*  
**EP-1472**
- > Anal adenocarcinoma: a comprehensive review of management practices and clinical outcomes  
*J. Lukovic (Canada), J. Kim, A. Liu, J. Ringash, J. Brierley, R. Wong, A. Barry, L. Dawson, B.J. Cummings, M. Krzyzanowska, E.X. Chen, D. Hedley, R. Prince, F. Quereshy, A. Easson, C.J. Swallow, R. Gryfe, E. Kennedy, A. Hosni*  
**EP-1473**
- > Preoperative RT-CT in locally advanced rectal cancer using different RT doses; our experience  
*D. Delishaj, I.C. Fumagalli, A. Cocchi, A. Vola, G. De Nobili, F. Gherardi, F. Bonsignore, F. Tagliabue, J. Arnoffi, R. D'Amico, F. Declich, A. Ardizzoia, C.P. Soatti (Italy)*  
**EP-1474**

● ELECTRONIC POSTER

**Clinical track: Clinical track: Gynaecological (endometrium, cervix, vagina, vulva)**

- > Radiotherapy Is a Safe and Effective Salvage Treatment for Recurrent Cervical Cancer  
*H.J. Kim (Korea Republic of), W.S. Koom, G.E. Kim, Y.B. Kim*  
**EP-1475**
- > Validation of a combined PET and MRI radiomics model for prediction of recurrence in cervical cancer  
*E. Lucia (France), D. Visvikis, M. Vallières, M. Desseroit, O. Miranda, P. Robin, P.A. Bonaffini, J. Alfieri, I. Masson, A. Mervoyer, C. Reinhold, O. Pradier, M. Hatt, U. Schick*  
**EP-1476**
- > Image-guided Intensity Modulated Radiotherapy in cervical cancer: organ motion and geographical miss  
*P. Ferrazza (Italy), A. Delana, L. Purpura, E. Magri, L. Bandera, V. Vanoni*  
**EP-1477**



- > Adjuvant small pelvic field radiotherapy in cervical cancer with intermediate risk factors  
*J.A. Solis Campos (Chile), B. Tudela Staub, G. Veillon Contreras, I. Perrot Rosenberg* EP-1478
- > The use of CT texture analysis in cervical cancer to predict response to chemoradiotherapy  
*S. Otter (United Kingdom), A. Franklin, P. Evans, A. Stewart* EP-1479
- > Radiation therapy for Uterine Cervical Cancer with lung metastases including oligometastases  
*Y. Mukai (Japan), I. Koike, E. Miyagui, M. Hata* EP-1480
- > Leukocytosis and Neutrophil to Lymphocyte Ratio: Prognostic Factors in Uterine Cervical Cancer?  
*S. Garcia (Portugal), R. Costa Lago, G. Almeida, D. Rodrigues, M.P. Fontes, G. Pinto* EP-1481
- > Stereotactic RT in ovarian cancer: multicentric retrospective pooled analysis (MTO-RT project)  
*G. Macchia, G.R. D'Agostino, A. Fodor, A.M. Cerrotta, R. Autorino, D. Russo, E. Perrucci, A. Zamagni, A. Di Stefano, C. Iftode, S. Cilla, A.G. Morganti, C. Aristei, N. Di Muzio, M. Scorsetti, F. Deodato, G. Scambia, V. Valentini, G. Ferrandina* EP-1482
- > Stereotactic Body Radiation Therapy Boost for Stage IA - IIB Cancers of the Cervix: 5-Year Results  
*S. Dalwadi, M. Ludwig, N. Waheed, D. Tran, M. Bonnen, C. Mantz (USA)* EP-1483
- > Neoadjuvant CT followed by chemoradiation in locally advanced cancer cervix : feasibility and QOLstudy  
*S. Singh (India), S. Sadhan Sarangi, P. Misra, D. Kapoor, A. Rani, N. Rastogi, S. Kumar* EP-1484
- > Role of PET-CT in patients of recurrent carcinoma cervix treated with definitive chemoradiotherapy  
*M. Rastogi (India), A.K. Gandhi, R. Khurana, S.S. Nanda, H.B. Singh, S. Rath, P.C. Rai, S. Kumar, A. Bharati, A.K. Srivastava, S.P. Mishra* EP-1485
- > Role of HPV DNA testing and its influence on clinical outcomes in Cervical Cancer  
*P. Jayaprakash (India), G. Narayanan* EP-1486
- > Prognostic value of 18F-FDG PET/CT parameters in patients with locally advanced cervical carcinoma.  
*S. Cordoba Largo (Spain), V. Garcia Jarabo, D. Martinez, M. Ramirez, M. Gaztañaga Boronat, C. De la Fuente, G. Marquina, A. Ortega, R. Mendez* EP-1487

- > Treatment of early stage intermediate-risk endometrial cancer using MIS and adjuvant radiotherapy  
*J. Song (Canada), T. Le, M. Gaudet, C. Ee, K. Lupe, R. Samant* EP-1488
- > How effective is adjuvant radiotherapy in the management of stage I high-risk endometrial cancer?  
*J. Song (Canada), T. Le, M. Gaudet, C. Ee, K. Lupe, R. Samant* EP-1489
- > Bone mineral density correlates to pelvic fractures after radiotherapy for cervical cancer  
*D. Kurrumeli, B. Weidenbächer, K. Borm, M. Oechsner, S.E. Combs, C. Brams, M. Löffler, M.N. Duma (Germany)* EP-1490
- > Clinical outcome and toxicity of MRI-based vaginal cuff brachytherapy in endometrial cancer  
*C. Jaisawang (Thailand), P. Alisanant, K. Shotelersuk, C. Khorprasert, N. Amornwichet* EP-1491
- > Comparison of 3DCRT and IMRT in endometrial cancer: efficacy, safety, and prognostic analysis  
*M. Ta (France), A. Schernberg, P. Giraud, L. Monnier, E. Darai, S. Bendjalilah, M. Schlienger, E. Touboul, T. Challand, F. Huguet, E. Rivin Del Campo* EP-1492
- > SBRT for oligometastatic gynecological cancer: a single institution experience  
*C. Iftode (Italy), A. Tozzi, G.R. D'Agostino, T. Comito, C. Franzese, F. De Rose, D. Franceschini, L. Di Brina, P. Navarria, E. Clerici, S. Tomatis, M. Scorsetti* EP-1493
- > Quality of life in women treated for gynecologic malignancies and dose-volume parameters correlation  
*A. Caroli (Italy), L. Masini, C. Pisani, E. Gallizia, I. Luciani, M. Brambilla, M. Krengli* EP-1494
- > Improved Disease-Free Survival with Radiotherapy in Early Stage Endometrial Cancer: 10-year outcome  
*S. Aytac Arslan (Turkey), I.P. Aral, G. Altinisik Inan, Y. Tezcan, F. Avsar, Y. Guney* EP-1495
- > Feasibility of carbon ion radiotherapy for the melanoma of the lower genital tract  
*A. Barcellini (Italy), V. Vitolo, M.R. Fiore, A. Iannalffi, B. Vischioni, P. Fossati, S. Ronchi, M. Bonora, E. D'Ippolito, R. Petrucci, A. Facoetti, A. Mirandola, A. Vai, S. Molinelli, E. Mastella, S. Russo, G. Viselner, L. Preda, M. Ciocca, F. Valvo, R. Oreccchia* EP-1496



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- > Particle radiotherapy for re-irradiation of pelvic recurrences of gynecological cancer  
*A. Barcellini (Italy), V. Vitolo, R. Lazzari, M.R. Fiore, A. Iannalfi, B. Vischioni, A. Facoetti, S. Ronchi, M. Bonora, E. D'ippolito, R. Petrucci, A. Mirandola, A. Vai, E. Mastella, S. Russo, G. Viselner, M. Ciocca, L. Preda, F. Valvo, R. Orecchia* EP-1497
  - > Abstract withdrawn  
*T. Chan, P.W. Tan, J.I.H. Tang (Singapore)* EP-1498
  - > The case selection for brachytherapy in cervical cancer patients after radical hysterectomy  
*H. Xu (China), Y. Lai, Y. Jin* EP-1499
  - > Squamous Cell Carcinoma of unknown primary (CUP) in the Pelvis: A case series & review of literature  
*E. Connolly (Ireland), G. Rangaswamy, O. Boychek, C. Gillham, O. McArdle* EP-1500
  - > Prognostic value of SCC-Antigen and SUVmax value in locally advanced cervix cancer  
*S. Pedraza Fernández (Spain), P. Sarandeses, D. Lora, J.F. Pérez-Regadera* EP-1501
  - > Endometrial cancer. Relapse free survival rates in our medium/large hospital in the UK  
*L. Price (United Kingdom), R. Allerton* EP-1502
  - > Brachytherapy versus EBRT boost for cervical cancer: is the standard better?  
*D. Delgado (Portugal), A. Figueiredo, J. Leitão Santos, A. Florindo, V. Mendonça, M. Lemos, M. Abdulrehman, M.F. De Pina* EP-1503
  - > Role of PET/CT in assessing treatment response of cervical cancer after definitive RadioChemotherapy  
*A. Tsikkinis (Switzerland), E. Vlaskou Badra, N. Cihoric, D. Aebersold, K. Lössl* EP-1504
  - > Is locally advanced cervix adenocarcinoma less radiosensitive than squamous cell carcinoma?  
*K. Vandecasteele (Belgium), E. De Jaeghere, P. Tummers, A. Makar, P. De Visschere, K. Van de Vijver, E. Naert, H. Denys* EP-1505
  - > Multi-institutional treatment and management of cervical cancer patients  
*A. Tsikkinis (Switzerland), N. Cihoric, E. Vlaskou Badra, D. Aebersold, K. Lössl* EP-1506

- > Radical radiotherapy/brachytherapy for cervix cancer in Alberta: who are treated, how do they fare?  
*N. Vawda, S. Ghosh, S. Menon, A. Duimering, J. Cuartero, E. Wiebe, C. Doll, F. Huang (Canada)*  
EP-1507
- > EQD2 and overall treatment time as prognostic factors in cervical cancer treated with definitive CRT  
*S.I. Perez Alvarez (Mexico), G.E. Trejo Durán, J.C. Rodriguez Rosas, C.H. Flores Balcazar, J. Zamora Moreno, G.B. Santiago Concha, A. Mota García*  
EP-1508
- > "Young adult" and "geriatric" locally advanced cervix cancer in Alberta: same but different?  
*S. Menon, S. Ghosh, N. Vawda, G. Menon, M. Roumeliotis, C. Doll, E. Wiebe, F. Huang (Canada)*  
EP-1509
- > Phase I Trial of Stereotactic MR-guided Online Adaptive Radiotherapy for Ovarian Oligometastases  
*L. Henke (USA), O. Green, A. Curcuru, S. Mutic, S. Markovina, J. Schwarz, P. Grigsby, C. Robinson, A. Chundury*  
EP-1510
- > Investigation of prognostic factors of cervical squamous cell carcinoma using pre-treatment MRI  
*C. Tonoiso (Japan), A. Haga, A. Kubo, T. Kawanaka, S. Furutani, H. Ikushima, M. Harada*  
EP-1511

● ELECTRONIC POSTER

**Clinical track: Prostate**

- > Evaluation of target volume margins in prostate dose escalated VMAT by fiducial markers' technique  
*R. Fawzy (Egypt), R. Abdel-Malek, M. Metwaly, O. Abdel Aziz, S. Alsirafy, A. Seleem*  
EP-1512
- > Patient-reported adverse events following trans-rectal ultrasound-guided prostate marker insertion  
*T. Rosewall (Canada), A. Bayley, P. Chung, C. Catton*  
EP-1513
- > Binary exponential model for the PSA fall after IMRT, dependency on initial PSA and Prostate volume  
*H. Nagano (Japan), H. Yokoyama, M. Kato, H. Hashimoto, T. Shimo, M. Watanabe, M. Nakanishi, Y. Kaneko, H. Suzuki, A. Noguchi, K. Kobayashi*  
EP-1514



- > Substantial impact of 68Ga-PSMA-PET/CT on the radiotherapeutic approach for prostate cancer  
*N. Schmidt-Hegemann (Germany), C. Eze, M. Li, P. Rogowski, C. Schaefer, C. Stief, U. Ganswindt, P. Bartenstein, C. Belka, H. Ilhan*  
EP-1515
- > Macroscopic local relapse from prostate cancer: which role for salvage RT? An update analysis  
*A. Bruni (Italy), G. Ingrosso, F. Trippa, M. Di Staso, L. Rubino, G. Aluisio, S. Parente, L. Frassineti, E. Maranzano, R. Santoni, E. Mazzeo, F. Lohr*  
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- > The long-term result of stereotactic body radiotherapy for localized prostate cancer  
*Y. Lin (Taiwan), S. Wang*  
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- > A dosimetric comparison of treatment plans by using aaa/mc with VMAT technique for prostate patients  
*P. Boydak (Turkey), K. Temizyurek*  
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*P. Dirix (Belgium), C. Mercier, C. Billiet, P. Vermeulen, S. Oeyen, S. Van Laere, P. Huget, D. Verellen*  
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*A. Rese (Italy), F. Pastore, G. Panelli, A. Pepe, D. Toledo, F. Francomacaro, V. Iorio*  
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- > IMRT for prostate cancer with seminal vesicle involvement : A multicentric retrospective analysis  
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- > Radiotherapy with or without antihormonal therapy for PSMA-positive oligorecurrent prostate cancer  
*S. Kroese (Switzerland), C. Henkenberens, N. Schmidt-Hegemann, M. Vogel, S. Kirste, J. Becker, H. Christiansen, C. Belka, S. Combs, A. Grosu, A. Müller, M. Guckenberger*  
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- > Predictors of severe late urinary toxicity after curative radiotherapy for localised prostate cancer  
*K. Takeda (Japan), Y. Takayama, N. Kadoya, H. Takagi, K. Ito, T. Chiba, K. Sato, S. Dobashi, R. Umezawa, T. Yamamoto, Y. Ishikawa, K. Takeda, H. Matsushita, Y. Kawasaki, K. Mitsuduka, K. Jingu*  
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*S. Ken (France), R. Aziza, D. Portalez, L. Chaltiel, J. Gilhodes, T. Brun* EP-1524
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*J. Falk (Sweden), M. Aly, T. Nordström, A. Valdman* EP-1525
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*S. Koerber (Germany), G. Stach, C. Kratochwil, M. Haefner, S. Katayama, H. Rathke, K. Herfarth, T. Holland-Letz, U. Haberkorn, J. Debus, F.L. Giesel* EP-1526
- > Proton therapy for prostate ca: Comparison of toxicity between mod-hypo and conventional fraction  
*T. Waki (Japan), Y. Tominaga, Y. Niwa, H. Ihara, D. Jin, S. Sugiyama, T. Kawabata, K. Katsui, M. Fujishima, S. Kanazawa* EP-1527
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- > Abstract withdrawn  
*K. Nishiyama (Japan), T. Toyofuku* EP-1529
- > Prostate volume reduction with neo-adjuvant hormones and its relation with bladder and rectal volume  
*M. Sivanandan (United Kingdom), C. Vivekananthan, Z. Ali, S. Sundar* EP-1530
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*G. Sanguineti (Italy), A. Farneti, M. Trovò, V. Landoni, E. Moretti, M. Ferriero, F. Spasiano, U. De Paula, S. Gomellini, A. Magli* EP-1531
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- > Stereotactic Body Radiotherapy in Prostate Cancer: A Single Center Experience  
*F. Akyol, P. Hurmuz (Turkey), S. Sari, A.E. Dogan, D. Yuce, S. Yazici, B. Akdogan, G. Ozigit* EP-1533

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- > Clinical Outcomes for Patients with Gleason Score 10 Prostate Adenocarcinoma: TROD 09-004 Study  
*G. Ozigit (Turkey), H.C. Onal, P. Hurmuz, A. Iribas, I. Cetin, I.B. Gorken, D. Yalman, F. Akyol*  
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*S. Ciabatti, M. Ntreta, C. Gaudiano, E. Sessagesimi, V. Dionisi (Italy), M. Buwenge, M. Ferioli, F. Deodato, A. Ianiro, G. Macchia, M. Ferro, S. Riga, F. Romani, A.L. Angelini, V. Valentini, S. Cammelli, R. Golfier, G.P. Frezza, A.G. Morganti, S. Cilla*  
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  - > Influence of obesity in treatment outcomes in prostate cancer patients  
*J.L. Munoz Garcia (Spain), F. Ropero Carmona, M. Gonzalez Ruiz, P. Simon Silva, J. Quiros Rivero, Y. Rios Kavadoy, M.C. Cruz Muñoz, J. Cabrera Rodriguez*  
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  - > Local Relapse after Radiotherapy for prostate cancer: is a second local treatment worthwhile?  
*C. Hennequin (France), M. Pierre, D.K. Eric, V. Laetitia, D. Francois, C. Stephane, Q. Laurent*  
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  - > Where fail PC patients treated with limited RT to prostate and sv with 76-80 Gy +/- hormonotherapy?  
*J. Lopez Torrecilla (Spain), P.P. J, V. A, G.H. T, G.S. D, A. P, H.M. A, G.M. E, G.P. Jc, B. L, G. D, R.F. J*  
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  - > Early experience and quality of life in SBRT prostate cancer boost of 9 Gy in a phase II trial  
*E. Ferrer (Spain), A. Pont, R. De Blas, A. Boladeras, O. Garin, M. Ventura, E. Zardoya, J. Delgado, E. Condom, E. Merino, J. Mases, M. Castells, I. Guix, J.F. Suarez, J. Gonzalez, S. Almendros, M. Garcia, M.A. Berenguer, N. Garcia, M. Stefanovic, C. Gutierrez, C. Picon, M. Ferrer, F. Guedea*  
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*C. Perna (United Kingdom), C. Williamson, S. Khaksar*  
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*A. Müller (Germany), S. Olthof, C. Pfannenberg, D. Wegener, J. Marzec, J. Bedke, A. Stenzl, C. La Fougère, K. Nikolaou, D. Zips, J. Schwenck*  
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  - > Long-term results and PSA kinetics after robotic SBRT for prostate cancer  
*Y. Park (Korea Republic of), H.J. Park, W.I. Jang, B.K. Jeong, H. Kim, A.R. Chang*  
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- > Early Results of a Phase 2 Multicentre Study of Linac-based Stereotactic Boost for Prostate Cancer  
*D. Pryor, M. Sidhom, S. Arumugam, J. Bucci, J. Smart, M. Grand, P. Greer, S. Keats, L. Wilton, M. O'Neill, J. Martin (Australia)* EP-1543
- > Focal Linac-based SBRT Re-treatment for local recurrence of Ca P following previous definitive RT  
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*E. Ferrara (Italy), D. Beldi, J. Yin, G. Loi, M. Krengli* EP-1545
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*G. Francolini (Italy), B.A. Jereczek-Fossa, V. Di Cataldo, G. Simontacchi, G. Marvaso, M.A. Zerella, C.I. Fodor, L. Masi, L. Livi* EP-1546
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*P. Patel (United Kingdom), N. Tunariu, A. Tree* EP-1548
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*C. Chen (Taiwan), H. Chuang, M. Huang* EP-1549
- > Give-me-five trial: toxicity assessment in ultra-hypofractionated prostate cancer radiotherapy  
*D. Ciardo (Italy), G. Marvaso, S. Gandini, M. Mambretti, C. Fodor, D. Zerini, S. Volpe, G. Riva, D.P. Rojas, G. Petralia, R. Cambria, R. Orecchia, B.A. Jereczek-Fossa* EP-1550
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*C. García Torres (Spain), L.A. Glaría Enríquez, A. Escribano Uzcudum, R. Morera López* EP-1551
- > Impact of MRI on prostate cancer risk classification: game changer for therapeutic decision making?  
*C. Draulans (Belgium), W. Everaerts, S. Isebaert, G. Thomas, R. Oyen, S. Joniau, E. Lerut, L. De Wever, B. Weynand, E. Vanhoutte, G. De Meerleer, K. Haustermans* EP-1552





- > High-dose hypofractionated helical IG-IMRT in high-risk prostate cancer patients  
*N.G. Di Muzio (Italy), C.L. Deantoni, F. Zerbetto, C. Cozzarini, S. Broggi, P. Mangili, A. Chiara, I. Dell'Oca, A.M. Deli, R. Calandrino, C. Fiorino, A. Fodor*  
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- > Twice vs thrice-weekly moderate hypofractionated EBRT for PCa: does overall treatment time matter?  
*V. Achard (Switzerland), S. Jorcano, M. Rouzaud, L. Escude, R. Miralbell, T. Zilli*  
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- > Precision of deformable image registration for high-field MR-Linac treatment of prostate cancer  
*R.L. Christiansen (Denmark), L. Dysager, O. Hansen, C. Brink, B. Uffe*  
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- > The effect of an endorectal balloon on GI toxicity after EBRT for localized prostate cancer  
*V. Groen (The Netherlands), L. Kerkmeijer, E. Monninkhof, M. Van Schie, M. Kunze-Busch, H. De Boer, U. Van der Heide, F. Pos, K. Haustermans, R.J. Smeenk*  
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- > Do metformin and statins play a role in localized high-risk prostate cancer?  
*G. Cadeddu (Spain), F. López Campos, M. Martín Martín, L. Pelari Mici, K. Ytza Charahua de Kirschner, A. Hernández Corrales, E. Carrasco Esteban, S. Sastre Gallego, I. Císcar García, S. Sancho García, A. Hervás Morón*  
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- > Updated results of a Phase II study on 5 fractions FFF SBRT for low and intermediate prostate cancer  
*F. Alongi, L. Nicosia (Italy), R. Mazzola, N. Gaj-Levra, F. Ricchetti, V. Figlia, M. Rigo, G. Sicignano, S. Naccarato, R. Ruggieri*  
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- > SBRT for lymph node metastases from prostate cancer: a multi-institutional retrospective analysis  
*F. Alongi, L. Nicosia (Italy), C. Francese, G. D'Agostino, L. Di Brina, V. Figlia, R. Mazzola, S. Tomatis, M. Scorsetti*  
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- > Quality of life after focal salvage high-dose-rate brachytherapy for radiorecurrent prostate cancer  
*M. Van Son (The Netherlands), E. Monninkhof, M. Peters, J. Van der Voort van Zyp*  
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- > Prostate cancer radiotherapy: a systematic review about boost on the dominant intraprostatic lesion  
*S. Cammelli (Italy), M. Buwenge, S. Giambattista, A. Zamagni, E. Galofaro, P. Valeria, M. Ntreta, E. Alexopoulou, M. Ferro, E. Arena, G. Macchia, F. Deodato, S. Cilla, I. Djan, G.P. Frezza, A.G. Morganti*  
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*P. Wojcieszek (Poland), G. Głowacki, T. Krzysztofiak, P. Lelek, M. Szlag, A. Cholewka, M. Fijałkowski, S. Kellas-Ślęczka, K. Krysiak, L. Miszczyk*
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- > PSMA-ligand based radiotherapy for lymph node relapsed prostate cancer after radical prostatectomy  
*C. Henkenberens (Germany), N. Schmidt-Hegemann, M.M.E. Vogel, S. Kirste, J. Becker, C. Belka, S.E. Coombs, A. Grosu, M. Arndt-Christian, S.G.C. Kroese, M. Guckenberger, H. Christiansen, D. Walacides*
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- > Evaluation of Quality of Life in men with prostate cancer after radiation therapy  
*B. Floreno, C.G. Rinaldi, P. Trecca (Italy), P. Zuccoli, M. Miele, B. Santo, G.M. Petrianni, S. Gentile, S. Palizzi, L. Trodella, R.M. D'Angelillo, S. Ramella*
- EP-1564
- > Quality of online information about radiotherapy for prostate cancer  
*L. Käsmann (Germany), S. Janssen, F. Fahrlbusch, D. Vordermark, D. Rades*
- EP-1565
- > MR-guided online adaptive radiotherapy: First experience in the UK  
*A. Pathmanathan (United Kingdom), L. Bower, H. Creasey, A. Dunlop, E. Hall, I. Hanson, T. Herbert, R. Lawes, D. McQuaid, H. McNair, A. Mitchell, G. Smith, R. Huddart, U. Oelfke, S. Nill, A. Tree*
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- > Prospective longitudinal evaluation of quality of life after prostate cancer IMRT  
*A. Maggio (Italy), T. Rancati, P. Gabriele, F. Munoz, D. Cante, B. Avuzzi, C. Bianconi, F. Badenchi, B. Farina, P. Ferrari, E. Garibaldi, T. Giardini, G. Girelli, V. Landoni, A. Magli, R. Spoto, E. Moretti, E. Petrucci, P. Salmoiragh, G. Sanguineti, E. Villa, J.M. Waskiewicz, R. Valdagni, C. Fiorino, C. Cozzarini*
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- > Long-term results of [18F] Fluorocholine PET/CT guided SBRT in patients with prostate cancer  
*E. Pasqualetti (Italy), M. Panichi, P. Cocuzza, A. Gonnelli, D. Baldaccini, A. Molinari, M. Cantarella, R. Mattioni, S. Montrone, A. Cristaudo, A. Marciano, R. Zanca, M. Sollini, A. Sainato, P.A. Erba, F. Paiar*
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- > High-dose-rate brachytherapy boost in high-risk prostate cancer: results of two different schemes  
*L. Peláez (Spain), F. López, G. Caddedu, K. Ytuza, A. Hernández, I. Ciscar, C. Vallejo, M. Martín, S. Sancho, A. Hervás*
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- > Stereotactic body radiation therapy for oligometastatic prostate cancer. Our experience  
*C. García Aguilera* (Spain), A. Méndez Villamón,  
*I. Guerrero Fernández de Alba, D. Villa Gazulla, A. Miranda Burgos,*  
*J.M. Ponce Ortega, M.M. Puertas Valiño, C. Escuín Troncho,*  
*B. García Gimeno, M.J. Irún Cuairán, C. Borbonada Martínez,*  
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- > Pelvis Hypofractionation in IMRT+IGRT:15 fractions and prostate HDR Brachytherapy. Toxicity analysis  
*P. Castro Peña* (Argentina), E. Marinello, P. Murina, Y. Schworer,  
*L. Suárez Villasmil, D. Venencia, S. Zunino*  
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- > How multiparametric magnetic resonance changes the staging and treatment of prostate cancer  
*S. Fernandez Alonso* (Spain), S. Guardado González, J. Durá Esteve,  
*A. Rodríguez Antolín, M.J. Buj Pradilla, I. Alda Bravo, M. Alarza Cano,*  
*J.F. Pérez-Regadera Gómez, M.Á. Cabeza Rodríguez*  
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- > Is there an optimal OAR-filling protocol reducing G2+-toxicity for prostate IMRT?  
*J. Marzec* (Germany), F. Paulsen, S. Westbomke, Z. Outaggarts,  
*D. Wegener, D. Thorwarth, D. Zips, A. Müller*  
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- > Four-year outcomes of hypofractionated proton therapy for localized prostate cancer  
*A. Grewal* (USA), C. Schoneveld, S. Both, S. Lam, S. Mazzoni,  
*J. Bekelman, J. Christodouleas, N. Vapiwala*  
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- > Stereotactic Body Radiotherapy in bone oligometastatic prostate cancer patients  
*F. Trippa, F. Arcidiacono* (Italy), A. Di Marzo, L. Draghini, P. Anselmo,  
*S. Terenzi, M. Casale, S. Fabiani, E. Maranzano*  
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- > Middle Half Body Radiotherapy in bone metastases from prostate cancer: a phase I study  
*A. Zamagni* (Italy), M. Buwenge, G. Siepe, A. Arcelli, C.M. Donati,  
*S. Bisello, G. Macchia, F. Deodato, S. Cilla, M. Ferro, V. Picardi,*  
*M. Boccardi, E. Arena, A. Ianiro, P. Farina, C. Pozzo, A.A. Woldemariam,*  
*T. Wondemagegnhu, G.P. Frezza, A.G. Morganti, S. Cammelli*  
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- > Prostate SBRT with Gantry-based LINAC without ConeBeam. Toxicity outcomes of 205 patients  
*P. Castro Peña* (Argentina), A. Henao, P. Murina, O. Muriano,  
*L. Suárez Villasmil, A. Giraudo, J.C. Archilla, D. Venencia, S. Zunino*  
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- > Hypofractionated postoperative IMRT-IGRT in prostate cancer single-institution preliminary results

*J. Valero Albaran* (Spain), E. Pérez Sanchez, A. Montero, O. Hernando Requejo, E. Sanchez, R. Ciervide, M. Lopez, M.D.L.O. Garcia Aranda, X. Chen, B. Alvarez, A. Acosta, R. Alonso, J. Palma, M. Nuñez Baez, P. Fernandez Leton, J. Martin Asenjo, J.M. Perez, J. Garcia, D. Zucca, M. De la Casa, M. Serrano, L. Osorio, C. Escaleras, M.D. Fenor, C. Rubio

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- > Prior prostatectomy MRI improves target coverage of adjuvant radiotherapy for pT3bNo prostate cancer

*G. Kacso* (Romania), T. Popescu, P. DAniel, C. Iacob, R. Zahu, A. Eva, D. Dordai

EP-1579

- > Adjuvant radiotherapy in prostate cancer patients-bRFS and toxicity using adaptive IMRT technique

*P. Toncheva* (Germany), N. Volegova - Neher, K. Henne, A. Grosu, S. Kirste

EP-1580

- > Good tolerability of hypofractionated radiation therapy for localized prostate cancer

*I. Navarro* (Spain), R. Correa, A. Otero, A. Roman, I. Zapata, A. Fernandez, P. Prieto, S. Segado, C. Jodar, C. Garrido, J.A. Medina, J. Gomez

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- > Differences between 3D and VMAT in hypofractionated radiation therapy for localized prostate cancer

*I. Navarro* (Spain), R. Correa, A. Roman, A. Otero, A. Fernandez, P. Prieto, M.J. Garcia, I. Garcia, R. Ordoñez, I. Jerez, J.A. Medina, J. Gomez

EP-1582

- > Feasibility of postprostatectomy dose escalated salvage radiotherapy by reduction of bladder dose

*G. Sancho Pardo* (Spain), E. Acosta, L. Tilea, A. Soto, A. Nuria, G. Gómez de Segura, J. Craven-Bartle

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- > Radium-223 treatment in Metastatic Prostate Cancer: Prognostic Factors: Real-world Outcome

*R. Pearson* (United Kingdom), X. Jiang, S. Atkinson, S. Cumming, A. Burns, J. Frew, R. McMenemin, I. Pedley, A. Azzabi

EP-1584

● ELECTRONIC POSTER

**Clinical track: Urology-non-prostate**

- > Modified BEP chemotherapy regimen in testicular germ cell tumors: Outcome and toxicity  
*N. Thakur (India)* EP-1585
- > FDG PET-CT based risk-adapted radiotherapy for post-chemotherapy residual mass in advanced seminoma  
*V. Murthy, C. Johnny (India), R. Krishnatry, A. Joshi, G. Prakash, M. Pal, G. Bakshi, S. Menon, A. Agarwal, V. Rangarajan, V. Noronha, K. Prabhakar* EP-1586
- > Conservative strategy with concomitant chemoradiation for bladder cancer: analysis of a 313 patients  
*E. Fabiano (France), H. Martin, M. Arnaud, G. Philippe, K. Sarah, T. Hélène, B. Jean Emmanuel, S. Antoine, D. Catherine* EP-1587
- > The preliminary result of combination of chemoradiotherapy and arterial infusion for bladder cancer  
*H. Yoshioka (Japan), T. Shimbo, Y. Tanaka, A. Hori, M. Nakata, N. Yoshikawa, K. Yoshida, Y. Uesugi, K. Yamamoto* EP-1588
- > Establishing international variation in target delineation using MRI for bladder radiotherapy  
*A. Hunt (United Kingdom), A. Chan, L. Delacroix, L. Dysager, A. Edwards, J. Frew, A. Gordon, A. Henry, R. Huddart, M. Koh, V. Kong, Y. Nagar, O. Parikh, R. Pearson, Y. Rimmer, T. Schytte, M. Serra, M. Sidhom, A. Sohaib, I. Syndikus, A. Tan, S. Teece, M. Varughese, S. Hafeez* EP-1589
- > Hyperthermia-radiotherapy in frail bladder cancer patients unfit for cystectomy or chemoradiotherapy  
*E. Stutz (Switzerland), B. Eberle, E. Puric, A. Meister, O. Timm, D. Marder, S. Rogers, S. Wyler, N.R. Datta, S. Bodis* EP-1590
- > Dose mapping local failure following radical image guided bladder radiotherapy  
*S. Hafeez, H. Abdel-Aty (United Kingdom), K. Warren-Oseni, A. Dunlop, K. Chan, D. McQuaid, K. Jones, V. Harris, M. Tan, V. Hansen, R. Huddart, S. Hafeez* EP-1591
- > Consolidative radiotherapy after loco regional relapse in muscle invasive bladder cancer  
*D. Santamaría Vasquez (Spain), X. Maldonado, M. Altabas, D. Moreno, S. Micó, C. Raventós, F. Lozano, R. Morales, J. Giralt* EP-1592

## ● ELECTRONIC POSTER

**Clinical track: Skin cancer / malignant melanoma**

- > The impact of Radiotherapy combined with immunotherapy on local control in mucosal melanoma patients  
*H.J. Kim (Korea Republic of), S.J. Shin, K. Woong Sub*  
EP-1593
- > Two years' experience of electronic brachytherapy for basal cell carcinomas in selected patients  
*H. Westerberg (The Netherlands), R. Keus, M. Van Hezewijk, B. Oosterveld*  
EP-1594
- > In unoperable SSCC, radiotherapy schedules could be chosen using dermoscopic features?  
*F. Pastore (Italy), A. Rese, G. Panelli, A. Pepe, D. Toledo, V. Iorio*  
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- > Radiotherapy and Ipilimumab as first-line immunotherapy: A comparative study on 63 patients  
*N. Benziene (France), V. Atallah, F. Amestoy, E. Gerard, N. Leduc, A. Huchet, M. Beylot Barry, C. Dupin, S. Prey, L. Dousset, N. Ouabache, M. Martin, P. Gillon, C. Dutriaux, R. Trouette, V. Vendrelly*  
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- > Radiotherapy of monstrous squamous cell carcinoma of the head and scalp in elderly: our series  
*G. Lazzari (Italy), A. Terlizzi, G. Silvano*  
EP-1597
- > Efficient use of a modified Stanford TSEBT technique in the treatment of MF patients  
*E. Csiki (Hungary), M. Simon, J. Papp, P. Árkosy, Á. Kovács*  
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- > Electronic brachytherapy for non-melanoma skin cancers: preliminary results of a pilot trial  
*E. Maurizi (Italy), G. Capezzali, M. Mazza, C. Blasi, G.L. Moroni, M. La Macchia, A. Ciarmatori, F. Palleri, E. Argazzi, S. Giancaterino, M. Bono, F. Bunkheila*  
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- > Implementing TG100: an FMEA for superficial radiotherapy at Wellington Blood and Cancer Centre  
*A. Williams (New Zealand), B. Steer, D. Paterson, J. Evans, R. Dew*  
EP-1600





● ELECTRONIC POSTER

**Clinical track: Sarcoma**

- > Radiotherapy in resectable Intrathoracic Sarcomas. A Rare Cancer Network Study  
*C. Solé (Chile), F. Larsen, M. Terlizzi, P. Sargos, V. Linacre, F. Suarez, Y. Kirova, P. Van Houtte, D. Lerouge, T. Zilli* EP-1601
- > Role of clinical networks in sarcomas: The Scottish Sarcoma Network (SSN) Experience  
*J. Nixon (United Kingdom), F. Cowie, J. White, P. Chong, S. Lo, D. Bodie, L. Hayward, M. Ferguson, L. Campbell* EP-1602
- > Survival after adjuvant radiotherapy for aggressive fibromatosis depend upon time and  $\beta$ -catenin  
*J.S. Kim (Korea Republic of), H.J. Kim, M. Lee, K.C. Moon, S.G. Song, H. Kim, I. Han, I.H. Kim* EP-1603
- > Feasibility of preoperative radiotherapy in localized sarcoma of the limb: a single center experience  
*B. Durand, G. Decanter, M. Jafari, W. Tessier, Y. Robin, A. Renaud, M. Ben Haj Amor, L. Basson, D. Pannier, T. Ryckewaert, N. Penel, A. Córdoba Largo (France)* EP-1604
- > Adjuvant RT for soft tissue sarcomas: volumetric modulated arc therapy vs 3D conformal radiotherapy  
*L. Di Brina (Italy), P. Navarria, G.R. D'Agostino, F. De Rose, C. Iftode, E. Clerici, F. Lobefalo, A. Bertuzzi, V. Quagliuolo, M. Scorsetti* EP-1605
- > Stereotactic Ablative Radiotherapy for oligometastatic soft tissue sarcoma patients  
*D. Greto (Italy), M. Loi, D. Pezzulla, M. Lo Russo, M.A. Teriaca, V. Maragna, S. Lucidi, D.A. Campanacci, G. Beltrami, G. Scoccianti, L. Livi* EP-1606
- > Preoperative Radiation Therapy and IORT in Retroperitoneal Soft Tissue Sarcomas. Long Term Outcome  
*F. Navarria (Italy), S. Basso, E. Palazzari, R. Innocente, A. Lauretta, F. Matrone, G. Fanetti, A. Revelant, A. Buonadonna, C. Belluco, V. Canzonieri, J. Polesel, G. Bertola, A. De Paoli* EP-1607
- > Results of an aggressive local strategy after R1 or R2 unplanned surgery for soft tissue sarcomas  
*P. Paul (France), M. Laurence, V. Gualter, R.C. Isabelle, M. Pierre, B. Jean Yves, P. Patrice, B. Mehdi, K. Marie, D. Armelle, S. Marie Pierre* EP-1608

● ELECTRONIC POSTER

**Clinical track: Paediatric tumours**

- > Volumetric-modulated arc whole-brain radiotherapy prevents permanent alopecia for pediatric patients  
*M. Uto (Japan), K. Ogura, K. Umeda, T. Katagiri, K. Takehana, M. Nakamura, N. Mukumoto, Y. Miyabe, T. Kamitomi, A. Iwai, Y. Arakawa, Y. Mineharu, M. Tanji, I. Kato, H. Hiramatsu, T. Mizowaki*  
EP-1609
- > Crano Spinal Axis irradiations using Pencil Beam Scanning: the PSI experience  
*D. Siewert (Switzerland), F. Belosi, R. Gonzalo Gleyzes, L. Mikroutsikos, D. Correia, A. Pica, F. Albertini, A.J. Lomax, D.C. Weber, A. Bolsi*  
EP-1610
- > Experience of uninterrupted radiotherapy for pediatric hodgkin's disease in a developing country  
*B.M. Qureshi (Pakistan), Y. Ahmed, F. Shaukat, A.N. Abbasi, M.R. Khan, M.A. Mansha, M.U. Karim, A. Hafiz, A.M.H. Khan, B. Mir Khan, N. Ali, M.S. Ashraf*  
EP-1611
- > Radiation induced hypothyroidism in pediatric tumours of central nervous system  
*C. Satragno (Italy), E. Tornari, S. Barra, F. Giannelli, L. Belgioia, M. Giaccardi, N. Di Iorgi, M.L. Garrè, R. Haupt, R. Corvò*  
EP-1612
- > A dosimetric comparison of Proton and VMAT for Pediatric Ewing sarcoma of pelvis and spine  
*F. Meniai-Merzouki (France), M. Vigan, F. Goudjil, S. Helfre*  
EP-1613
- > Incidence of second malignancies among pediatric patients treated with helical Tomotherapy  
*E. Coassini (Italy), A. Drigo, L. Barresi, G. Fanetti, C. Elia, G. Sartor, G. Franchin, M. Mascalchin*  
EP-1614

● ELECTRONIC POSTER

**Clinical track: Palliation**

- > Impact of pretreatment imaging modality on the response to palliative radiation for bone metastases  
*Y. Wada (Japan), E. Okuyama, S. Kumagai, M. Sasajima, T. Tozawa, N. Takagi, A. Anbai, M. Hashimoto*  
EP-1615



- > Population-based Phase II Trial of Stereotactic Radiotherapy for up to 5 Oligometastases: SABR-5  
*R. Olson* (Canada), M. Liu, A. Bergman, S. Lam, F. Hsu, B. Mou, T. Berrang, A. Mestrovic, N. Chng, D. Hyde, Q. Matthews, C. Lund, D. Glick, H. Pai, P. Basran, H. Carolan, B. Valev, S. Tyldesley, D. Schellenberg EP-1616
- > Palliative radiotherapy for lung cancer from patients' perspective: a quality of life (QoL) study  
*W. Majewski* (Poland), M. Wyduba EP-1617
- > Early clinical results & feasibility of amplitude-gated DIBH for SBRT: A multi-centre experience  
*K. Chufal* (India), I. Ahmed, C.P. Bhatt, R. Chowdhary, R. Singh, A. Pahuja EP-1618
- > SBRT and the treatment of adrenal gland metastasis  
*D. Georgiev* (Bulgaria), N. Gesheva-Atanasova, S. Lalova, A. Balabanova, I. Mihaylova, B. Antonov, K. Ormankova EP-1619
- > A model for individualized estimation of survival in patients who underwent whole-brain radiotherapy  
*C. Marchand-Créty* (France), J. Riverain, Y. Drouet, J. Thariat, S. Servagi-Vernat EP-1620
- > First results of the first cohort of a phase I dose-escalation trial on SABR for oligometastases  
*C. Mercier* (Belgium), P. Dirix, C. Billiet, P. Meijnders, P. Vermeulen, C. Rypens, P. Huget, D. Verellen EP-1621
- > Stereotactic Body Radiation Therapy for Oligometastatic Disease: A single-institution experience.  
*L.P. Guzman Gomez* (Spain), J. Luna Tirado, D. Gonsalves Pieretti, A. Ilundain Idoate, M. Montero Feijoo, W.A. Vasquez Rivas, E. Lopez Ramirez EP-1622
- > KORTUC for lytic bone metastasis  
*S. Obata Hitomi* (Japan), O. Yukihiro, T. Tatsuya, M. Shigeki, O. Yoshiaki, K. Tsunehiko, K. Shinya, I. Yohta, K. Akira, I. Kayo, W. Kumiko, O. EP-1623
- > First clinical experiences with SBRT on the 1.5 T MR-linac for pelvic lymph node oligometastases  
*A.M. Werenstein-Honigh* (The Netherlands), P.S. Kroon, D. Winkel, E.M. Aalbers, B. Van Asselen, G.H. Bol, K.J. Brown, W.S.C. Eppinga, M. Glitzner, E.N. De Groot-van Breugel, S.L. Hackett, M. Intven, J.G.M. Kok, A.N. Kotte, J.J.W. Lagendijk, M.E.P. Philippens, R.H.N. Tijssen, J.W.H. Wolthaus, S.J. Woodings, B.W. Raaymakers, I.M. Jürgenliemk-Schulz EP-1624

- > Patterns-of-care and outcome-analysis of the stereotactic body RT (SBRT) of adrenal-gland-metastases  
*T. Voglhuber* (Germany), S.E. Combs, K.A. Kessel, M. Oechsner EP-1625
- > "TEACHH Model" as a tool for decision-making in palliative patients: Our experience  
*A. Miranda Burgos* (Spain), C. Escuín Troncho, G. Molina Osorio, C. García Aguilera, L. Alled Comín, J.M. Ponce Ortega, R. Ibáñez Carreras EP-1626
- > Impact of body morphology on survival in patients with bone metastases: A prospective cohort study  
*B. Pielkenrood* (The Netherlands), P. Van Urk, J. Van der Velden, N. Kasperts, J. Verhoeff, G. Bol, L. Verkooijen, J. Verlaan EP-1627
- > Stereotactic Ablative Radiotherapy for non-spinal bone metastasis. A single institution experience.  
*A. Acosta Rojas* (Spain), M. Nuñez, A. Montero-Luis, E. Sanchez-Saugar, O. Hernando-Requejo, R. Ciervide-Jurio, M. Lopez-Gonzalez, M. Garcia-Aranda, J. Valero-Albarran, M.C. Rubio-Rodriguez EP-1628
- > Recalcification in lytic bone metastases of the spine after radiotherapy  
*B. Pielkenrood* (The Netherlands) T. Visser, W. Foppen, J. Van der Velden, W. Eppinga, N. Kasperts, G. Bol, L. Verkooijen, J. Verlaan EP-1629
- > A Multidisciplinary approach to Palliation -Rapid Access Targeted Personalised Radiotherapy Clinic  
*A. Sharif* (United Kingdom), R. Mammon, K. Gaunt, N. McAndrew EP-1630
- > AIRO Palliative Study Group investigation on prognostic score in clinical practice: PROPHET Trial  
*F. Cellini, V. Masiello* (Italy), S. Manfrida, E. Lattanzi, L. Marino, F. Arcidiacano, A. Santacaterina, L. Cervone, A. Diroma, A. Romano, R. Di Franco, F. Pastore, G. Siepe, C. Donati, R. Cassese, M. Santarelli, F. Deodato, S. Pergolizzi, E. Maranzano, P. Muto, S. Parisi, V. Valentini EP-1631
- > Response prediction of palliative radiotherapy to painful spinal bone metastases  
*J. Akhgar* (Germany), J.C. Peek, S.U. Pigorsch, S.E. Combs EP-1632
- > Profile of patients who die in the first 30 days after palliative radiotherapy in our center  
*D.C. Moreno Santiago* (Spain), M. Vázquez Varela, M. Altabas Gonzalez, J. Giralt EP-1633

- > Stereotactic Body Radiotherapy (SBRT) for bone metastases:  
Preliminary experience  
*E. González Del Portillo (Spain), O. Alonso-Rodríguez,  
A. Nieto-Palacios, C. Martín-Rincón, L.A. Pérez-Romasanta* EP-1634
- > Stereotactic ablative radiation therapy for non-spine bone metastases  
*K.S. Kim (Korea Republic of), C. Choi* EP-1635

● ELECTRONIC POSTER

**Clinical track: Elderly**

- > Linac-based radiosurgery in elderly patients: mono-institutional experience on 110 brain metastases  
*F. Gregucci (Italy), A. Fiorentino, S. Corradini, V. Figlia, R. Mazzola,  
F. Ricchetti, R. Ruggeri, F. Alongi* EP-1636
- > Validation of a predictive model for survival in elderly patients treated with radiotherapy  
*H. Park (Korea Republic of)* EP-1637
- > Radiotherapy and Immunotherapies in elderly: a systematic literature review  
*L. Belgioia (Italy), I. Desideri, A. Errico, C. Franzese, A. Daidone,  
L. Marino, M. Fiore, P. Borghetti, D. Greto, A. Fiorentino* EP-1638
- > Socioeconomic Status and Mortality in Elderly Cancer Patients: A National Elderly Sample Cohort Study  
*B. Jang (Korea Republic of), J.H. Chang* EP-1639
- > Radical radiotherapy in elderly prostate cancer patients: a monoinstitutional experience  
*C.L. Deantonio (Italy), A. Fodor, C. Fiorino, C. Cozzarini, F. Zerbetto,  
P. Mangili, C. Calandriano, N.G. Di Muzio* EP-1640
- > Radiotherapy for prostate cancer patients over 80 years: 95 patients treated in a single institution  
*P. Méré, C. Dalban, E. Peynet, A. Guignot, J. Droz, P. Pommier (France)* EP-1641
- > Short-course accelerated palliative EBRT for advanced head and neck cancer in elderly patients  
*M. Ferro, G. Macchia, S. Cilla, A. Ianiro, V. Picardi, M. Boccardi,  
E. Arena, M. Ferro, S. Cammelli, F. Romani, S. Riga, E. Farina,  
M. Buwenge, M.A. Sumon, A. Kamal Uddin, P. Assalone, V. Valentini,  
A.G. Morganti, F. Deodato (Italy)* EP-1642

- > Short-course accelerated palliative radiotherapy for advanced lung cancer in elderly patients

*M. Ferro (Italy), M. Ferro, F. Deodato, S. Cilla, A. Ianiro, V. Picardi, M. Boccardi, E. Arena, S. Cammelli, M. Ferioli, A. Zamagni, S. Bisello, E. Farina, M. Buwenge, P. Assalone, A.A. Woldemariam, T. Wondemagegnhu, V. Valentini, A.G. Morganti, G. Macchia*

EP-1643

- > Elderly patients with non-melanoma skin cancer: results of accelerated hypofractionated treatment

*M. Ferro (Italy), G. Macchia, E. Arena, S. Cilla, A. Ianiro, V. Picardi, M. Boccardi, S. Cammelli, A. Veraldi, F. Bertini, A. Arcelli, M. Buwenge, M.A. Sumon, A. Kamal Uddin, V. Valentini, A.G. Morganti, F. Deodato, M. Ferro*

EP-1644

- > Short-course accelerated palliative radiotherapy for advanced skin cancer in elderly patients

*M. Ferro (Italy), F. Deodato, S. Cilla, A. Ianiro, V. Picardi, M. Boccardi, E. Arena, S. Cammelli, E. Galofaro, V. Panni, A. Arcelli, M. Buwenge, M.A. Sumon, A. Kamal Uddin, A.L. Angelini, S. Riga, V. Valentini, A.G. Morganti, G. Macchia*

EP-1645

- > Radiation Oncology for the Older Person: Defining international standards for trainee education

*L. Morris (Australia), S. Turner, N. Thiruthaneeswaran, A. O'Donovan, M. Agar, R. Simcock*

EP-1646

- > Neoadjuvant chemoradiotherapy in elderly rectal cancer patients in a mono-institutional experience

*L. Gasparini (Italy), C. Rosa, S. Di Biase, C. Di Carlo, A. Allajbej, F. Patani, D. Fasciolo, A. Porreca, M. Di Nicola, L. Caravatta, D. Genovesi*

EP-1647

- > Radio-chemotherapy with temozolomide in elderly patients with glioblastoma: our experience

*A. Molinari (Italy), F. Pasqualetti, A. Gonnelli, M. Cantarella, S. Montrone, F. Paiar*

EP-1648

- > Patterns of care and survival in elderly patients with advanced soft-tissue sarcoma

*D. Greto (Italy), S. Calogero, M. Lo Russo, D. Pezzulla, M. Loi, M.A. Teriaca, V. Maragna, S. Lucidi, D.A. Campanacci, G. Beltrami, G. Scoccianti, L. Livi*

EP-1649

- > Elderly glioblastoma patients: role of multidimensional assessment of frailty in predicting outcomes

*L. Giaccherini (Italy), P. Ciampella, M. Galaverni, M. Manicone, I. Renna, M. Galeandro, G. Timon, F. Bellafiore, D. Ramundo, F. Vigo, A. Rosca, T. Palmieri, M.P. Ruggieri, A. Botti, R. Sghedoni, E. Cagni, M. Orlandi, M. Iori, M. Russo, C. Iotti*

EP-1650

- > Geriatric oncology for decision-making in women over 75 years with breast cancer

*M.D. De las Peñas-Cabrera (Spain), J. Martínez Peromingo, P.M. Samper Ots, E. Amaya Escobar, M. Hernández Miguel, C. Oñoro Algar, M.E. Baea Monedero, C. González de Villaumbrosia, J. Zapatero Ortuño, S. Hoyos Simón, M.R. Noguero Meseguer, E. Abreu Griego, M. De Matías Martínez, R. Fernández Huertas, A.B. Cuesta Cuesta*

EP-1651

- > Stability and survival of elderly patients after palliative radiotherapy of spinal bone metastases

*T. Bostel (Germany), R. Förster, I. Schlampp, T. Sprave, S. Akbaba, D. Wollschläger, J. Debus, H. Schmidberger, H. Rief, N.H. Nicolay*

EP-1652

#### ● ELECTRONIC POSTER

#### Clinical track: Health services research / health economics

- > Evaluation of Italian Radiotherapy research: preliminary analysis.

*A. Fiorentino Greto (Italy), R. Mazzola, V. Lancellotta, S. Saldi, S. Chierchini, A.R. Alitto, P. Borghetti, F. Gregucci, M. Fiore, I. Desideri, L. Marino, D.*

EP-1653

- > Hypofractionation in breast cancer: possible advantages and logistical implications.

*I. Meaglia (Italy), M. Paolini, C. Bocci, G.B. Ivaldi, M. Liotta, P. Tabarelli de Fatis*

EP-1654

- > Cost-effectiveness analysis of stereotactic radiotherapy in colorectal cancer brain metastases

*A. Paix, (France) F. Thillays, J. Biau, N. Vulquin, I. Pop, K. Debbi, A.L. Grosu, E.A. Sauleau, G. Noël*

EP-1655

- > Prevention of heterotopic ossification after total hip replacement: a cost-effectiveness analysis

*A. Paix, T. Stévignon, N. Baudrier, G. Noël (France)*

EP-1656

- > Overcoming appointment delay in radiotherapy: a single institution experience

*M. Alt Erraisse (Morocco), O. Masbah, T. Bouhafa, K. Hassouni*

EP-1657

- > Stereotactic Ablative Body Radiotherapy: UK implementation and current practices. Progress since 2012.

*G. Distefano (United Kingdom), S. Garikipati, H. Grimes, M. Hatton*

EP-1658

- > Trends in industry payments to radiation oncologists from 2014-2017  
*D. Marshall (USA)*
- > Patterns of acute brain metastases related admissions: Opportunity amongst recurring themes  
*R. Bentley, M. O'Cathail (United Kingdom), L. Aznar-Garcia, V. Crosby, A. Wilcock, J. Christian*

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● ELECTRONIC POSTER

**Clinical track: Communication**

- > Teleconsultations: Bringing specialist radiotherapy services to patients  
*M. O'Cathail (United Kingdom), L. Aznar-Garcia, R. Bentley, P. Patel, J. Christian*

EP-1661

● ELECTRONIC POSTER

**Clinical track: Other**

- > Multicentric structured medical data production on an OIS for modeling of radiotherapy effects  
*J. Clavier (France), R. Eugene, J. Thariat, D. Antoni, V. Beneyton, L. Claude, J. Fontbonne, N. Gaillot, V. Ganansia, C. Jamain, A. Lepinoy, C. Laude, C. Mazzara, C. Noblet, S. Racadot, A. Ruffier, S. Servagi, P. Truntzer, S. Guihard*
- > REQUITE multicentre study of patients undergoing radiotherapy for breast, lung or prostate cancer  
*C. West (United Kingdom), D. Azria, J. Chang-Claude, D. De Ruysscher, R. Elliott, S. Gutiérrez-Enríquez, T. Rancati, B. Rosenstein, P. Seibold, C. Talbot, A. Vega, L. Veldeman, A. Webb*
- > Inter-fractional urinary bladder filling variation during IGRT in pelvic malignancies  
*M. Shah (India), S. Agarwal, R. Agarwal, B. Subramanian, S. Gupta, S. De, S. Mishra, S. Srinivasan, P. Chaudhary, A. Chabra, R. Chandra*
- > Extra-pulmonary Neuroendocrine Carcinoma. Rarity of Brain Metastases  
*L. Ferro (Israel), I. Golomb, H. Ligumsky, O. Gutfeld, I. Wolf, V. Soyfer*

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EP-1665



- > ARENA: Improving training in target volume delineation for radiotherapy  
*E. Evans (United Kingdom), C. Piazzese, E. Spezi, J. Staffurth, S. Gwynne*  
EP-1666
- > Safety and efficacy of fiducial marker implantation for robotic SBRT with fiducial tracking  
*N. Scher (France), G. Bouilhol, R. Tannouri, I. Khemiri, A. Vouillaume, N. Sellami, R. Von Eyben, L. Rotenberg, H. Lamallem, O. Bauduceau, M. Bollet, D. Foster, A. Toledano*  
EP-1667
- > Creation and pilot-test of virtual cases for learning oncologic emergency management  
*Z.S. Fawaz (Canada), P. Nancy, J. Alfieri*  
EP-1668
- > Evaluation of Healthcare Quality Concepts in Radiation Oncology PG Training Programs  
*M. Uddin Karim (Pakistan), A.N. Abbasi, B.M. Qureshi, N. Ali, A. Hafiz, B. Mir Khan*  
EP-1669
- > Painful osteoarthritis responds to low-dose radiotherapy  
*B. Álvarez Rodríguez (Spain), Á. Montero, F. Calvo, J. Valero, F. Aramburu, J. García, R. Ciérvide, M. López, M.Á. De la Casa, J. Martí, E. Sánchez, M. García-Aranda, X. Chen, O. Hernando, R. Alonso, S. Rodríguez, P. García de la Peña, C. Rubio*  
EP-1670
- > Radiotherapy: promising alternative treatment for painful enthesopathies and inflammatory diseases  
*B. Álvarez Rodríguez (Spain), Á. Montero, F. Aramburu, E. Calvo, J. Palma, J. Valero, J. García, J. Martí, R. Ciérvide, E. Sánchez, S. Rodríguez, M.Á. De la Casa, M. García-Aranda, X. Chen, O. Hernando, R. Alonso, M. López, P. García de la Peña, C. Rubio*  
EP-1671
- > Multimodality treatment in thymic tumors:a retrospective analysis and accordance with ESMOguidelines  
*A. Carnevale (Italy), C. Greco, M. Fiore, E. Ippolito, S. Silipigni, C.G. Rinaldi, A. Di Donato, S. Gentile, P. Trecca, P. Zuccoli, G. Petrianni, S. Palizzi, R.M. D'Angelillo, L. Trodella, S. Ramella*  
EP-1672
- > Implementation of a Collaborative Fast Access Radiotherapy Program for Benign Disease  
*M. Rolfo (United Kingdom), R. Shaffer*  
EP-1673
- > Early toxicity & outcome of 258 consecutive patients treated with CyberKnife in an Indian centre  
*D. Dutta (India), R. Das, A. Gupta, K. Kataki, T. Tarani, A. Krishnan, C. Oc, R. Holla*  
EP-1674

- > Club100 (student organization of DEGRO e.V.) – Current activities and future perspectives  
*L. Käsmann (Germany), L. Bolm, S. Knoedler, T. Hoelscher, F. Prott*
- > Importance of work-life balance among German students interested in the field of radiation oncology  
*L. Käsmann (Germany), L. Bolm, S. Knoedler, T. Hoelscher, F. Prott*
- > Low dose radiotherapy for painful joint and tendon disorders in elderly and risk for malignancies  
*R. Buecker (Germany), R. Muecke, U. Schaefer*
- > Modern radiotherapy learning: a scoping review of the literature.  
*G. Walls (United Kingdom), S. McAleer, G. Hanna*
- > Modern radiotherapy learning: a qualitative study of trainer and trainee views.  
*G. Walls (United Kingdom), G. Hanna, S. McAleer*
- > The effectiveness and safety evaluation of radiotherapy for painful humeroscapular periarthritis (PHS)  
*T. Latusek (Poland), G. Wozniak, L. Miszczyk*
- > Modern radiotherapy learning: a quantitative study of trainer and trainee views  
*G. Walls (United Kingdom), S. McAleer, G. Hanna*

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## ● ELECTRONIC POSTER

**Physics track: Radiation protection, secondary tumour induction and low dose (incl. imaging)**

- > Fetal dose from head and neck tomotherapy versus 3D conformal radiotherapy  
*S.H. Park (Korea Republic of), J. Choi, Y.S. Kim, J. Yoon, S. Ahn, W.H. Choi*
- > Monte Carlo evaluation of organ doses from a proton gantry-mounted CBCT system  
*T. Henry (Sweden), O. Ardenfors, I. Gudowska, G. Poludniowski, A. Dasu*
- > Radiation isocontour levels for shielding considerations of the Varian Halcyon linear accelerator  
*K. Caravani (Australia), T. Jarema, A. Kazi, R. Murry, G. Godwin*

EP-1682

EP-1683

EP-1684



- > Impact of acquisition mode of CBCT scans on size-specific dose estimates (SSDE) conversion factors  
*A. Abuhamied (Saudi Arabia), C. Martin, O. Demirkaya* EP-1685
- > Assessment of patient size for size-specific dose estimates using two methods: a comparative study  
*A. Abuhamied (Saudi Arabia), C. Martin, O. Demirkaya* EP-1686
- > Variation of size-specific dose estimates (SSDE) of cone-beam CT (CBCT) scans with the scan length  
*A. Abuhamied (Saudi Arabia), C. Martin, O. Demirkaya* EP-1687
- > Monte Carlo simulations to quantify out-of-field doses due to the electron streaming effect  
*V.N. Malkov, S.L. Hackett, J.W.H. Wolthaus, B.W. Raaymakers, B. Van Asselen (The Netherlands)* EP-1688
- > Implementation of ultra-low dose CBCT for children using an optimised bowtie filter  
*A. Bryce-Atkinson (United Kingdom), M.C. Aznar, G. Whitfield, M. Van Herk* EP-1689
- > Induced radioactivity as a (un)helpful effect of particle therapy  
*P. Sekowski (Poland), I. Skwira-Chalot, T. Matulewicz* EP-1690
- > IORT & stray radiation: comparison of 2 commercial linacs  
*P. Stevens (Belgium), F. Van Hoof, M. Holvoet, E. Messens, L. Grasso, S. De Stefano, G. Felici, D. Verellen* EP-1691

● ELECTRONIC POSTER

**Physics track: Basic dosimetry and phantom and detector development**

- > Flatbed scanner stability for radiochromic film dosimetry  
*C. Laosa (Spain), J.F. Calvo Ortega, S. Moragues Femenia, J. Casals* EP-1692
- > Determination of the angular dependence of a CC04 ion chamber  
*A. Prado (Spain), Á. Gaitán, M. Manzano, M. Leonor* EP-1693
- > Evaluation of a new portal dosimetry solution for dose quality control of Elekta and Varian linacs  
*S. Couespel (France), N. Delaby, S. Sorel, C. Boutry, C. Lafond* EP-1694
- > Determining the dose per pulse dependence of a commercial synthetic diamond detector  
*D. O'Doherty (United Kingdom), J. Cross, R. Plaistow, K. Fathi, S.J. Thomas* EP-1695

- > Microdosimetry assessment in cyclotron proton beamline with new 3D-microdetectors  
*J. Prieto-Peña, A. Baratto-Roldán, C. Fleta, M.C. Jiménez-Ramos, J. García López, G. Consuelo (France), M. Cortés-Giraldo, J.M. Espino, F. Gómez*  
EP-1696
- > Real time small animal irradiator dosimetry using Radioluminescence imaging  
*A. Spinelli (Italy), E. D'Agostino, S. Broggi, C. Fiorino, F. Boschi*  
EP-1697
- > TRAPS upstream transmission detector for tracking mlc positions in VMAT and IMRT radiotherapy fields  
*S. Fletcher (United Kingdom), J. Haynes, L. Beck, J. Velthuis, D. Crawford*  
EP-1698
- > Comparing water equivalent phantom materials using CT scans and conformal prostate treatment plans  
*M. Kirby (United Kingdom), P. Bridge, J. Callender*  
EP-1699
- > CyberKnife output factors from integral dosimetry  
*A. Kulmala (Finland), J. Heikkilä, A. Väänänen, M. Tenhunen*  
EP-1700
- > Inverse square corrections for WAFACs  
*D. Rogers (Canada)*  
EP-1701
- > Examination of the real-time exposure dosimetry system using synthetic ruby on the radiation therapy  
*A. Maruyama (Japan), T. Yamaguchi, D. Ono, T. Kikuchi, Y. Kikuchi, R. Sato, S. Watanabe, Y. Hosokai*  
EP-1702
- > Dose Evaluation of Build-up Region of Photon Beam using Thermoluminescence Dosimeter (TLD) Sheet  
*K. Sasaki (Japan), Y. Shiota, M. Miura*  
EP-1703
- > A 2D reusable OSL-film for class solution specific QA of large modulated fields in the PART trial  
*R. De Roover (Belgium), C. Berghen, G. De Meerleer, T. Depuydt, W. Crijns*  
EP-1704
- > Quality assurance of micro-MLC based IMRT plans using patient-specific phantom  
*S. Sunel, M. Yeginer, F. Akyol, F. Biltakin (Turkey), G. Ozigit*  
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- > Production of samples with specified CT indices by 3D printing  
*I. Miloichikova (Russian Federation), Y. Cherepennikov, A. Krasnykh, S. Stuchebrov*  
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- > Polymer gel-based tests for geometric accuracy in a 0.35 T MR-LINAC  
*S. Dorsch (Germany), P. Mann, A. Elter, A. Runz, S. Klüter, C.P. Karger*  
EP-1707





- > Organ motion impact on dose delivered with non-coplanar VMAT for lung SBRT  
*A. Bazani, S. Comi (Italy), F. Pansini, F. Emiro, D. Ciardo, G. Piperno, A. Ferrari, B.A. Jereczek-Fossa, F. Cattani, C. Garibaldi* EP-1708
- > Dosimetric response of aSi1000 EPID continuous imaging of FFF beams for *in vivo* 3D SBRT verification  
*A.R. Barbeiro (France), L. Parent, T. Younes, L. Vieillevigne, F. Chatrie, F. Younan, X. Franceries* EP-1709
- > Update ADAM-pelvis phantom: New possibilities to simulate treatment scenarios in radiotherapy  
*W. Johnen (Germany), A. Runz, N. Homolka, N. Niebuhr, P. Mann, B. Beuthien-Baumann, C. Gillmann, A. Pfaffenberger, A. Elter, A.L. Hoffmann, E. Troost, S.A. Körber, G. Echner* EP-1710
- > Discover Prostate SBRT or Validation of motion-tracked SBRT treatments with a transmission detector  
*M. Szegedi (USA), A. Paxton, V. Sarkar, P. Rassiah, H. Zhao, G. Nelson, F. Su, J. Huang, J. Kunz, D. Spitznagel, B. Salter* EP-1711
- > Determination of photon output factors: implementation of the IAEA/AAPM TRS-483 Code of Practice  
*P. De La Monja Rey (Spain), C. Peraza, M.L. Brosed, A. Chaves* EP-1712
- > The implementation of 3D chemical dosimetry within a clinical radiotherapy Department  
*J. Poxon (United Kingdom), M. Miquel, N. MacDougall* EP-1713
- > Comparison of geometrical distortion of 1.5 T MR sim and 1.5 T MR linac.  
*H. Jensen (Denmark), U. Bernchou, U. Bernchou, A. Bertelsen, C. Brink, C. Brink, F. Mahmood, F. Mahmood* EP-1714
- > Development of an antropomorphic brain phantom  
*A. Bakhtiar (Germany), A. Runz, W. Johnen, P. Mann, G. Echner* EP-1715
- > The Value of Independent Review in the Implementation of New Techniques at a New Radiotherapy Centre  
*R. Lally (United Kingdom), E. Reilly, D. Stewart, A. Reilly* EP-1716
- > Challenges of Developing, Managing and Exploiting a National Radiotherapy Dataset – UK Experience  
*C. Roe (United Kingdom), U. Findlay* EP-1717

- > Determination of ion recombination correction factor by empirical and numerical methods  
*C. Anson Marcos* (Spain), P. Castro Tejero, D. Hernández González, M. Roch González, P. García Castañón, A. Viñals Muñoz, R. Fayos-Sola Capilla, S. Martín Juárez, A. Valiente, L. Pérez González  
EP-1718
- > Automated data processing and big data in radiation therapy  
*O. Schmidt* (Germany), N. Ballmann, C. Bert, R. Fietkau  
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● ELECTRONIC POSTER

**Physics track: Dose measurement and dose calculation**

- > Evaluation of dose perturbations for metal stent in photon and proton radiotherapy planning  
*H. Kim* (Korea Republic of), B. Lee, S. Cho, S. Jung, Y. Han, D. Lim, H. Park  
EP-1720
- > Sensitivity study between gamma index passing rate and clinical dose volume histogram  
*L. Szczurek* (Poland), R. Juszkat, J. Szczurek, P. Sosnowski  
EP-1721
- > Development and validation of a strategy to use actual leaf positions as a patient QA tool  
*D. Den Boer* (The Netherlands), K.M. Van Ingen, Y.R.J. Van Herten, J. Kaas, J. Visser, J. Wiersma, A. Bel  
EP-1722
- > Validation of EPID dose prediction and conversion models for flattening filter free beams  
*A. Ouakkad* (France), M. Goubert, L. Vieillevigne, F. Husson, L. Parent  
EP-1723
- > Delivery error sensitivity of an EPID based pre-treatment control for FFF dynamic arc therapy  
*A. Ouakkad*, M. Goubert, L. Vieillevigne, F. Husson, L. Parent (France)  
EP-1724
- > Two years' experience with Esteya QA  
*M. Van Het Loo* (The Netherlands), W. Jansen, A. Loopstra  
EP-1725
- > Utilization of bolus in post-mastectomy radiation therapy  
*R. Chakarova* (Sweden), D. Lundstedt, H. Svensson, M. Gustafsson, M. Hällje, P. Karlsson  
EP-1726
- > Validation of the Raystation Monte Carlo Code using dedicated ionization chambers  
*G. Pittomvilis* (Belgium), E. Bogaert, P. Thysebaert, C. De Wagter, Y. Lievens  
EP-1727



- > 1-year experience with automated transit *in vivo* dosimetry in a busy multicenter Department  
*E. Bossuyt (Belgium), R. Weytjens, S. De Vos, R. Gysemans, D. Verellen* EP-1728
- > Evaluation of beam modeling parameter variations among radiotherapy institutions using common TPS  
*M. Glenn (USA), D. Followill, R. Howell, J. Pollard-Larkin, S. Zhou, S. Kry* EP-1729
- > Systematic Monte Carlo dose verification of VMAT treatment plans for TrueBeam linac using PRIMO  
*A. Sottiaux (Belgium), V. Baltieri, A. Monseux, C. Leclercq, D. Vanache, M. Tomsej* EP-1730
- > Using plane-parallel ionization chamber PPC40 to measure Dose Area Product Ratio  
*D. Mateus (Portugal), G. Mora, M.J. Cardoso, A. Martins, A. Rocha, C. Greco* EP-1731
- > The effect of different table top models on patient-specific QA  
*L. Paelinck (Belgium), E. Wuyts, B. Vanderstraeten, C. De Wagter, Y. Lievens* EP-1732
- > CFR-PEEK vs titanium spinal stabilization implants in photon and proton therapy: A phantom study  
*R. Poel (Switzerland), F. Belosi, N. Klippel, F. Albertini, M. Walser, A. Gisep, D. Terribilini, A. Joosten, H. Hemmatazad, K. Zaugg, D. Aebersold, P. Manser, D. Weber* EP-1733
- > Dosimetric effects due to uncertainties in tissue segmentation for prostate cancer treatments  
*M. Krantz (Sweden), A. Lund, R. Chakarova* EP-1734
- > Dosimetric verification of single isocenter VMAT for multiple brain metastases  
*E. Decabooter (The Netherlands), A. Swinnen, R. Canters* EP-1735
- > Study VMAT modulation to predict DQA results and have an efficient DQA workflow  
*S. Chiavassa (France), A. Moignier, A. Batista Camejo, M. Wahl, G. Delpon* EP-1736
- > "End-to-end test" for setting up multiple brain metastases SRS  
*E. Graulieres (France), S. Ken, S. Kubler, R. Ferrand* EP-1737
- > Validation of the electron Monte Carlo (eMC) algorithm in Eclipse 13.6  
*D. Kelly (United Kingdom), S. Meara, K. Fogarty, L. Gately* EP-1738

- > Indicators evaluation for robust dose prescription in SBRT of peripheral non-small cell lung cancer  
*G. Beldjoudi (France), V. Bernard, R. Tanguy* EP-1739
- > GLAAbsolute dose calibration for EPID on Halcyon: from algorithm validation to multi-center QA  
*G. Nicolini (Italy), D. Nguyen, C. Marais, D. Lojko, E. Vanetti* EP-1740
- > Evaluation of the application of NIPAM gel dosimeter to quantify dynamic dose effects.  
*J.C. Sun (Taiwan), Y.W. Tsang, B.T. Hsieh, K.Y. Cheng* EP-1741
- > In vivo EPID dosimetry for prostate cancer treatments with an endorectal balloon  
*M. Wendling (The Netherlands), B. Sterckx, I. Steinseifer* EP-1742
- > Dosimeter selection for small field percentage depth dose and tissue maximum ratio measurements  
*S. Crowe (Australia), E. Whittle, C. Jones, K. Tanya* EP-1743
- > Enhancing the accuracy in VMAT dose verification by the use of EPID-based commercial software.  
*Y. Md Radzi (Malaysia), R.S. Windle, G.D. Lewis, E. Spezi* EP-1744
- > Performance of ArcCHECK based quality assurance in helical tomotherapy with TomoEdge technology  
*B. Yang (Hong Kong (SAR) China), H. Geng, W.W. Lam, K.Y. Cheung, S.K. Yu* EP-1745
- > GLAAbsolute dose calibration for iViewGT EPID with flat and FFF beams: multicenter experience  
*E. Vanetti de Palma (Switzerland), J.M. Perez, S. Ren Kaiser, G. Nicolini* EP-1746
- > In vivo dosimetry with electronic portal imaging device in VMAT for prostate cancer  
*S. Inui (Japan), Y. Ueda, S. Ono, S. Ohira, M. Isono, Y. Nitta, S. Murata, M. Miyazaki, T. Teshima* EP-1747
- > Adaptive solution for an improved treatment verification using Dosimetry Check system.  
*Y. Md Radzi (Malaysia), R.S. Windle, D.G. Lewis, E. Spezi* EP-1748
- > Relation between depth dose and HVL for electronic brachytherapy systems: a Monte Carlo study  
*C. Valdés (Spain), F. Ballester, J. Vijande, J. Perez-Calatayud* EP-1749
- > Evaluation of Acuros XB in the presence of metallic elements  
*R. Chipana (France), T. Younes, L. Vieillevigne* EP-1750



- > Topical skin agent application-thickness influence on surface dose in external radiation therapy  
*K. Miko (Japan), J. Kobayashi, Y. Ono, T. Tanino, N. Uchida* EP-1751
- > Impact of Leaf Spread Function on Fluence Reconstruction from Exit Detector Signals in TomoTherapy  
*H.H.F. Choi (Hong Kong (SAR) China), T.Y. Lee, Y.W. Ho, W.K.R. Wong, K.Y. Cheung, S.K. Yu* EP-1752
- > A dual detector system for in-vivo dosimetry: transit dose verification and error identification  
*O. Brace (Australia), S. Alhujali, S. Deshpande, P. Vial, P. Metcalfe, M.L.F. Lerch, M. Petasecca, A.B. Rosenfeld* EP-1753
- > High-resolution assessment of dose calculations in small MV photon beams on and off central axis  
*G. Biasi (Australia), N. Hardcastle, M. Petasecca, S. Guatelli, V.L. Perevertaylo, A.B. Rosenfeld, T. Kronx* EP-1754
- > Implementation of EPID *in vivo* dosimetry for SBRT: setting tolerance levels for routine clinical use  
*M. Esposito (Italy), A. Ghirelli, S. Pini, S. Russo, G. Zatelli, P. Alpi, R. Barca, B. Grilli Leonulli, L. Paoletti, F. Rossi, P. Bastiani* EP-1755
- > Ion recombination and polarity correction for a plane-parallel ionization chamber in hadrontherapy  
*D. Maestri (Italy), A. Mirandola, G. Magro, A. Mairani, E. Mastella, S. Molinelli, S. Russo, A. Vai, M. Ciocca* EP-1756
- > Comparison of geometrical accuracy of different SRS delivery systems with end-to-end tests  
*G. Stelczer (Hungary), D. Szegedi, T. Major, C. Polgár, C. Pesznyák* EP-1757
- > A validation and criticality assessment of imaging dose calculation discrepancies of Halcyon MVCBT  
*Y. Zhang (China), Y. Huang, M. Wang, R. Wang, W. Wang, H. Wu* EP-1758
- > Patient plan QA using EBT3 GafChromic film for the Unity MRI-Linac system  
*J. Wolthaus, S. Hackett, B. Asselen- van, W. Vries- de, S. Woodings, J. Kok, P. Kroon, B. Ragtmakers (The Netherlands)* EP-1759
- > Impact of cranial implants on proton dose distributions  
*A. Sjögren (Sweden), K. Andersson, L. Stolarczyk, U. Granlund, C. Vallhagen Dahlgren* EP-1760
- > Single isocenter multiple brain mets SRS with Elekta VersaHD and Monaco: end-to-end accuracy study  
*A. Nevelsky (Israel), E. Borzov, S. Daniel, R. Bar Deroma* EP-1761

- > *in vivo* skin dosimetry correction factors for IMRT  
*P. Carrasco de Fez (Spain), M.A. Duch, N. Jornet, P. Delgado-Tapia, M. Lizondo, C. Cases, A. Latorre-Musoll, A. Ruiz, M. Ribas* EP-1762
- > Monitoring total skin electron therapy using optically stimulated luminescence dosimeters  
*T. Kairn (Australia), R. Wilks, L. Yu, S. Crowe* EP-1763
- > Portal dosimetry of the new O-ring system (Halcyon™): validation against a diode array  
*D. Nguyen (France), F. Josserand-Pietri, G. Largeron, M. Khodri* EP-1764
- > Adapted Delta4 phantom for EBT3 film based pre-treatment QA for lung SBRT VMAT: proof of concept  
*E. Bogaert (Belgium), F. Vanhoutte, D. Dechambre, Y. Lievens, C. De Wagter* EP-1765
- > Application of Extended CT Scale and Metal Artefact Reduction Methods on Radiotherapy Planning  
*H. Yucel, F. Biltokin (Turkey), G. Ozigit, G. Yazici* EP-1766
- > Validation and clinical use of a commercial Monte Carlo algorithm for Cyberknife patient-specific QA  
*M.T.W. Milder (The Netherlands), M. Sohn, M. Alber, M.S. Hoogeman* EP-1767
- > A Feasibility Study of EPID-Based In-Vivo Dosimetry System in Machine Specific Quality Assurance  
*F.Y. Yedekci (Turkey), F. Biltokin, G. Ozigit* EP-1768
- > Pre-treatment VMAT verification with SunCHECK Fraction 0 and Varian Portal Dosimetry – a comparison  
*N.I. Hoven (Norway), J. Kalsnes, P. Lønne* EP-1769
- > Investigation of Electronic Portal Imaging Based In-Vivo Dose Verification for Prostate SBRT  
*F. Biltokin, F.Y. Yedekci (Turkey), G. Ozigit* EP-1770
- > Measuring the influence of magnetic fields on the dose distributions of clinical electron beams  
*R. Kueng (Switzerland), B.M. Oborn, N. Roberts, T. Causer, M.F.M. Stampanoni, P. Manser, P. Keall, M.K. Fix* EP-1771
- > MLC parameters evaluation in a RT-dedicated MC environment (PRIMO) from static fields to VMAT plans  
*L. Paganini (Italy), G. Reggiori, A. Stravato, V. Palumbo, P. Mancosu, F. Lobefalo, A. Gaudino, S. Tomatis, M. Scorsetti* EP-1772



- > Radioiodine therapy: a dosimetric study in a patient with DTC after rhTSH stimulation  
*S. Mazzaglia* (Italy), L. Barone Tonghi, A.M. Gueli, C.N. Tuvè, G. Pellegriti
- EP-1773
- > Independent dose verification of brachytherapy TPS and automation of EQD2 reports using Matlab Code  
*S. Esteve Sánchez* (United Kingdom), A.B. Mohamed Yoosuf, G. Workman
- EP-1774
- > Determination of tolerance criteria for the sliding leaf gap dynamic IMRT test  
*S. Weston* (United Kingdom), C. Thompson, A. Esmail, P. Rixham, D. Paynter
- EP-1775
- > Automated proton plan QA via independent Monte Carlo simulations  
*G. Guterres Marmitt* (The Netherlands), A. Pin, J.A. Langendijk, S. Both, A. Knopf, A. Meijers
- EP-1776
- > Improvements in pencil beam algorithm in proton therapy: do we still need Monte Carlo in brain?  
*L. Widesott* (Italy), S. Lorentini, F. Fracchiolla, P. Farace, M. Schwarz
- EP-1777
- > Accumulated dose prediction from pre-treatment dosimetric parameters in cervical cancer PotD method  
*S. Heijkoop* (The Netherlands), J. Godart, E. Novakova, J.W. Mens, B. Heijmen, M. Hoogeman
- EP-1778
- > Impact of calculation grid resolution and CT slice thickness on TPS calculated small fields OF  
*M.D. Falco* (Italy), M. Fusella, C. Fiandra, S. Clemente, C. Garibaldi, M. Casati, F.R. Giglioli, E. Gallio, T. Malatesta, A. Delana, C. Marino, A. Soriani, S. Linsalata, P. Bagalà, G. Benecchi, R. Consorti, M. Casale, G. Reggiori, E. Villaggi, S. Russo, P. Mancosu
- EP-1779
- > Correlation between VMAT plans complexity indices and gamma passing rate by using three QA phantoms  
*L. Vacchieri* (Italy), P. Tabarelli De Fatis, M. Liotta
- EP-1780
- > Ability of Modulation Complexity Score to predict the result of pre-treatment QA for VMAT plans  
*L. Vacchieri* (Italy), M. Liotta, A. Malovini, P. Tabarelli De Fatis
- EP-1781
- > Comparison of two commercial detectors and the influence of grid spacing calculations in SBRT  
*R. Gómez Pardos, E. Ambroa Rey* (Spain), D. Navarro Giménez, A. Ramírez Muñoz, J. García-Miguel Quiroga, M. Colomer Truyols
- EP-1782

- > Implementation of a fast method for routine linac-QA for VMAT with EPID dosimetry  
*P. Cambraia Lopes* (The Netherlands), J. Van Egmond, M. De Goede, J. Van Santvoort EP-1783
- > ArcCheck HU setting influence on the uncertainty of pre-treatment verification results  
*M. Giżyńska* (The Netherlands), M. Bukat, D. Szalkowski, A. Walewska EP-1784
- > Dosimetric verification of stereotactic treatment plans using 3D-printed phantom and GafchromicEBT3  
*M. Kruszyna* (Poland), A. Skrobala, B. Pawalowski, H. Szweda EP-1785
- > Towards real-time Monte Carlo dose computation: muscle or brain?  
*M. Alber* (Germany), N. Saito, M. Söhn EP-1786
- > Commissioning of the RayStation treatment planning system in a multi-vendor context  
*A. Savini* (Italy), F. Rosica, V. D'Errico, T. Licciardello, E. Menghi, F. Bartolucci, F. Christian, G. Orlandi, A. Sarnelli EP-1787
- > Dose distribution for electron beam using Monte Carlo simulation with GATE  
*J. Leste* (France), M. Chauvin, T. Younes, L. Vieillevigne, M. Bardies, X. Francieries, R. Ferrand, N. Pierrat, L. Bartolucci, L. Simon EP-1788
- > Repetitive use of TLD-100 without annealing for imaging doses in radiotherapy  
*M. Clausen* (Austria), P. Kuess, D. Georg, H. Palmans EP-1789
- > TPS out of field dose accuracy: impact on dose volume histogram calculation of pacemaker devices  
*A. Delana, A. Barbareschi* (Italy), F. Maria Daniela EP-1790
- > Correcting dose distributions to the magnetic field of a high-field MR-Linac using deep learning  
*R. Rozendaal* (The Netherlands), W. Van den Wollenberg, S. Van Kranen, J. Sonke EP-1791
- > Straightforward and easy way to determine MLC parameters (DLG, T) for FFF beams in Eclipse TPS  
*A. Walewska* (Poland), M. Giżyńska, M. Fillmann, P. Janiak, M. Gruda EP-1792
- > Verification and Measurement of the Tongue and Groove Effect in an Electronic Portal Imaging Device  
*J. Saez Beltran* (Spain), L. Alba, B. Clara, L. Vieillevigne, C. Khamphan, V. Hernandez EP-1793
- > Bias-free comparison of PTW arrays in terms of ability to detect





clinically significant MLC errors <i>A. Walewska (Poland), M. Giżyńska, A. Paciorekiewicz, D. Blatkiewicz</i>	<b>EP-1794</b>
> HyperArc™ commissioning necessitates high-resolution measurements <i>M. Sjölin (Denmark), J.M. Edmund</i>	<b>EP-1795</b>
> Comparison of Treatment Planning Systems' shallow depth dose prediction for IMRT <i>E. Bogaert, G. Pittomvils, C. De Wagter (Belgium)</i>	<b>EP-1796</b>
> Skin dose in HDR brachytherapy for breast cancers: our <i>in vivo</i> dosimetry protocol and data analysis <i>S. Fabiani (Italy), M. Casale, M. Italiani, M. Muti, E. Maranzano</i>	<b>EP-1797</b>
> Calibration of the new RefleXion biology-guided radiotherapy unit in the context of the TRS-483 CoP <i>L. Mirzakhani (Canada), R. Bassalow, D. Zaks, C. Huntzinger, J. Seuntjens</i>	<b>EP-1798</b>
> Characterisation of a commercially available large-area IC for dosimetry of scanned proton beams <i>S. Berke (United Kingdom), E. Almhagen, L. Stolarczyk</i>	<b>EP-1799</b>
> An Evaluation of Techniques for Dose Calculation on Cone Beam CT <i>V. Giacometti (United Kingdom), R.B. King, C.E. Agnew, D.M. Irvine, S. Jain, A.R. Hounsell, C.K. McGarry</i>	<b>EP-1800</b>
> Automatic EPID based Beam QA : measurements become pleasure <i>A. Sors (France), D. Perez, P. Dudouet, D. Franck, M. Macé, P. Boucarut, C. Boutry</i>	<b>EP-1801</b>
> Dosimetry verification of IntraOperative Radiation Therapy (IORT): a Monte Carlo Study <i>H. Alhamada (Belgium), S. Simon, C. Philippson, C. Vandekerckhove, Y. Jourani, N. Pauly, N. Reynaert, D. Van Gestel</i>	<b>EP-1802</b>
> Advances in the Patient Specific QA applied to VMAT and Tomotherapy <i>M. Picioli (Chile), K. Torzsok, A. Ruiz Plata, F. Marangoni, J. Aponte, H. Broque</i>	<b>EP-1803</b>
> Experimental validation of a novel technique to derive stopping power ratio from MRI in soft tissue <i>J. Scholey (USA), D. Chandramohan, T. McClave, A. Sudhyadhom</i>	<b>EP-1804</b>

- > The Effect of Material Heterogeneity in Endorectal Brachytherapy with 192Ir, 75Se and 169Yb Sources  
*T. Shoemaker (Canada), T. Vuong, H. Glickman, S. Kaifi, G. Famulari, S.A. Enger*  
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- > Commissioning an Independent Dose Calculation System for the Unity MR-Linac  
*E. Goodwin, S. Nill, U. Oelfke (United Kingdom)*  
EP-1806
- > Use of SPC techniques to generate assessment criteria for transit dosimetry analysis  
*A. Pyett (United Kingdom), C. Holmes, C. Enever, A. Fryer, D. Paynter, P. Rixham, S. Weston*  
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● ELECTRONIC POSTER

**Physics track: Treatment plan optimisation: algorithms**

- > Impact of the optimization-convergence errors on lung IMRT-SBRT plans computed with the Eclipse TPS  
*J.F. Calvo Ortega (Spain), H. Marcelino, S. Moragues Femenia, C. Laosa-Bello, J. Casals*  
EP-1808
- > Comparison of Photon Optimizer (PO) and Progressive Resolution Optimizer (PRO) for SRS VMAT Plans  
*Y. Akdeniz (Turkey), G. Ugurluer, E.B. Ispir, I. Kaptan, M. Serin*  
EP-1809
- > Comparison of absorbed dose between medium and water on Monte Carlo algorithm for VMAT plan  
*N. Bhalla (India), M. Palanisamy, G. Anand, C. Saravanan, T. Thangaraj, P. Abhishek*  
EP-1810
- > Volumetric modulated arc therapy with robust optimization for larynx cancer  
*H. Miura (Japan), D. Yoshiko, O. Shuichi, N. Minoru, O. Keiichi, K. Masahiko, N. Yasushi*  
EP-1811
- > Outcome-optimized radiotherapy planning using risk modeling for lymphoma – a preliminary study  
*L. Rechner (Denmark), A. Modiri, L.B. Stick, M.V. Maraldo, S.R. Rice, A. Sawant, S.M. Bentzen, I.R. Vogelius*  
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- > AAA vs Monte Carlo Dose Calculation Algorithm for Lung SABR  
*I. Badragan (Canada), V. Huang, D. Shellenberg, A. Krauze*  
EP-1813
- > On the aperture shape controller and the air cavity correction for lung plans using AcurosXB and AAA  
*L. Fog (Australia), K. Offer, N. Hardcastle*  
EP-1814





- > MCO in VMAT treatment planning for locally advanced head and neck cancer  
*B. Farnault* (France), V. Favrel, L. Moureau-Zabotto, J. Rolland, A. Tallet, P. Fau EP-1815
- > A robustness comparison of margin based and robust plans for Head and Neck VMAT patients  
*J. Robbins* (United Kingdom), E. Vasquez Osorio, A. Green, A. McWilliam, A. McPartlin, M. Van Herk EP-1816
- > Comparison of 2 VMAT optimization algorithms using complexity metrics for breast cancer radiotherapy  
*L. Bartolucci* (France), E. Costa, M. Robilliard, A. Mazal EP-1817
- > Comparison of two optimisation algorithms in Eclipse for VMAT in prostate: which one to choose?  
*D. Jurado-Bruggeman* (Spain), E. Sansalvador Boadas, A. Onsès Segarra, D. Lambisto Castro, M. Buxó EP-1818
- > Robustness to shifts in patient position with either knowledge based or multi-criteria optimisation  
*P. Houston* (United Kingdom), D. Keiller EP-1819
- > Preliminary results of using artificial neural networks for prediction CK planning parameters  
*A. Skrobala* (Poland), J. Ginter, B. Pawłowski, M. Skowron, M. Adamczyk, A. Jodda, J. Litoborska EP-1820
- > Fast Robust Optimization using a Patient-Specific Scenario Selection Methodology  
*G. Buti* (Belgium), K. Souris, J.A. Lee, E. Sterpin EP-1821
- > Evaluation of plan robustness against tumor motion for lung SBRT treatment with non-coplanar VMAT  
*C. Garibaldi* (Italy), A. Bazani, F. Pansini, F. Emiro, S. Trivellato, S. Comi, G. Piperno, A. Ferrari, B.A. Jereczek-Fossa, M. Cremonesi, F. Cattani EP-1822
- > Analysis of treatment plans robustness for dynamic techniques in external beam radiotherapy  
*E. Dabrowska-Szewczyk* (Poland), M. Bukat, P. Kukolowicz, D. Szalkowski, A. Paciorekiewicz, A. Zawadzka EP-1823

## ● ELECTRONIC POSTER

**Physics track: Treatment planning: applications**

- > Hybrid-Volumetric Modulated Arc Therapy in the Upper Thoracic Esophageal Cancer: A Planning Study  
*Y.E. Choi (Korea Republic of), K. Sung, H.J. Kim, Y.K. Lee* EP-1824
- > Variability of PTV volume and target coverage for hypofractionated prostate treatments  
*E.M. Ambrosa Rey (Spain), A. Ramírez Muñoz, J. García-Miguel Quiroga, R. Gómez Pardos, D. Navarro Giménez, N. Feltes, J. Lozano, A. Muñiz, M. Galdeano, M. Colomer Truyols* EP-1825
- > Comparison of two Volumetric Arc Therapy techniques for hippocampal sparing whole brain radiotherapy  
*A.I. Milanés (Spain), A. Prado, G. Pozo, A. Ferrando* EP-1826
- > Influence of the optimization PTV structure on hippocampal sparing radiation therapy using VMAT  
*A. Prado (Spain), A. Milanés, R. Díaz, E. Cabello* EP-1827
- > Treatment plan comparison between SBRT techniques for recurrent nasopharyngeal carcinoma  
*Y. Lin (Taiwan), H. Ho* EP-1828
- > Clinical validation of knowledge-based planning for multiple brain metastases  
*N. Kishi (Japan), M. Nakamura, H. Hirashima, N. Mukumoto, K. Takehana, M. Uto, Y. Matsuo, T. Mizowaki* EP-1829
- > Dosimetric comparison of planning techniques in Radiosurgery for Arteriovenous Malformation  
*R. Chauhan (India), V. Mhatre, K. Talapatra, P. Chadha, P. Shree, A. Balasubramanium, A. Kumar* EP-1830
- > Avoidance sector strategy to reduce healthy tissue dose in locoregional breast planning with VMAT  
*S. Thengumpallil (Switzerland), J. Bezard, K.H. Spruijt, N. Peguret, C. Vrieling* EP-1831
- > Dosimetric comparison of IMRT for early-stage glottic cancers with and without air cavity in the PTV  
*D. Asher (USA), W. Amestoy, M. Studenski, S. Samuels, M. Abramowitz, L. Freedman, N. Elsayyad, M. Samuels* EP-1832
- > Impact of physicist clinical practice on the quality of head and neck IMRT and VMAT plans  
*S. David (Spain), M. Hermida-López* EP-1833



- > Feasibility study of extreme hypofractionated proton treatment planning for prostate cancer  
*P. Klinker (The Netherlands), C. Brouwer, C. Roos, C. Hammer, H. Vanhauten, S. Bijmolt, J. Langendijk, S. Both, A. Van den Bergh, S. Al-Uwini* EP-1834
- > Use of the gEUD in modern TPSs for prostate radiotherapy with VMAT technique  
*L. Grimaldi (Italy), V. Morandini, S. Berlinghieri, E. Castrezzati, P. Frata, N. Pasinetti* EP-1835
- > Validation of a novel knowledge-based planning (KBP) model for lung cancer treatments with VMAT  
*N. Tambe (United Kingdom), C. Moore, I.M. Pries, C. Cawthorne, A.W. Beavis* EP-1836
- > A new hybrid approach to allow robust Monte Carlo-based multi-field optimization in proton therapy  
*F. Tommasino, L. Widesott, F. Fracciolla, S. Lorentini, R. Righetto, C. Algranati, E. Scifoni, F. Dionisi, D. Scartoni, D. Amelio, M. Cianchetti, M. Schwarz (Italy), M. Amichetti, P. Farace* EP-1837
- > Dosimetric comparison of brain SRS treatment plans using IRIS and InCise 2 MLC of the CyberKnife  
*M. Vekas (Hungary), G. Stelczer, L. Janvary, T. Major, C. Polgar* EP-1838
- > Development of Cardiac Avoidance Treatment Planning for Non-Small Cell Lung Cancer Patients  
*S. De Vos (United Kingdom), C. Rowbottom, M. Gilmore* EP-1839
- > comparing the dosimetric impact of omentum spacer in carbon-ion, proton and photon radiotherapy  
*M. Yamada (Japan), H. Sato, T. Ono, Y. Ieko, T. Kanai, N. Yano, H. Akamatsu, M. Harada, M. Ichikawa, Y. Kikuchi, K. Nemoto* EP-1840
- > Couch modeling optimization for TomoTherapy planning and delivery  
*M. Tanooka (Japan), W. Okada, K. Sano, S. Mayuri, H. Doi, M. Miyazaki, R. Nakahara, M. Sueoka, H. Suzuki, M. Fujiwara, N. Kamikonya, Y. Inomata, K. Yamakado* EP-1841
- > Automated treatment planning of prostate cancer using prioritized clinical-goal based optimization  
*R. Kierkels (The Netherlands), A. Fredriksson, E. Hynning, S. Both, J.A. Langendijk, B. Vanhauten, E.W. Korevaar* EP-1842

- > Evaluation of treatment efficiency for helical tomotherapy with TomoEdge technology  
*B. Yang (Hong Kong (SAR) China), W.W. Lam, H. Geng, K.Y. Cheung, S.K. Yu*  
EP-1843
- > Re-irradiation with SBRT for pancreatic cancer: dose summation and toxicity  
*X. Zhu (China), C. Yangsen, Z. Xianzhi, S. Yuxin, J. Xiaoping, Q. Shuiwang, C. Fei, J. Zhen, F. Fang, G. Lei, Z. Huojun*  
EP-1844
- > Proton beam therapy vs best photons for the management of mediastinal Hodgkin lymphoma: step by step  
*L. Abbassi (France), F. Goudjil, A. Arsène-Henry, M. Amessis, R. Dendale, Y.M. Kirova*  
EP-1845
- > Cloud-based contouring education system supporting access from multi-devices  
*H. Takegawa (Japan), S. Nakamura, N. Tanigawa*  
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- > Automatic optimization of Head and Neck treatments with multicriteria radiobiological cost functions  
*M. Esposito (Italy), A. Ghirelli, S. Pini, S. Russo, G. Zatelli, P. Alpi, R. Barca, S. Fondelli, B. Grilli Leonulli, L. Paoletti, F. Rossi, P. Bastani*  
EP-1847
- > Inaccuracies in proton dose calculation may be as significant as setup and range uncertainties  
*M. Schwarz (Italy), M. Innocenzi, I. Giacomelli, F. Fracchiolla, V. Patera, R. Righetto*  
EP-1848
- > Evaluation of plan modulation parameters on pre-treatment QA results during VMAT and SABR  
*M. Chun (Korea Republic of), J. Kim, C.H. Choi, J. Yoon, H.J. An, J. Son, O. Kwon, J.M. Park*  
EP-1849
- > Intensity modulated protons: feasibility for hypofractionated hepatocellular carcinoma treatment  
*L. Cozzi Scorsetti (Italy), T. Comito, A. Fogliata, C. Franzese, S. Tomatis, M.*  
EP-1850
- > VMAT versus 3D-CRT for the irradiation of left breast or chest wall plus supra/infraclavicular nodes  
*M.A. Gilio (Italy), R. Bagnoli, M. Mignogna, A. Tofani, S. Linsalata*  
EP-1851
- > Dosimetric comparison of techniques for left-sided breast and regional lymph node radiotherapy  
*T. Joslin-Tan (United Kingdom), R. Maggs, C. Pembroke, J. Lambert, K. O'Neill, J. Staffurth*  
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- > Dosimetric comparison of helical tomotherapy and intensity-modulated radiotherapy in cervical cancer  
*J. Liu, L. Zhu (China), S. Li, S. Gao, J. Yan, L. Xie, Z. Hou, X. Zhou, B. Liu* EP-1853
- > Application of a tool for bulk treatment plan evaluation in advanced treatment planning training  
*M. Van Herk (United Kingdom), N. Burnet, N. Dinapoli, G. Meijer, U. Nestlé, D. Van den Bongard, M. Stock* EP-1854
- > Retrospective review of brain dose from cranial stereotactic radiosurgery treatments of metastases  
*T. Kairn (Australia), Y. Ikeda, M. West, D. Schlect, S. Crowe* EP-1855
- > Dose escalation potential for hypofractionated radiotherapy in locally advanced pancreatic cancer  
*J. Bertholet Aitken (United Kingdom), A. Hunt, A. Dunlop, T. Bird, A. Mitchell, U. Oelfke, S. Nill, K.* EP-1856
- > Simulating the interaction of clinical electron beams with tissue-equivalent samples produced by FDM  
*L. Miloichikova (Russian Federation), Y. Cherepennikov, B. Gavrikov, A. Krasnykh, S. Stuchebrov* EP-1857
- > Inter-observer variability in rectal target delineation on MRI for MR image-guided radiotherapy  
*L. White (United Kingdom), A. Hunt, T. Bird, S. Settaree, H. Soliman, S. Bhide* EP-1858
- > Investigating the feasibility of boosting 18F-FLT-PET-CT volumes to 75 Gy in oropharyngeal cancer  
*J. Wyatt (United Kingdom), G. Petrides, C. Kelly, R. Maxwell, R. Plummer, R. Pearson* EP-1859
- > Dosimetric and physical aspects of APBI techniques: External Beams vs IntraOperative Radiotherapy  
*P. Tabarelli de Fatis (Italy), M. Liotta, I. Meaglia, M. Paolini, C. Bocci, G.B. Ivaldi* EP-1860
- > Simultaneous truth and performance level estimation method for contouring assessment in radiosurgery  
*H. Sandstrom (Sweden), I. Toma-Dasu, C. Chung, H. Jokura, A. Dasu* EP-1861
- > A comparative study of male pelvis CT auto-segmentation and its clinical utility  
*J. Wood (United Kingdom), M. Aznar, P. Whitehurst* EP-1862
- > Semi-Automatic Planning in H&N VMAT treatments  
*A.F. Monti (Italy), M. Brambilla, C. Carbonini, M.B. Ferrari, H.S. Mainardi, S. Nici, A. Lassy Taty, D. Zanni, A. Torresin* EP-1863

- > Dose optimization research of esophageal cancer with automatic treatment planning module  
*M. Mingchang (China), W. Ma, R. Zhang, Z. Chi* EP-1864
- > A feasibility study: 6 VMAT arcs full collimator opening for hippocampal sparing  
*M. Maffei (Italy), S. Bou Selman, H. Stefan, M. Haller, P. Ferrari* EP-1865
- > An interplay effect study comparing two different VMAT techniques for free-breathing moving targets  
*M. Gil Conde (Spain), Á. Seguro, F. Campos, M.J. Albertos, M.A. Iborra, L. Díaz* EP-1866
- > SBRT automatic treatment planning as a dose escalation strategy in pancreatic cancer  
*S. Cilla (Italy), A. Ianiro, F. Deodato, G. Macchia, V. Picardi, P. Viola, M. Craus, M. Buwenge, S. Cammelli, V. Valentini, A.G. Morganti* EP-1867
- > Automated VMAT planning in Pinnacle3: a dosimetric study in high-risk prostate cancer  
*S. Cilla (Italy), A. Ianiro, P. Viola, G. Macchia, M. Buwenge, A. Arcelli, S. Cammelli, V. Valentini, A.G. Morganti, F. Deodato* EP-1868
- > Automated VMAT planning in Pinnacle3: a dosimetric study in head-neck cancer  
*S. Cilla (Italy), A. Ianiro, G. Macchia, F. Romani, A.L. Angelini, M. Buwenge, S. Cammelli, V. Valentini, A.G. Morganti, F. Deodato* EP-1869
- > Dosimetric assessment of metal artefact corrected CT images use for pelvis treatment planning  
*E. Jaegle (France), E. Cordier, M. Alayrach, A. Badey, V. Bodez, C. Khamphan, P. Martinez, R. Garcia* EP-1870
- > Can the use of a hydrogel spacer enable intra-prostatic boosts without increasing rectal doses?  
*N. Laverick (United Kingdom), S. Currie* EP-1871
- > Combining multi-criteria optimisation and a hydrogel spacer for intra-prostatic focal boosts  
*N. Laverick (United Kingdom), S. Currie* EP-1872
- > Reducing OAR doses in prostate patients: use of a hydrogel spacer and multi-criteria optimisation  
*N. Laverick (United Kingdom), D. Church, S. Currie* EP-1873
- > Multiple brain metastasis radiosurgery using dedicated treatment planning system: a dosimetric study  
*M. Biston (France), M. Ayadi, P. Dupuis, T. Baudier, C. Malet, M. Sunyach* EP-1874



- > Compare OAR dose of breast cancer using sequential boost and simultaneous integrated boost technique  
*L. Chou (Taiwan), T. Wang, C. Shiau, P. Huang, Y. Lin, C. Lin* EP-1875
- > Level II volume and parotid doses during nasopharyngeal radiotherapy: what relationship?  
*Z. Fessi, N. Fourati (Tunisia), W. Mnejja, L. Farhat, T. Sahnoun, W. Siala, J. Daoud* EP-1876
- > Proton vs photon deep inspiration breath-hold planning study for left-sided breast cancer patients  
*K. Czerska (Poland), P. Winczura, J. Wejs-Maternik, A. Blukis, M. Antonowicz-Szydlowska, A. Rucinski, P. Olko, R. Kopec, A. Badzio* EP-1877
- > PRV brainstem during the nasopharyngeal IMRT: margin calculation and dosimetric implications  
*N. Fourati (Tunisia), L. Farhat, W. Mnejja, Z. Fessi, T. Sahnoun, W. Siala, J. Daoud* EP-1878
- > HyperArc for stereotactic radiosurgery: comparison of planning options  
*D. Kearns (United Kingdom)* EP-1879
- > A planning study evaluating the use of 4DCT vs 3DCT in pancreas planning, both conventional and SABR  
*E. Tait (United Kingdom), O. Byrne, D. O'Doherty, B. Evans, T. Ajithkumar, G. Begum, A. Ho* EP-1880
- > Sequentially- versus co-optimized plans for pelvis and prostate bed: time efficacy and plan quality  
*A. Gulyban (Belgium), E. Marques, O. Michel, A. Rijnders, C. Salembier* EP-1881
- > Dosimetric comparison between proton SFUD, IMPT and SBRT Boost in clivus chordoma radiotherapy  
*M. Vidal (France), A. Gerard, C. Barnel, C. Peucelle, D. Maneval, A. Claren, F. Guedea Edo, J. Doyen* EP-1882
- > Lung tumor target delineation: different segmentation strategies  
*C. Gasperi, S. Borghesi (Italy), L. Naferini, C. Sottocornola, A.S. Curioni, F. Zenone, P. Pernici, R. De Majo, S. Nucciarelli, S. Nanni, S. Bertocci, P.G. Gennari, A. Rampini, L. Lastrucci, C. Iermano, E. Tucci* EP-1883
- > Commissioning and clinical validation of FRED: Monte Carlo on GPU for proton beam therapy  
*M. Garbacz (Poland), J. Baran, G. Battistoni, M. Durante, J. Gajewski, N. Krah, K. Krzempek, V. Patera, M. Pawlik-Niedzwiecka, I. Rinaldi, B. Sas-Korczynska, E. Scifoni, A. Skrzypek, A. Schiavi, F. Tommasino, A. Rucinski* EP-1884

- > Neutron beam design and dosimetric evaluation for accelerator-based Boron Neutron Capture Therapy  
*S. Bortolussi (Italy), I. Postuma, N. Protti, S. Fatemi, C. Magni, S. Gonzalez, S. Altieri*  
**EP-1885**
- > Efficacy of a hydrogel spacer in 3D-CRT for prostate cancer  
*M. Ogita (Japan), H. Yamashita, S. Sawayanagi, W. Takahashi, K. Nakagawa*  
**EP-1886**
- > Dosimetric and volumetric evaluation of MR-only planning for radiotherapy of rectal cancer  
*S. Vieira (Portugal), O. Pares, N. Louçao, J. Stroom, I. Santiago, C. Greco, C. Matos*  
**EP-1887**
- > Validation of automated planning with RapidPlan for prostate bed VMAT radiotherapy  
*B.L. Rekstad (Norway), P. Lønne*  
**EP-1888**
- > Evaluation of organ-motion based robust optimisation for RT of the breast, axilla, and IMC  
*L. Blasiak-Wal (United Kingdom), A. Dunlop, R. Colgan, A. Ranger, A. Kirby*  
**EP-1889**
- > Patient specific conversion of CBCT images for proton therapy treatment planning  
*N. Krah (France)*  
**EP-1890**
- > A new hotspot correction algorithm in Modulated Electron Radiation Therapy utilizing 3D printed boli  
*B. Basaric (Canada), J. Robar, R. Orbovic, A. Dennis, C. Majcher*  
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● ELECTRONIC POSTER

**Physics track: Radiobiological and predictive modelling, and radiomics**

- > Predictive response to radiotherapy of head and neck cancer using radiomics analyses of CBCT  
*S. Sellami (France), D. Bouzid, M. Hatt, D. Visvikis, F. Lucia, O. Pradier, U. Schick*  
**EP-1892**
- > A machine learning based stain-free method for classification of cell apoptosis stages  
*J. Feng (China), P. Wang, N. Zhang, S. Yu*  
**EP-1893**
- > On the possibility of estimating the radiosensitivity range in a cell mixture  
*N. Stavrev (Bulgaria), P. Stavrev, D. Penev, A. Nahum, R. Ruggieri, D. Pessyanov*  
**EP-1894**



- > Multicenter CT phantoms public dataset for radiomics reproducibility studies  
*P. Kalendralis* (The Netherlands), A. Traverso, Z. Shi, I. Zhovannik, R. Monshouwer, M.P.A. Starmans, S. Klein, P. Elisabeth, R. Boellaard, A. Dekker, L. Wee  
EP-1895
- > A TCP-based early-regression index predicts outcome of rectal cancer patients better than pCR  
*C. Fiorino* (Italy), P. Passoni, C. Gurnina, A. Palmisano, S. Broggi, G.M. Cattaneo, A. Di Chiara, M. Mori, R. Rosati, N. Slim, F. De Cobelli, R. Calandrino, N.G. Di Muzio  
EP-1896
- > Texture analysis of the initial CT to predict the response to neoadjuvant CRT in rectal cancer  
*B. Vandendorpe, C. Durot, L. Lebellec, M. Le Dely, D. Sylla, A. Bimbai, K. Amroun, F. Ramiandrisoa, A. Cordoba, X. Mirabel, C. Hoeffel, D. Pasquier* (France), S. Servagi-Vernat  
EP-1897
- > Encouraging the use of decision support systems in routine clinical practice  
*R. Fijten* (The Netherlands), B. Reymen, R. Houben, P. Fick, T. Hendrik, S. Puts, J. Veugen, A. Dekker  
EP-1898
- > Prediction of outcomes in lung SBRT with dosimetric variables and machine learning techniques  
*D. Sevillano* (Spain), C. Martín, C. Vallejo, M. Martín, R. Colmenares, R. Morís, B. Capuz, J.D. García, M. Cámera, A. Martínez, F. Orozco, M.J. Béjar, D. Prieto, S. Sancho, F. García-Vicente  
EP-1899
- > Predictive parameters for long-term cardiac mortality excess related to left breast radiotherapy  
*N. Pasinetti* (Italy), V. Morandini, S. Berlinghieri, E. Castrezzati, S. Pedretti, L. Spiazzi, P. Frata, L. Grimaldi  
EP-1900
- > Identifying organs at risk for radiation-induced dysphagia in head and neck cancer patients  
*J. Hedström* (Sweden), L. Tuomi, C. Finizia, C. Olsson  
EP-1901
- > S32: A decision Support System to predict radiation toxicity in lung cancer patients  
*F. Núñez Benjumea, J. Moreno Conde, A. Moreno Conde, S. González García, M.J. Ortiz Gordillo, J. Riquelme, M.D.C. Fernández Fernández, C.L. Parra Calderón, J.L. Lopez Guerra* (Spain)  
EP-1902
- > Learning from scanners: radiomics correction modeling  
*I. Zhovannik* (The Netherlands), J. Bussink, R. Fijten, A. Dekker, R. Monshouwer  
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- > 3T CE-MRI (peri)tumoral radiomics for prediction of lymphovascular invasion in early breast cancer  
*M. Avanzo (Italy), L. Vinante, G. Pirrone, J. Stancanello, A. Revelant, A. De Paoli, A. Drigo, L. Barresi, L. Balestrieri, M. La Grassa, M. Urbani, N. De Pascalis, S. Massarut, M. Mileto, G. Franchin, G. Sartor*  
EP-1904
- > CT /PET based dosimetrics and radiomics model predicts local control of nasopharyngeal carcinoma  
*M. Avanzo (Italy), G. Pirrone, C. Avigo, G. Fanetti, J. Stancanello, A. De Paoli, P. Elisa, A. Drigo, P. Chiovati, A. Dassie, E. Borsatti, T. Baresic, G. Franchin, G. Sartor*  
EP-1905
- > CBCT delta-radiomics for predicting complete pathological response of rectal cancer after CT-RT  
*G. Pirrone, E. Palazzari, F. Navarría, R. Innocente, J. Stancanello, G. Fanetti, G. Franchin, C. Cappelletto, A. De Paoli, G. Sartor, M. Avanzo (Italy)*  
EP-1906
- > Which FDG-PET features are robust enough for Radiomic studies in pancreatic cancer patients?  
*L. Presotto (Italy), M. Mori, P. Passoni, M.L. Belli, S. Broggi, G.M. Cattaneo, M. Picchio, N.G. Di Muzio, V. Bettinardi, C. Fiorino*  
EP-1907
- > A Guide For Predicting Normal Tissue Dose in Stereotactic Radiosurgery  
*D. Cummins, C. Skourou, S. O'Sullivan, P. Davenport, D. Fitzpatrick, C. Faul, M. Javadpour, M. Dunne*  
EP-1908
- > Delta-radiomics signature predicts outcomes after preoperative chemoradiotherapy in rectal cancer  
*C. Song (Ireland), J. Seung Hyuck, K. Bohyoung, K. Jae-Sung (Korea Republic of)*  
EP-1909
- > CT image standardization is superior to larger but heterogeneous datasets for robust radiomic models  
*D. Vuong (Switzerland), M. Bogowicz, J. Unkelbach, R. Foerster, S. Denzler, A. Xyrafas, M. Pless, S. Thierstein, S. Peters, M. Guckenberger, S. Tanadini-Lang*  
EP-1910
- > Treatment response on MR during radiotherapy in patients with head and neck squamous cell carcinoma  
*B. Peltenburg (The Netherlands), M. Philippens, R. De Bree, C. Terhaard*  
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- > Outcome prediction with CT radiomics and random forests in primary lung tumor treated with SBRT  
*C. Martín, D. Sevillano (Spain), C. Vallejo, M. Martín, J. .D. García, R. Colmenares, R. Morís, B. Capuz, M. Cámarra, A. Martínez, F. Orozco, M.J. Béjar, D. Prieto, S. Sancho, F. García-Vicente*  
EP-1912
- > Distributed rapid learning made easy: a user-friendly dashboard for model development and execution  
*J. Van Soest (The Netherlands), C. Masciocchi, P. Fick, T. Hendriks, R. Negro, A. Damiani, V. Valentini, A. Dekker*  
EP-1913
- > A method to deal with highly correlated explanatory variables in the development of NTCP models  
*A. Van Der Schaaf (The Netherlands), L. Van den Bosch, S. Both, E. Schuit, J.A. Langendijk*  
EP-1914
- > Modelling framework for FMISO and FDG PET imaging tailored dose prescription  
*M. Lazzeroni (Sweden), A. Ureba, D. Baltas, A.L. Grosu, I. Toma-Dasu*  
EP-1915
- > Predictive model of the dose to the heart based on geometry evaluation in left breast radiotherapy  
*S.M. Tomatis Scorsetti (Italy), E. Esposito, A. Gaudino, F. Lobefalo, P. Mancosu, L. Paganini, V. Palumbo, A. Stravato, E. Tomatis, M. Rossi, E. Merati, F. De Rose, G. Reggiori, M.*  
EP-1916
- > Variable versus conventional inter-fraction intervals in SBRT  
*P. Stavrev (Bulgaria), N. Stavreva, A. Nahum, R. Ruggieri, P. Tsonev, D. Pressyanov*  
EP-1917
- > Active bone marrow identification in the pelvis using texture analysis of CT features  
*E. Gallia (Italy), S. Rosati, C. Fiandra, F. Arcadipane, A. Lesca, P. Silvetti, G. Balestra, U. Ricardi, P. Franco*  
EP-1918
- > Voxel-based assessment of proton RBE in paediatric brain cancer radiotherapy from multimodal imaging  
*M. Skaarup (Denmark), A. Appelt, M. Lundemann, S. Darkner, M. Jørgensen, C. Thomsen, I. Law, D. Mirkovic, R. Mohan, D. Grosshans, C. Peeler, I. Vogelius*  
EP-1919
- > ADC mean versus fractional volume to predict radiation sensitivity of HNSCC xenografted in nude mice  
*S. Leibfarth (Germany), R.M. Winter, S. Böke, P. Mena-Romano, E.C. Sezgin, M. Krüger, B. Pichler, D. Zips, D. Thorwarth*  
EP-1920

- > Phase II AIRC-IG13218: Association of MRI-based radiomics with prognostic factors in prostate cancer  
*D. Ciardo (Italy), G. Marvaso, S. Raimondi, S. Volpe, F. Botta, L. Bianchini, G. Riva, D.P. Rojas, G. Petralia, S. Alessi, P. Pricolo, O. De Cobelli, R. Orecchia, M. Cremonesi, M. Bellomi, B.A. Jereczek-Fossa*  
EP-1921
- > Comparing biological and conventional dose accumulation using daily imaging of H&N and pelvis cases  
*N. Niebuhr (Germany), T. Bostel, K. Harrison, R. Jena, N.H. Nicolay, D.J. Noble, L.E.A. Shelley, M. Splinter, A. Pfaffenberger*  
EP-1922
- > Dimensionality reduction of radiomic features using a clustering coherence-based approach  
*C. Tenconi (Italy), T. Rancati, F. Palorini, A. Cerrotta, B. Pappalardi, F. Piccolo, A. Messina, M. Carrara, T. Giandini, C. Fallai, E. Pignoli, L. Licitra, R. Valdagni*  
EP-1923
- > Are spatial dose metrics predictive of oral mucositis duration in oropharyngeal cancer?  
*A. Carver (United Kingdom), M. Hickman, S. Warren, M. Ward, A. Thomas, P. Sanghera, C. Fong, A. Hartley*  
EP-1924
- > Association of MRI-based radiomic features with prognostic factors in oropharyngeal cancer  
*G. Marvaso (Italy), C. Delia, D. Alterio, F. Botta, C. Giannitto, S. Volpe, F.A. Maffini, S. Raimondi, M. Ansarin, M. Bellomi, B.A. Jereczek-Fossa*  
EP-1925
- > Radiomics in rectal cancer: prognostic significance of 3D features extracted from diagnostic MRI  
*C. Piazze (United Kingdom), P. Whybra, E. Qasem, D. Harris, R. Gtaes, K. Foley, E. Spezi*  
EP-1926
- > Mechanistic modelling of RT damage to microvasculature and of its effect on tumour microenvironment  
*A. Cicchetti (Italy), F. Laurino, E. Pascucci, T. Rancati, P. Zunino*  
EP-1927
- > Radiomic features and local response in Lung Cancer treated with Stereotactic Radiation Therapy  
*S. Chiesa (Italy), R. Gatta, A. Martino, A. Piras, D. Cusumano, L. Boldrini, C. Masciocchi, M. Massaccesi, N. Dinapoli, F. Cellini, A. D'aviero, G.C. Mattiucci, G. Mantini, M. Balducci, V. Valentini*  
EP-1928
- > Prediction of voxelwise mandibular osteoradionecrosis maps in HNC patients using deep learning  
*L. Humbert-Vidan (United Kingdom), I. Oksuz, V. Patel, A.P. King, T. Guerrero-Urbano*  
EP-1929





- > Hypoxia induced by vascular damage could impact on the outcome of stereotactic body radiotherapy  
*E. Lindblom (Sweden), A. Dasu, I. Toma-Dasu* EP-1930
- > Photon vs proton therapy for reduction of cardiac toxicities in locally advanced lung cancer  
*S. Teoh (United Kingdom), F. Fiorini, B. George, K.A. Vallis, F. Van den Heuvel* EP-1931
- > Development of a deep learning network using a pre-trained convolutional neural network  
*M. Rooney (United Kingdom), J. Mitchell, D.B. McLaren, W.H. Nailon* EP-1932
- > A deep learning approach for identifying focal prostate cancer from multi-parametric MRI  
*M. Rooney (United Kingdom), A. Killean, J. Mitchell, D.B. McLaren, W.H. Nailon* EP-1933
- > A study of RBE and NTCP uncertainties underlying model-based patient selection to proton therapy  
*S.N. Fly, J. Pedersen (Denmark), J.B. Petersen, C.H. Stokkevåg, L.P. Muren* EP-1934
- > Delta radiomics Features Analysis in Glioblastoma multifforme GLI.F.A. Project. A multi-centric study  
*S. Chiesa (Italy), F. Beghella Bartoli, I. Palumbo, R. Barone, M. Lupatelli, C. Masciocchi, R. Tarducci, A. Rongoni, D. Cusumano, R. Russo, P. Floridi, S. Longo, N. Dinapoli, M. Baldacci, V. Valentini, C. Aristei* EP-1935
- > PET/CT Radiomics predict local recurrence in patients treated with SBRT for early-stage NSCLC  
*G. Dissaux (France), M. Hatt, D. Visvikis, O. Pradier, E. Chajon, I. Barillot, L. Duverge, I. Masson, R. Abgral, M. Santiago-Ribeiro, A. Devillers, F. Kraeber-Bodéré, M. Mahé, R. De Crevoisier, U. Schick* EP-1936
- > Distributed AUC algorithm: a privacy-preserving approach to measure the performance of Cox models  
*C. Masciocchi (Italy), A. Damiani, N.D. Capocchiano, J. Van Soest, J. Lenkowicz, E. Meldolesi, G. Chiloiro, M.A. Gambacorta, A. Dekker, V. Valentini* EP-1937
- > A high precision irradiation system for *in vivo* RBE measurements with ion beams  
*J. Besuglow (Germany), G. Echner, A. Mairani, M. Alber, E. Bahn* EP-1938

- > Repeatability of FDG PET/CT based radiomic features using wavelet and Laplacian of Gaussian filters  
*S. Kyzalas (Denmark), L. Nygård, B.M. Fischer, J.M. Edmund, I.R. Vogelius*  
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- > Impact of respiratory motion on the robustness of 18F-FDG PET/CT radiomic features  
*S. Kyzalas (Denmark), L. Nygård, B.M. Fischer, J.M. Edmund, I.R. Vogelius*  
EP-1940
- > MRI-based radiogenomics analysis of 1p/19q codeletion in grade II and III gliomas  
*W. Takahashi (Japan), T. Nakamoto, H. Akihiro, T. Satoshi, T. Shota, S. Aoki, T. Kiritoshi, M. Ogita, H. Yamashita, K. Nakagawa*  
EP-1941
- > Combining radiomic and dosimetric parameters to predict chemoradation response of EC patients  
*X. Jin (China), C. Xie*  
EP-1942

● ELECTRONIC POSTER

**Physics track: Intra-fraction motion management**

- > Intra-fractional respiration monitoring for patients undergoing lung SBRT  
*E.P.S. Sande (Norway), T.P. Hellebust*  
EP-1943
- > Automated respiratory cycle binning for liver 4D-MR imaging  
*B. L'Homel (France), L. Parent, O. Bieri, Z. Celicanin, P. Cattin, S. Ken*  
EP-1944
- > Abstract withdrawn  
*P. Kukolowicz, M. Mietelska*  
EP-1945
- > First french clinical experience using the Calypso tracking system for the prostate treatment  
*J. Prunaretty (France), D. Cirella, P. Debuire, N. Ailleres, A. Morel, S. Simeon, S. Valdenaire, P. Fenoglietto*  
EP-1946
- > RCMIGI randomized phase II study using Calypso system. First dosimetric results on CBCT acquisitions  
*P. Debuire (France), J. Prunaretty, N. Ailleres, O. Riou, D. Azria, P. Fenoglietto*  
EP-1947
- > Deep-inspiration breath-hold and free-breathing in left breast cancer irradiation:a dosimetric study  
*D. Aiello (Italy), G.R. Borzi, L. Marino, V. Umina, A.M. Di Grazia*  
EP-1948



- > Heart position reproducibility in deep inspiration breath hold radiotherapy for lung cancer  
*M. Josipović* (Denmark), M.C. Aznar, J.B. Thomsen, J. Scherman, S.M.S. Damkær, L. Nygård, L. Specht, M. Pøhl, G.F. Persson EP-1949
- > Phase gated lung SBRT verified by fluoroscopy  
*P. Wright* (Finland), S. Ramadan, S. Suilamo, P. Mali, H. Minn EP-1950
- > Clinical feasibility of whole brain radiation therapy without a mask  
*J. Dekker* (The Netherlands), T. Rozema, F. Böing-Messing, W. De Kruijf, M. Garcia, D. Washington EP-1951
- > Intra-fraction motion assessment of frameless intracranial radiosurgery using 1.5T MR simulator  
*J. Yuan, G.G. Lo, Q.L. Wong* (Hong Kong (SAR) China), K.F. Cheng, W.W.K. Fung, Y.H. Zhou, G. Chiu, K.Y. Cheung, S.K. Yu EP-1952
- > Lung tumour dynamics during SABR: Analysis of 415 CBCTs using a semi-automated contouring technique  
*E. Chandy* (United Kingdom), L. Conway, G. Distefano, J. Earley, K. Lamont, M. Long, I. Phillips, H. Saxby, C. South, C. West, V. Ezhil EP-1953
- > The role of 4D cone beam CT and abdominal compression in motion management for Liver SABR  
*M. Nix* (United Kingdom), G. Ward, R. Goody, J. Lilley, N. Casanova, R. Garratt, K. Picken, B. Al-Qaisieh EP-1954
- > Increased accuracy in setup position by using surface scanning  
*M. Garcia* (The Netherlands), J. Dekker EP-1955
- > Image quality of in-treatment 4D-CBCT obtained at various doses in VMAT for SBRT: a phantom study  
*Y. Shimohigashi* (Japan), Y. Doi, M. Maruyama, Y. Yotsuji, Y. Kai, R. Toya EP-1956
- > An MR-based simulation procedure for individual assessment of tumor motion in MR-guided lung SABR  
*M. Palacios* (The Netherlands), J.R. Van Sornsen de Koste, F.O.B. Spoelstra, C.J.A. Haasbeek, A.M.E. Bruynzeel, B.J. Slotman, F.J. Lagerwaard, S. Senan EP-1957
- > Eight different open face masks compatibility with surface guided radiotherapy.  
*M. Kügele* (Sweden), E. Konradsson, M. Nilsing, S. Ceberg EP-1958
- > Performance of Marker-less Tracking for Gimbaled Dynamic Tumor Tracking  
*M. Ziegler* (Germany), S. Lettmaier, R. Fietkau, C. Bert EP-1959

- > A comparison of positioning accuracy for frameless lung SBRT using two immobilization systems

*J.M. Penedo Cobos (Spain), J. Luna, M.A. Garcia, E. Lopez, K. Aguilar, R. Gonzalez, A. Sanchez, S. Gomez-Tejedor, M. Rincon, M. Alarcia, S. Martin, D. Gonsalves, J. Olivera*

EP-1960

- > Evaluation of dosimetric and anatomic parameters in Deep Inspiratory Breath Hold breast Radiotherapy

*A. Nachankar (India), A. Pawar, A. Jadhav, N. Burela, A. Kakade, P. Dandekar*

EP-1961

- > A simple and low-cost method of deep inspiration breath-hold irradiation for breast cancer

*Y. Koide (Japan), T. Kitagawa, T. Aoyama, H. Shimizu, H. Tanaka, H. Tachibana, T. Kodaira*

EP-1962

- > IGRT to improve accuracy in lung SBRT

*C. Anson Marcos (Spain), D. Hernández, P. Castro Tejero, M. Roch González, A. Valiente González, P. García Castañón, A. Viñals Muñoz, R. Fayos-Sola Capilla, L. Pérez González, M.T. Murillo González*

EP-1963

- > Setup verification & Intrafraction motion monitoring with Optical Surface Imaging for frame-less SRS

*A. Nachankar (India), A. Pawar, A. Jadhav, P. Dandekar*

EP-1964

- > RealSenseTM Camera Technology for Real Time Surface Monitoring During Radiotherapy

*A. Fielding (Australia), Y. Jonmohamadi, S. Lee, A. Pandey*

EP-1965

- > Deep inspiratory breath hold versus free breathing techniques in breast cancer radiotherapy

*A.D. Tawfik, A. Ali (Egypt), S. Talima, M. Mousa*

EP-1966

- > Relationship of uncertainty due to respiratory motion with amplitude in SBRT treatments

*J. García Ruiz-Zorrilla (Spain), M.A. De la Casa de Julián, P. García de Acilu Laa, O. Hernando Requejo, C. Rubio Rodriguez, J. Martí Asenjo, P. Fernández Letón, D. Zucca Aparicio, J.M. Pérez Moreno*

EP-1967

- > Respiratory-gated carbon-ion beam treatments of abdominal targets: clinical introduction of 4DMRI

*A. Vai (Italy), G. Meschini, S. Molinelli, C. Paganelli, D. Maestri, G. Magro, E. Mastella, A. Mairani, A. Mirandola, S. Russo, L. Preda, G. Viselener, A. Barcellini, V. Vitolo, A. Mancin, G. Fontana, G. Baroni, M. Ciocca*

EP-1968

- > Dosimetric effect of diaphragm motion on target volume coverage for oesophageal cancer  
*R. Stansbridge* (United Kingdom), M. Borland, B. Stewart Thomson, M. Gilmore  
EP-1969
- > 2D and 3D dose verification for a gated irradiation on a 0.35 T MR-LINAC  
*P. Mann* (Germany), K. Spindeldreier, G. Echner, S. Klüter, C. Karger  
EP-1970
- > Comparison of pancreatic respiratory motion using three abdominal corsets for particle therapy  
*S. Schneider* (Germany), K. Dolde, M. Alimusay, B. Fluegel, N. Saito, A. Hoffmann, A. Pfaffenberger  
EP-1971
- > Transit-Guided RadioTherapy (TGRT): a novel intra-fraction patient monitoring approach  
*A. Latorre-Musoll* (Spain), P. Delgado-Tapia, M. Lizondo, N. Jonet, P. Carrasco, A. Ruiz-Martínez, I. Valverde-Pascual, M. Barceló, M. Ribas  
EP-1972
- > Cardiac dose sparing with active breath coordinator in breast radiotherapy: a dosimetric analysis  
*A. Ianiro* (Italy), M. Boccardi, G. Macchia, F. Deodato, P. Viola, M. Craus, V. Picardi, M. Ferro, M. Ferro, E. Arena, A. Pierro, M. Buwenge, F. Romani, A.L. Angelini, V. Valentini, A.G. Morganti, S. Cilla  
EP-1973
- > Usage of computer generated 4D CTs for interplay effect studies in scanned proton therapy  
*T. Pfeiler* (Germany), C. Bäumer, E. Engwall, D. Geismar, U. Mäder, B. Spaan, B. Timmermann, J. Wulff  
EP-1974
- > Intra-fraction robustness evaluation of deep inspiration breath hold radiotherapy for lung cancer  
*K. Håkansson* (Denmark), M. Josipovic, I.R. Vogelius, G. Persson, C. Behrens  
EP-1975
- > Clinical evaluation of two monitoring devices for prostate radiotherapy treatment  
*M. Biston* (France), L. Delcoudert, T. Zaragori, A. Munoz, D. Sarrut, P. Pommier  
EP-1976
- > Intrafraction motion in CNS radiotherapy with an open mask system using an optical surface imaging  
*D. Reitz* (Germany), S. Schönecker, M. Pazos, P. Freislederer, M. Reiner, M. Niyazi, U. Ganswindt, C. Belka, S. Corradini  
EP-1977

- > Surface guided coplanar and non-coplanar stereotactic radiotherapy with open masks – a phantom study  
*E. Konradsson* (Sweden), M. Kügele, K. Petersson, L. Berg, M. Gebre-Medhin, S. Ceberg
- EP-1978
- > Intrafraction stability of 8526 deep inspiration breath holds in left-sided breast cancer  
*D. Reitz* (Germany), S. Schönecker, M. Pazos, P. Freislederer, M. Reiner, M. Niyazi, U. Ganswindt, C. Belka, S. Corradini
- EP-1979
- > Randomised trial investigating breathing regularity: Audiovisual biofeedback vs free breathing  
*E. Steiner* (Australia), K. Makhija, R. O'Brien, J. Wolf, J. Ludbrook, P. Greer, P. Keall
- EP-1980
- > Intrafractional baseline drift in SBRT of lung tumors  
*J. García Ruiz-Zorrilla* (Spain), M.A. De la Casa de Julián, O. Hernando Requejo, P. García de Acilu Laa, C. Rubio Rodriguez, J. Martí Asenjo, P. Fernández Letón, D. Zucca Aparicio, J.M. Pérez Moreno, X. Chen
- EP-1981

● ELECTRONIC POSTER

**Physics track: Adaptive radiotherapy and inter-fraction motion management**

- > Pancoast tumours. A good candidate for proton spot scanning?  
*D. Sloth Møller* (Denmark), L. Hoffmann, M. Josipovic, A.K. Berthelsen, G. Persson
- EP-1982
- > Inter and intra-fraction bowel motion during abdomino-pelvic stereotactic ablative radiotherapy  
*F. Slevin* (United Kingdom), M. Beasley, J. Lilley, R. Speight, L.J. Murray, A.M. Henry
- EP-1983
- > Cone beam computed tomography (CBCT) interobserver variability in patient setup error evaluation  
*A. Delana, V. Vanoni* (Italy), P. Ferrazza, F. Coelli, M. Maino
- EP-1984
- > Clinical feasibility of CBCT-based online plan adaptation for multiple lesion brain SRS  
*G. Wortel* (The Netherlands), U. Stankovic, J. Trinks, G. Sotiroopoulos, S. Van Kranen, S. Van de Water, S. Van de Schoot, L. Dewit, E. Damen, T. Janssen, P. Remeijer, J. Sonke
- EP-1985
- > Comparison of automatic OAR contour propagation from CT to MR lung images  
*M. Dubec* (United Kingdom), S. Brown, R. Chuter, S. Jackson, A. McWilliam, D. Cobben, C. Faivre-Finn, M. Van Herk
- EP-1986



- > Dose accumulation assessing the validity of reduced PTV margins in head-and-neck radiotherapy  
*N. Lowther (New Zealand), S. Marsh, R. Louwe* EP-1987
- > Statistical process control to monitor anatomical changes during head-and-neck radiotherapy  
*N. Lowther (New Zealand), D. Hamilton, H. Kim, J. Evans, S. Marsh, R. Louwe* EP-1988
- > Mesorectal variation and PTV margins for irradiation of rectal cancer patients using belly-board  
*M. Cox (The Netherlands), M. Wendling, R. Van Leeuwen, H. Rütten, P. Braam* EP-1989
- > Assessment of Inter-Sessional Positional Reproducibility in the HN Sub-Regions Using 1.5T MR-Sim  
*Y. Zhou, J. Yuan, K.F. Cheng, W.W.K. Fung, O.L. Wong, G. Chiu, K.Y. Cheung, S.K. Yu (Hong Kong (SAR) China)* EP-1990
- > PTV margin evaluation for pediatric craniospinal irradiation with 3D and 2D position verification  
*E. Slooten (The Netherlands), N. Van Wieringen, R. De Jong, B. Balgobind, S. Huijskens, C. Windmeijer, I. Van Dijk, A. Bel* EP-1991
- > Dose warping protocol for interfraction variation in Bladder filling in ano-rectal cancer patients  
*C. Fiandra (Italy), E. Trino, F. Arcadipane, F. Olivero, U. Ricardi, P. Franco* EP-1992
- > Evidence of CTV underdosing due to anatomical changes during breast Helical Tomotherapy  
*P. Mangili (Italy), M. Mori, A. Fodor, B. Longobardi, P. Signorotto, M. Pasetti, F. Zerbetto, N. Di Muzio, R. Calandrino, C. Fiorino* EP-1993
- > Lung Radiotherapy : Internal position reproducibility with spirometric DIBH  
*R. Garcia (France), P. Mazars, E. Jaegle, V. Bodez, C. Khamphan, M.E. Alayrach, A. Badey, P. Martinez* EP-1994
- > Anisotropic definition of ITV-PTV margins according to the target position in lung SBRT with 4D-CBCT  
*S. Pini (Italy), G. Della Gala, S. Russo, M. Esposito, L. Paoletti, P. Alpi, R. Barca, S. Fondelli, F. Rossi, P. Bastiani* EP-1995
- > Assessment of bulk-density CT accuracy for MR-guided proton therapy of prostate cancer  
*J. Handrack (Germany), M. Bangert, C. Möhler, M. Ellerbrock, S. Greilich* EP-1996

- > Daily adaptive proton therapy: A clear potential to reduce dose to healthy tissue and integral dose  
*L. Nenoff (Switzerland), M. Matter, J. Hedlund Lindmar, T. Lomax, D.C. Weber, F. Albertini*  
**EP-1997**
- > Quality assurance criteria and anatomically plausible models for deformable image registration  
*C. Zachiu (The Netherlands), B. Denis de Senneville, B. Raaymakers*  
**EP-1998**
- > Robustness of IMPT plans towards anatomical variations for nasopharyngeal cancer  
*R. Argota Perez (Denmark), M.B. Sharma, K. Jensen, A. Vestergaard, J.B.B. Petersen, S. Korreman*  
**EP-1999**
- > Dosimetric impact of setup errors and anatomical changes in breast cancer patients  
*E. Costa (France), T. Bely, M. Laurans, S. Caneva Losa, P. Poortmans, Y.M. Kirova*  
**EP-2000**
- > Efficacy of CBCT guided IMRT for Head & Neck cancers and its dosimetric impact on other structures  
*K. Talapatra (India), C. Medichelme, R. Chauhan, P. Chadha, V. Mhatre, V. Muthu*  
**EP-2001**
- > Prostate treatment planning for the MR-linac: effect of online performance on template development  
*R.A. Mitchell (United Kingdom), A. Dunlop, A. Pathmanathan, S. Nill, A.C. Tree, U. Oelfke*  
**EP-2002**
- > Evaluation of three methods to calculate the dose on CBCT in case of IMRT for cervical cancer  
*A. Barateau (France), E. Trifard, N. Perichon, C. Hervé, D. Williaume, J. Leseur, A. Simon, R. De Crevoisier, C. Lafond*  
**EP-2003**
- > Online rotation correction for MR-guided prostate radiotherapy  
*W. Van den Wollenberg (The Netherlands), C. Carbaat, P. De Ruiter, P. Remeijer, T. Janssen, J. Sonke*  
**EP-2004**
- > A novel method for rectal wall dose accumulation for prostate cancer patients  
*F. Kamp (Germany), H. Liu, L. Ermoschkin, M. Di Biase, C. Kurz, G. Landry, C. Belka, M. Li*  
**EP-2005**
- > Dosimetric benefit of the first clinical SBRT of lymph node oligometastases on the 1.5T MR-linac  
*D. Winkel (The Netherlands), G.H. Bol, A.M. Werenstein-Honingh, M.P.W. Intven, W.S.C. Eppinga, B. Van Asselen, J. Hes, B.W. Raaymakers, I.M. Jürgenliemk-Schulz, P.S. Kroon*  
**EP-2006**





- > Analysis of MRgRT treatment adaptation strategies with a high-field MR-Linac  
*M. Nachbar* (Germany), D. Mönnich, C. Marks, A. Stolte, O. Dohm, D. Thorwarth, D. Zips, C. Gani, S. Boeke EP-2007
- > Positioning errors in free breathing and DIBH breast cancer radiotherapy: SGRT vs. skin markers  
*A.M. Acosta Roa* (Norway), S.G. Mikalsen, T.P. Hellebust EP-2008
- > Inter-fractional Motion of Intact Cervical Cancer Treated On A MR-Guided Radiation Therapy System  
*D. Asher* (USA), K. Padgett, R. Llorente, E. Mellon, A. Wolfson, B. Farnia, G. Simpson, N. Dogan, L. Portelance EP-2009
- > A QA method for evaluation of deformable image registration in head and neck adaptive radiotherapy  
*E. Cagni* (Italy), A. Botti, M. Orlandi, M. Galaverni, R. Sghedoni, C. Iotti, E. Spezi, M. Iori EP-2010
- > Dose calculation accuracy of using tailored synthetic CT for MR-guided online adaptive radiotherapy  
*D. Cusumano* (Italy), L. Placidi, S. Teodoli, L. Boldrini, F. Greco, S. Longo, F. Cellini, N. Dinapoli, V. Valentini, M. De Spirito, L. Azario EP-2011
- > MR-guided online adaptive radiotherapy for pancreatic cancer: where are we and where are we going?  
*L. Placidi* (Italy), D. Cusumano, L. Boldrini, V. Chiloiro, S. Teodoli, A. Capotosti, S. Manfrida, F. Cellini, L. Azario, M. De Spirito, V. Valentini EP-2012
- > Lung tumor motion based on 4D-CBCT: baseline shift, interfraction amplitude and volume variation  
*E. Oger* (France), P. Dupuis, E. Mesny, T. Baudier, S. Rit, R. Tanguy, M. Ayadi EP-2013
- > Decision Support System for Checking Online Adaptive Treatments on the Elekta Unity  
*D. McQuaid* (United Kingdom), R. Niliwar, J. Mohajer, E. Goodwin, S. Nill, U. Oelfke EP-2014
- > Interfraction setup error using multiple immobilization devices for limb-extremity particle therapy  
*R. Ricotti* (Italy), B. Tagaste, A. Pella, G. Fontana, G. Elisei, S. Tampellini, M. Ciocca, F. Valvo, G. Baroni EP-2015
- > Evaluation of 4D cone beam CT-based dose calculation for SBRT lung cancer treatment  
*S. Bellefqaïh* (France), B. Benadon, A. Roque, N. Gaillot, S. Servagi-Vernat EP-2016

- > GANs covert CBCT to CT for head-neck, lung and breast: paired vs unpaired; single-site vs generic

*M. Maspero (The Netherlands), M.H.F. Savenije, T.C.F. Van Heijst, A.N.T.J. Kotte, A.C. Houweling, J.J.C. Verhoeff, P.R. Seevinck, C.A.T. Van den Berg*

EP-2017

- > Actual delivered boost dose for gynecological cancer patients treated with image-guided IMRT

*S. Vieira (Portugal), M. Possanzini, M. Silva, J. Stroom, C. Greco*

EP-2018

- > Does the use of an endorectal balloon improve seminal vesicle stability for prostate radiotherapy?

*S. Chin (United Kingdom), A. McWilliam, D. Brand, S. Barton, Y.P. Song, M. Van Herk, A. Choudhury*

EP-2019

- > Assessment of treatment margins for breast radiotherapy evaluated using CBCT

*S. Nørring Bekke (Denmark), C.F. Behrens, F. Mahmood*

EP-2020

- > Commissioning and clinical implementation of dose accumulation and adaptive radiotherapy

*K. Brock (USA), M. McCulloch, G. Cazoulat, A. Ohrt, P. Balter, H. Bahig, S. Ping, A. Mohamed, H. Elhalawani, B. Elgohari, S. Frank, J. Wang, D. Rosenthal, C. Fuller*

EP-2021

## ● ELECTRONIC POSTER

### Physics track: Quantitative functional and biological imaging

- > Dose-dependent changes in T2w-MRI texture of obturator muscles after prostate cancer radiotherapy

*E. Scalco, T. Rancati (Italy), A. Mastropietro, A. Cicchetti, B. Avuzzi, R. Valdagni, G. Rizzo*

EP-2022

- > Predictive value of delta-radiomics features extracted from MR Images in image-guided liver SBRT

*N. Dogan (USA), D. Asher, B. Farnia, C. Ford, F. Yang, L. Portelance, G. Simpson*

EP-2023

- > Assessment of ADC value when comparing two methods to reduce geometrical distortion in DWMRI

*A. Lopez Medina (Spain), A. Garcia, C. Perez, P. Montesinos, I. Nieto, A. Nieto, V. Ochagavia, M. Arias, F.J. Salvador, M. Salgado, V.M. Muñoz*

EP-2024

- > Predicting midtreatment FDG PET in head and neck cancer

*Z. Gouw (The Netherlands), K. Lonning, M.D. La Fontaine, S. Van Kranen, O. Hamming-Vrieze, J. Van de Kamer, A. Al-Mamgani, J. Sonke*

EP-2025

- > Diffusion weighted textural differences between p16 positive and negative oropharyngeal carcinoma  
*S. Deschuymer* (Belgium), V. Vandecaveye, F. De Keyzer, S. Nuyts      EP-2026
- > FDG-PET/CT-based assessment of hematologic toxicity in anal cancer patients following chemoradiation  
*J. Kalsnes* (Norway), E. Rusten, A. Abravan, B.L. Rekstad, E. Hernes, M.G. Guren, E. Malinen      EP-2027
- > Pilot study: Textural features of mpMRI for response assessment in prostate cancer patients  
*M. Daniel* (Austria), P. Kuess, P. Andrzejewski, T. Nyholm, G. Goldner, M. Heilmann, T. Helbich, S. Polanec, P. Baltzer, D. Georg      EP-2028
- > Principal component analysis for quantitative and robust analysis of dynamic PET/MR imaging data  
*R. Winter* (Germany), S. Leibfarth, S. Boeke, P. Mena-Romano, M. Krueger, E. Cumhur Sezgin, G. Bowden, J. Cotton, B. Pichler, D. Zips, D. Thorwarth      EP-2029
- > Multiparametric MRI and FMISO PET in HNSCC and its relation with outcome  
*N. Wiedenmann* (Germany), H. Bunea, H. Rischke, A. Bunea, N.H. Nicolay, L. Majerus, L. Bielak, A. Protopopov, U. Ludwig, M. Büchert, C. Stoykow, M. Mix, M. Bock, A. Grosu      EP-2030
- > 18F-Choline-PET-CT to guide simultaneous integrated boost in prostate cancer  
*R. Pearson* (United Kingdom), R. Samuel, H. McCallum, J. Frew, E. Howell, R. Maxwell      EP-2031
- > Automated Bone Scan Index (aBSI) as an Imaging Biomarker in Castration Sensitive Prostate Cancer  
*A. Alshehri* (United Kingdom), J. O'Sullivan, K. Prise, S. Jain, P. Turner, C. Campfield, S. Biggart, C. Chatzigiannis, A. Cole      EP-2032

● ELECTRONIC POSTER

**Physics track: Imaging acquisition and processing**

- > Impact of CBCT roll rotation artifact on adaptive online cranial SRS of multiple targets  
*J. Casals Farran* (Spain), J.F. Calvo-Ortega, S. Moragues Femenia, C. Laosa      EP-2033

- > Evaluation of a web-based software for "Winston-Lutz" test analysis  
*J.F. Calvo Ortega (Spain), M. Hermida-López, S. Moragues Femenia, J. Casals*  
EP-2034
- > Robust optimization of CT reconstruction and scanning parameters  
*S. Alani (Israel) E. Gez, J. Zidan*  
EP-2035
- > Visualization of prostate fiducial markers using phase-cycled bSSFP MRI  
*Y. Shcherbakova (The Netherlands), S. Mandija, L.W. Bartels, L.G.W. Kerkmeijer, J.R.N. Van der Voort van Zyp, C.A.T. Van den Berg*  
EP-2036
- > Digital phantom for evaluating the dosimetric impact of MRI Geometric inaccuracy in MR only based RT  
*T. Torfeh (Qatar), R. Hammoud, S. Paloor, S. Aouadi, N. Al-Hammadi*  
EP-2037
- > Use of deformable image registration for automatic outlining of the rectum  
*S. Hunt, S. Thomas, J. McClelland, K. Harrison, C. Rose, J. Scaife, M. Sutcliffe, N. Burnet, R. Jena (United Kingdom)*  
EP-2038
- > Validation of the direct density™ CT image reconstruction algorithm  
*I. Peiro Riera (Spain), E. Fernandez-Velilla Ceprià, J. Quera Jordana, O. Pera Cegarra, N. Anton Comelles, M. Prieto Carballo, M. Algara López*  
EP-2039
- > IDose4 algorithm for radiotherapy planning process: how reduce the dose without image quality loss  
*A. Clivio (Switzerland), E. Barletta, C. Bonacini, R. Graeter*  
EP-2040
- > A comparison between 120kv and virtual mixed images in dual energy CT for RT simulation  
*E. Fernandez-Velilla Ceprià (Spain), J. Quera Jordana, O. Pera Cegarra, M. Prieto Carballo, N. Anton Comelles, M. Algara Lopez*  
EP-2041
- > A clinically applicable deep learning model for segmentation in the prostate region  
*M. Nakamura (Japan), H. Enno, T. Kabasawa, Y. Shido, Y. Okunishi, K. Muguruma, H. Hirashima, T. Mizowaki*  
EP-2042
- > Efficiency boosting of HN positional verification using highly accelerated 3D MR imaging in MRgRT  
*Y. Zhou (Hong Kong (SAR) China), W.W.K. Fung, K.F. Cheng, J. Yuan, O.L. Wong, G. Chiu, K.Y. Cheung, S.K. Yu*  
EP-2043



- > CT number estimation techniques for the stoichiometric method to predict proton stopping power  
*V. Taaсти (USA)* EP-2044
- > Tumor profile matching at the end of 8x7,5 Gy SBRT treatment: CBCT vs Untagged Image Reconstruction  
*G. Pozo Rodriguez (Spain), P. Garcia, A. Ferrando, M. Leonor, A. Gaitan* EP-2045
- > Patient setup verification using synthetic DRRs in an MR only workflow for head and neck cancer  
*E. Palmér (Sweden), A. Karlsson, F. Nordström, K. Petruson, M. Ljungberg, M. Sohlin* EP-2046
- > Investigating a new MR sequence combined with radiologist training for prostate delineation  
*J. Wyatt (United Kingdom), J. Frew, A. Henry, L. Murray, R. Pearson, A. McNeil, E. Johnstone, R. Speight, H. McCallum* EP-2047
- > Development and implementation of a cost-effective technique to improve CT scans for contouring  
*D. Nash (United Kingdom), A.T. Davis, A.L. Palmer* EP-2048
- > Patient specific pixel-based weighting factor bone-only dual-energy x-ray imaging  
*S. Darvish-Molla (Canada), M. Reno, M. Sattarivand* EP-2049
- > Implementation of CT-based attenuation maps of RT positioning devices in PET/MRI - online vs offline  
*L. Taeubert (Germany), A. Pfaffenberger, Y. Berker, B. Beuthien-Baumann, A.L. Hoffmann, E. Troost, S.A. Koerber, M. Kachelrieß, C. Gillmann* EP-2050
- > A comparative analysis of MR signal normalization methods during proton therapy treatment  
*G. Buizza (Italy), C. Paganelli, G. Fontana, A. Franconeri, M.V. Raciti, A. Pella, L. Anemoni, A. Iannalifi, L. Preda, F. Valvo, G. Baroni* EP-2051
- > Commissioning monoenergetic CT images for optimal proton dose calculations using TwinBeam scans  
*P. Randers (Denmark), M. Fuglsang, V. Trier Taaсти* EP-2052
- > Pelvic plan adaptation to manage systematic rotations without CT re-imaging  
*A. Licup (The Netherlands), S. Van Kranen, M. Buijs, F. Koetsveld, J. Sonke, P. Remeijer* EP-2053

- > Potential role of dual-energy CT imaging modality in the neoadjuvant radiotherapy: a phantom study  
*P. Gallo* (Italy), A. D'Alessio, F. Padelli, M.L. Fumagalli, E. D'ippolito, T. Giandini, C. Tenconi, C. Cavatorta, M.G. Bruzzone, E. Pignoli, E. De Martin  
EP-2054
- > Impact of patient-specific MRI distortion correction for stereotactic cranial target definition  
*T. Gevaert* (Belgium), B. Engels, C. El Aisati, M. De Ridder  
EP-2055
- > Feasibility of realistic Digitally Reconstructed Radiograph (DRR) rendering through shallow learning  
*J. Dhont* (Belgium), J. Vandemeulebroucke, I. Mollaert, D. Verellen  
EP-2056
- > Influence of implanted metals in new CT reconstruction algorithm for radiotherapy treatment planning  
*T. Kamomae* (Japan), T. Nakaya, F. Kawabata, K. Okudaira, M. Kumagai, H. Oguchi, Y. Itoh, S. Naganawa  
EP-2057
- > Measuring eye deformation between planning and proton beam therapy position  
*M. Jaarsma-Coes* (The Netherlands), M.S. Schuurmans, M.K.M.A. Hassan, E. Astreinidou, M. Marinkovic, F.P. Peters, J.W.M. Beenakker  
EP-2058
- > Assessment of image quality in simulated low-dose paediatric cone beam CT  
*J.W.H. Lindsay* (United Kingdom), A. Bryce-Atkinson, M. Van Herk, M.C. Aznar  
EP-2059
- > Feasibility of prostate rectum spacer in an MRI only radiotherapy workflow  
*M. Lerner* (Sweden), E. Persson, N. Eliasson, M. Moreau, H. Benedek, C. Gustafsson, P. Nilsson, E. Kjellén, L.E. Olsson, A. Gunnlaugsson  
EP-2060
- > Feasibility of MR-only planning in a commercial treatment planning system  
*H. McCallum* (United Kingdom), N. Richmond, C. Walker, S. Andersson, S. Svensson  
EP-2061
- > Feasibility of automatic detection of breast limits for auto-planning  
*J. Oliveira* (United Kingdom), M.C. Aznar, Y. Kirova, A. Henry, P. Aljabar, M. Van Herk, P. Poortmans, M. Gooding  
EP-2062
- > Treating prostate cancer with MRI-only radiotherapy  
*E. Persson* (Sweden), C. Gustafsson, J. Nilsson, S. Ceberg, S. Engelholm, S. Bäck, L.E. Olsson, A. Gunnlaugsson  
EP-2063





- > A novel method for GTV generation for large-scale analysis of lung cancer patients planned with 4DCT  
*A. Davey (United Kingdom), M. Van Herk, C. Faivre-Finn, S. Brown, A. McWilliam* EP-2064
- > Simulation PET-CT vs diagnostic PET-CT fusion in H&N RT: volumetric and planning implications  
*S. Di Biase (Italy), A. Ferretti, E. Bellan, F. Perrotti, A. Augurio, M. Nuzzo, M. Trignani, L. Caravatta, D. Genovesi, G. Mandoliti* EP-2065
- > Evaluation of ANACONDA performances varying the exploited subset of controlling ROIs (AIRC IG-14300)  
*C. Romanò, S. Trivellato (Italy), P. De Marco, S. Comi, A. Bazani, G. Marvaso, D. Ciardo, B.A. Jereczek-Fossa, R. Orecchia, F. Cattani* EP-2066
- > Data driven region of interest respiratory surrogate signal extraction from CBCT data  
*A. Akintonde (United Kingdom), H. Grimes, S. Moinuddin, R.A. Sharma, J. McClelland, K. Thielemans* EP-2067
- > Scatter-corrected CBCTs for online water-equivalent path length calculations in proton therapy  
*A.G. Andersen (Denmark), U.V. Elstrøm, B. Winey, J.B.B. Petersen, M. Falk, P. Skyt, O. Nørrevang, C. Grau, L.P. Muren* EP-2068
- > Improved dose calculation on CBCT using polyenergetic quantitative (Polyquant) reconstruction  
*J. Mason, W. Nailon (United Kingdom), A. Perelli, S. Andiappa, M. Davies* EP-2069
- > Comparison of multi-atlas based synthetic CT generation methods for radiotherapy for prostate cancer  
*C. Choi (New Zealand), G. Sasso, B. Pontre* EP-2070

#### ● ELECTRONIC POSTER

#### Physics track: Implementation of new technology, techniques, clinical protocols or trials (including QA & audit)

- > Redefining the classical Winston-Lutz test for cranial radiosurgery in terms of dose  
*J.F. Calvo Ortega (Spain), S. Moragues Femenia, J. Casals* EP-2071
- > Automatic analysis of patient specific QA measurements made with the Octavius verification device  
*P. Haering (Germany), M. Splinter, C. Lang* EP-2072

- > Reconstruction of the electron source distribution using in-air measurements and genetic algorithm  
*E. Borzov (Israel), A. Nevelsky, R. Bar-Deroma, I. Orion* EP-2073
- > Can we use Effective Depth for deformable image registration QA alongside the AAPM recommendations?  
*M. Wilson, (United Kingdom) J. Lui, D. Noble, G. Royle, S. Holloway* EP-2074
- > MARC vs IMRT prostate treatments: OAR dose distribution analysis stratified by PTV extent  
*R. Bermúdez Luna (Spain)* EP-2075
- > Is there any advantage in using helium ions over protons for minibeam radiation therapy?  
*T. Schneider (France), A. Patriarca, Y. Prezado* EP-2076
- > De-intensification of radiotherapy dose to the elective neck in oropharyngeal squamous cell cancers  
*R. Valentine (United Kingdom), A. Martin, S. Currie, C. Paterson* EP-2077
- > Comprehensive risk assessment for the clinical introduction of an MR-linac  
*J. Geuze (The Netherlands), R. Bouwman, U.A. Van der Heide, S. Ten Hoeve, M.E. Nowee, T.M. Janssen* EP-2078
- > HyperArcTM RT for thyroid eye disease: a plan comparison with VMAT and parallel opposed techniques  
*R. Valentine (United Kingdom), S. Schipani, P. Cauchi, V. Chadha, J. Connolly, T. Mitchell, D. Ritchie, S. Currie* EP-2079
- > MC simulations on the dose enhancement effect of antibody conjugated AuNPs in targeted radiotherapy  
*A. Klapproth, W. Li, (Germany) S. Stangl, C. Diederichs, M. Shevtsov, V. Ntziachristos, G. Multhoff* EP-2080
- > Real time CyberKnife dosimetry using Radioluminescence imaging  
*A. Spinelli (Italy), E. D'Agostino, C. Fiorino, S. Broggi* EP-2081
- > An adapted use of the gamma index method for Monte Carlo dose distributions comparison  
*M. Cohilis (Belgium), S. Edmond, L. John A, S. Kevin* EP-2082
- > Evaluation of Deformable Image Registration and Dose Accumulation in Prostate SBRT Patients  
*J. Swamidas (India), R. Phurailatpam, S. Panda, V. Murthy, K. Joshi, D. Deshpande* EP-2083





- > Arms-down versus arms-up positioning for breast cancer patients receiving proton beam radiation  
*E. Batin, N. Depauw (USA), S. MacDonald, R. Jimenez* EP-2084
- > PET/MR in GTV delineation in patients with carcinoma of the tongue  
*N. Samołyk-Kogaczewska (Poland), E. Sierko, K. Zuzda, P. Gugnacki, P. Szumowski, M. Mojsak, J. Burzyńska-Śliwowska, T. Filipowski, M.Z. Wojtukiewicz, D. Jurgielewicz* EP-2085
- > Innovative hybrid 18FDG-PET/MR in GTV delineation in locally advanced oral cavity cancer patients  
*N. Samołyk-Kogaczewska (Poland), E. Sierko, D. Dziemiańczyk-Pakiela, B. Nowaszewska, K. Zuzda, J. Burzyńska-Śliwowska, P. Szumowski, D. Jurgielewicz, T. Filipowski, M.Z. Wojtukiewicz, M. Mojsak* EP-2086
- > Probabilistic Modeling of Patient Setup Time in VMAT Treatments Based on Anatomical Regions  
*T.Y. Lee (Hong Kong (SAR) China), M.W.K. Law, V.C.W. Cheung, K.K. Tang, S.W.K. Chow, L.W.M. Lee, M.M.S. Wong, S.H. Yoo, P.P.H. Nam, J.W.Y. Lee, B.S.K. Yu* EP-2087
- > Upright open-source cone beam CT imaging for radiotherapy  
*J. Korte (Australia), N. Hardcastle, S. Everitt, T. Kron* EP-2088
- > Technical implementation of total marrow irradiation (TMI) using VMAT  
*J.M. Perez Moreno (Spain), C. Rubio Rodriguez, J. Valero Albarrán, P. Fernández Letón* EP-2089
- > Helical tomography radiation therapy for multiple brain lesions: in-phantom accuracy assessment  
*M. Zani (Italy), L. Marrazzo, S. Calusi, C. Talamonti, S. Scoccianti, D. Greto, L. Livi, S. Pallotta* EP-2090
- > How to measure high dose in functional disorder treatment: an innovative silicon diode detector  
*P. Gallo (Italy), E. De Martin, M.L. Fumagalli, F. Ghielmetti, M. Carrara, S. Alhajaili, M. Lerch, A.B. Rosenfeld, M. Marchetti, L. Fariselli, M. Petasecca* EP-2091
- > Time-driven activity-based costing for competing treatments using different technology solutions  
*C.K. Torzsok (Chile)* EP-2092
- > Heart sparing with deep inspiration breath hold (DIBH) in left breast treatment: a prospective study  
*V. Vanoni (Italy), S. Mussari, L. Bossi, F. Coelli, M. Maino, A. Martignano* EP-2093

- > Machine QA Time Efficiency Savings with IBA Dolphin Detector  
*S. Loughlin (United Kingdom), R. Lally, A. Reilly* EP-2094
- > SBRT of prostate with integrated boost of Dominant Lesion. A crowd-knowledge based planning study  
*A. Savini (Italy), S. Cilla, M. Esposito, E. Moretti, E. Villaggi, S. Russo, M. Stasi, P. Mancosu* EP-2095
- > Multi-institutional versus site-specific training data for a deep breast segmentation algorithm  
*J. Schreier (Finland), H. Laaksonen, F. Attanasi* EP-2096
- > Use of an a-Si EPID for routine QC of the Elekta Unity MR-Linac  
*J. Berresford, J. Agnew, T. Harriden, G. Budgell (United Kingdom)* EP-2097
- > Measurement free patient specific verification for PBS proton plans – a quantitative evaluation  
*M. Matter (Switzerland), N. Fachouri, L. Nenoff, G. Meier, A. Borsi, D.C. Weber, A.J. Lomax, F. Albertini* EP-2098
- > The national approach to assign risk factors for failure modes and effects analysis in IMRT process  
*L. Koniarova (Czech Republic), V. Dufek, I. Horakova* EP-2099
- > Quality in the implementation of stereotactic radiotherapy services on a national scale  
*T. Aland (Australia), R. Fitzgerald, M. Knesl, A. Perkins, D. Shannon, L. Anderson, M. Jones, N. Bailey, M. Foote, M. Daly* EP-2100
- > Evaluation of the feasibility of performing markerless tracking for lung SBRT patients  
*T. Gevaert (Belgium), A. Girardi, C. El Aisati, C. Collen, B. Engels, M. De Ridder* EP-2101
- > Accurate software detection of light markers coincidence using a computed radiography system  
*M.A. Benito Bejarano (Spain), A. Del Castillo Belmonte* EP-2102
- > Development of a personalized, interactive patient decision aid for participation in clinical trials  
*C. Offermann-Wulms (The Netherlands), C. Roumen, A. Ankolekar, J. Coenen, I. Nijsten, R. Fijten, D. De Ruysscher* EP-2103
- > Audit of the dosimetric impact of weight loss in H&N patients to assess when a re-plan is required  
*N. Lalli (United Kingdom), S. Khan, L. Hong, M. Daly, D. Carnell, R. Mendes, A. Thompson* EP-2104



- > Robustness comparison between 6- and 8-fields SIB proton plans on H&N patients  
*N. Bizzocchi* (Switzerland), C. De Angelis, J. Hrbacek, A.J. Lomax, D.C. Weber, A. Bolsi EP-2105
- > Statistical process control analysis of pre-treatment VMAT QA for different anatomical sites  
*H. Omar Ghafour* (Iraq), S. Russo, M. Esposito, S. Pini, A. Ghirelli, G. Zatelli EP-2106
- > DQA gamma Analysis evaluation criteria for prostate SBRT using MLC InCise 2 of a Cyberknife-M6  
*A. Ruiz* (Chile), K. Torzsok, M. Ribeiro, H. Broqué, J. Aponte, F. Marangoni EP-2107
- > Varian and Elekta quality assurance using artificial neural network based on portal imaging  
*F. Chatrie* (France), A. Vasseur, A.R. Barbeiro, F. Younan, J. Mazurier, M.V. Le Lann, X. Francerries EP-2108
- > Can we improve the dosimetric values with the experience? our results with vmat in lung cancer  
*E.J. Luna Tirado* (Spain), M. Rincón, D. Gonsalves, L. Guzmán, M. Montero, J.M. Penedo, A. Ilundain, J. Olivera, E. López EP-2109
- > Developing a QA programme for the Elekta Unity MR-linac  
*J. Chick* (United Kingdom), I. Hanson, S. Nill, U. Oelfke EP-2110
- > Apex micromultileaf SRS Dynamic Conformal Arc treatment comparison with Agility multileaf collimator  
*C. Ferrer* (Spain), C. Huertas, R. Plaza, R. Simón de Blas, F. Sánchez, E. Corredoira EP-2111
- > Automation of consistency and integrity checks in external radiotherapy plans  
*M.A. Benito Bejarano* (Spain), F. Saez Beltran EP-2112
- > Congruence of mechanical, radiation, and imaging isocentres of two types of Elekta linacs  
*C. Mekala* (United Kingdom), A. Naga, N. Babu, S. Kumar, N. Khater, C. Birch EP-2113
- > Predicting inaccuracy of overmodulated RapidArc plans using Machine Learning model  
*A. Botti* (Italy), E. Cagni, M. Orlandi, R. Sghedoni, D. Lambertini, A. Barani, V. Bertolini, M. Iori EP-2114

- > Semi-automated quality assurance of deformable registration in CT radiotherapy data  
*T. McGrath (United Kingdom), Z. Lawrence, R. Farhad Salih, Y. Peters, J. Rawling, M. Wilson, C. Piazzese, S. Holloway*  
EP-2115
- > End-to-end dosimetry audits of Stereotactic Ablative Radiotherapy  
*M. Shaw (Australia), A. Alves, C. Davey, M. Geso, F. Kadeer, J. Lehmann, J. Supple, J. Lye*  
EP-2116
- > Novel kV CBCT imager on ring gantry radiotherapy unit permits high inter-rater contour uniformity  
*L. Henke (USA), B. Cai, S. Rudra, B. Fischer-Valuck, P. Gabani, P. Samson, A. Srivastava, M. Roach, E. Laugeman, J. Luo, S. Mutic, G. Hugo, H. Kim*  
EP-2117

● ELECTRONIC POSTER

**Brachytherapy track: Breast**

- > Effects of interfraction uncertainty with Strut Adjusted Volume Implant applicator  
*K. Miyaura (Japan), T. Fujii, T. Kubo, H. Shinjoh, M. Kato, K. Toyofuku, A. Niiya, R. Kobayashi, Y. Ozawa, K. Murakami, M. Morota, Y. Ito, A. Imai, Y. Kagami*  
EP-2118
- > HDR BRT boost in breast cancer: postoperative vs intraoperative procedure, long-term outcomes  
*E. Piro (Italy), D. Cosentino, A. Martilotta, A. Massenzo, U. Piro, G. Tocci, L. Marafioti*  
EP-2119
- > Analysis of our Accelerated Partial Brachytherapy Irradiation (APBI) learning curve  
*S. Pinto (Portugal), A. Pereira, P. Fernandes, L. Trigo*  
EP-2120
- > Intraoperative radiotherapy in early breast cancer: Short term outcomes  
*J.R. Oliver (Spain), E. Hernando Almudi, C. Casamayor Franco, C. Vallejo, G. Molina Osorio, A. Miranda Burgos, M. Lanzuela Valero, R. Ibáñez Carreras*  
EP-2121
- > Outcome of exclusive RT for BC in older women according to age and comorbidity:A retrospective study  
*W. Lorraine (France), K. Cao, M. Carton, A. Fourquet, Y. Kirova*  
EP-2122



- > APBI with interstitial brachytherapy versus whole-breast irradiation for early-stage breast cancer  
*A. Figueiredo* (Portugal), D. Delgado, J. Santos, A. Florindo, V. Mendonça, M. Jorge, M. Filomena de Pina

EP-2123

● ELECTRONIC POSTER

**Brachytherapy track: Gynaecology**

- > Brachytherapy in the treatment of locally advanced cervical cancer: A single center study  
*J. Khalil* (Morocco)

EP-2124

- > High Dose Rate Brachytherapy in Brazil: Demand Estimation and Coverage in Public Healthcare System  
*G.H. Yoshinari* (Brazil), M.P. Alvarenga, H.H. Fernandes, F. Nadur, J. Domingues, H.F. De Oliveira

EP-2125

- > Cervix cancer treatments with electronic brachytherapy according to the EMBRACE protocol  
*S. Lozares* (Spain), A. Gandía, J.A. Font-Gómez, D. Villa, A. Mendez, A. Miranda-Burgos, V. Alba-Escorihuela, S. Jiménez-Puertas

EP-2126

- > Hydrogel bladder and rectal spacer (TraceIT) for brachytherapy in locally advanced Cervical cancer  
*D. Najjar Jamal* (Spain), C. Gutiérrez, L. Martí, S. Marin, A. Slocker, G. Rodriguez, S. Moreno, M. Garcia, F. Guedea

EP-2127

- > Rectal toxicity with MUPIT Interstitial Brachytherapy - Predictors, clinical and dosimetric outcomes  
*V. Pareek* (India), R. Bhalavat, M. Chandra, C. Bakshi, N. Bhamhani

EP-2128

- > A decision tool for interstitial needles implants in uterovaginal pulsed dose rate brachytherapy  
*M. Sandt* (France), F. Gassa, P. Pommier

EP-2129

- > Dose integration of intensity-modulated arc therapy and interstitial brachytherapy of cervix cancer  
*G. Fröhlich Polgár* (Hungary), J. Vizkeleti, N. Anhhong Nguyen, T. Major, C.

EP-2130

- > Venezia:New Advanced Brachytherapy Gynecological Applicator in cervical cancer. Our preliminary data  
*G. Riva* (Italy), V. Andrea, R. Spoto, S. Durante, D. Ciardo, S. Comi, F. Cattani, R. Lazzari, B.A. Jereczek-Fossa

EP-2131

- > Verification of vaginal cylinder position using bony landmarks  
*M. Zahra* (United Kingdom), P. Drewell, W. Keough

EP-2132

- > Interstitial brachytherapy for vaginal recurrence of pelvic gynecological cancers  
*A. Visy, J. Charret, F. Gassa, A. Serre, M. Sandt, F. Lafay, P. Pommier (France)*  
**EP-2133**
- > Developing a IC+IS applicator for treatment of advanced cancer cervix by image based brachytherapy.  
*S. Banerjee (India), V. K. D. Kamaraj, D. Gupta, S. Goyal, S. Bisht, K. Narang, S. Mishra, M. Pinto, P. Manderna, T. Kataria*  
**EP-2134**
- > Exclusive brachytherapy in endometrial cancer: experience of an university hospital  
*C. Salas (Spain), L. Gutiérrez Bayard, M.J. Macias Lozano, S. Garduño Sánchez, R. Rodríguez Sanchez, S. Sayago Gil, V. Díaz Díaz, E. Gonzalez Calvo, I. Villanego Beltran, A. Ruiz Herrero, M. Lorente Sanchez, J. Jaén Olásolo*  
**EP-2135**
- > Brachytherapy study between patients treated with HDR Ir-192 and Xoft 50kVp source for uterus cancer  
*K. Asiev (Canada), S. Devic, B. Bahoric*  
**EP-2136**
- > Locally advanced cervical carcinoma treated with electronic brachytherapy: Our experience  
*A. Miranda Burgos (Spain), A. Méndez Villamón, R. Ibáñez Carreras, M. Gascón Ferrer, A. Campos Bonel, B. García Gimeno, E. Muñoz Sanz, S. Lozares Cordero, J. José Gutierrez, I. Negredo Quintana, I. Escartín Martínez, G. Riazuelo Fantova, M. Tejedor Gutierrez*  
**EP-2137**
- > Rectal and urinary toxicity in patients with cervical carcinoma treated with brachytherapy  
*V. Garcia Jarabo (Spain), S. Cordoba Largo, M. Ramirez, D. Martinez, M. Gaztañaga Boronat, C. De la Fuente, G. Marquina, A. Ortega, R. Mendez*  
**EP-2138**
- > Adjuvant brachytherapy for T1b1N0 cervical cancer: an alternative to postoperative EBRT  
*E. Bronsart (France), C. Petit, I. Fumagalli, S. Gouy, P. Morice, C. Haie-Meder, C. Chargari*  
**EP-2139**

● ELECTRONIC POSTER

**Brachytherapy track: Head and Neck**

- > HDR brachytherapy in reirradiation of local nasopharyngeal recurrence  
*M. Ait Erraisse (Morocco), W. Hassani, T. Bouhafa, K. Hassouni*  
**EP-2140**



● ELECTRONIC POSTER

**Brachytherapy track: Physics**

- > Recommendations for reporting the rectal dose during image guided HDR brachytherapy of prostate  
*M. Szlag (Poland), A. Cholewka, P. Wojcieszek, S. Kellas-Ślęczka, M. Stąpór-Fudzińska, T. Krzysztofiak, K. Śłosarek* EP-2141
- > Analysis of dose distribution between TG-43 and TG-186 in lung cancer  
*M. Sawicki (Poland), Ł. Jarosław* EP-2142
- > TRAK per unit reference dose as a QA tool is insensitive to finding cervix brachy planning errors  
*P. Gonzalez (The Netherlands), F. Koetsveld, A. Mans* EP-2143
- > Feasibility of using Micro Silica Bead TLDs for 3D dosimetry in brachytherapy  
*S. Babalouei (Iran Islamic Republic of), S. Jafari, A. L. Palmer, W. Polak, M. W.J. Hubbard, T. Skopidou, A. Lohstroh, R. Jaberí* EP-2144
- > Biological comparison of 60Co & 192Ir brachytherapy sources: a possible need for correction factor  
*S. Abdollahi (Iran Islamic Republic of), M. Dayyani, H. Miri Hakimabad, L. Rafat Motavalli, E. Hoseinian Azghadi* EP-2145
- > Comparison of planning US HDR prostate on transversal or longitudinal ultrasound acquisitions  
*D. Aramburu, V. Brennan, G. Cohen, A. Damato (USA)* EP-2146
- > Commissioning of a novel brachytherapy device for diffusive alpha-particle radiation therapy  
*A. Damato (USA), B. Beattie, G. Cohen, B. Serencsits, L. Dauer, J. Humm* EP-2147

● ELECTRONIC POSTER

**Brachytherapy track: Anorectal**

- > Brachytherapy on anal canal tumors  
*C. Sousa (Portugal), M. Cruz, K. Pereira, A. Neto, S. Gonçalves, J. Brandão, L. Khouri, C. Alves, P. Alves* EP-2148

● ELECTRONIC POSTER

**Brachytherapy track: Prostate**

- > HDR brachytherapy as monotherapy for low and intermediate risk prostate cancer

*M. Gaudet (Canada), M. Pharand-Charbonneau, D. Wright, M. Desrosiers, A. Haddad*

EP-2149

- > Re-salvage treatment for locally recurrent prostate cancer by HDR brachytherapy guided by MRI and US

*A. Garcia Perez (Spain), P. Willisch Santamaria, M. Martinez Agra, A. Gonzalez Castro, B. Andrade Alvarez, E. Cespon Outeda, A. Lopez Medina, M. Salgado Fernandez, V.M. Muñoz Garzon*

EP-2150

- > Intermediate-risk prostate cancer with EBRT plus permanent 125-I seeds. Long term results

*M. Peña, J. Guinot (Spain), R. Roncero, B. Quiles, P. Santamaria, M.A. Santos, C. Boso, J.C. Sanchez-Relucio, M.I. Tortajada, L. Arribas*

EP-2151

- > Pre rectal spacing w/Blood Patch in HDR Prostate Brachytherapy, Feasibility and Dosimetric Analysis

*D. Martinez Perez (Peru), G. Sarria Bardales, L. Pinillos Ashton, F.A. Usuga Torres, A. Salgado, R.C. Chumbimuni Contreras, L.A. Maya, I. Veliz, B. Carrion Peñafiel, C. Flores, L. Chirinos*

EP-2152

- > Late toxicity after single dose HDR-BT and EBRT for prostate cancer: clinical-dosimetric predictors

*D. Büchsler (Spain), F. Casquero, J.M. Espinosa, F. Perez, P. Minguez, L. Martinez-Indart, F. Suarez, A. Gonzalez, J. Cacicedo, I. San Miguel, P. Bilbao, A. Gomez-Iturriaga*

EP-2153

- > Efficacy of LHRH agonist-free cytoreduction prior to prostate seed brachytherapy

*N. Wallace (Ireland), A.M. Peoples, S.J. O'Brien, P.J. Kelly*

EP-2154

- > Optimising HDR Prostate Implant, Planning and delivery. A new centre experience

*R. Farrell (United Kingdom), S. Jain, P. Shiels, G. Workman, K. Crowther, D. Mitchell*

EP-2155



- ELECTRONIC POSTER

**Brachytherapy track: Miscellaneous**

- > Assessment of role of ILRT as palliative treatment in advanced esophageal cancer

*V. Pareek (India), R. Bhalavat, M. Chandra*

EP-2156

- > Needle-based stepping source electronic brachytherapy - a feasibility study

*A.M. Ruder (Germany), L. Inghelram, F. Schneider, Y. Abo-Madyan, M. Ehmann, J. Hesser, F. Wenz, F. Giordano*

EP-2157

- ELECTRONIC POSTER

**Radiobiology track: Radiobiology of particles and heavy ions**

- > The apoptosis mechanism and injury of heavy ion beam and X-ray radiation on malignant melanoma cell

*S. Li (China) Q. Jin, Z. Chao, G. Dong-Wei, L. Qiang, Z. Hong, J. Xiao-Dong, L. Yang*

EP-2158

- > Influence of L-Dopa pretreatment on cellular features in T98G cells

*A. Facoetti (Italy), C. Aprile, M. Cavagnini, M. Ciocca, A. Iannalifi, L. Lodola, M. Marenco, R. Nano, F. Pasi, M.G. Persico, F. Valvo, R. Orecchia*

EP-2159

- ELECTRONIC POSTER

**Radiobiology track: Radiobiology track: Radiation-induced signalling pathways**

- > Downregulation of Nrf2 promotes radiation-induced apoptosis in non-small cell lung cancer cells

*H. Zhang (China)*

EP-2160

- > miR-454-3p regulates cellular radio-sensitivity by targeting to BTG1 in renal carcinoma cells

*J. Wang (China)*

EP-2161

● ELECTRONIC POSTER

**Radiobiology track: Radiobiology track: Tumour microenvironment**

- > Applying the Linear Quadratic Model to PC-3 cells irradiated under different O<sub>2</sub> conditions

*T. McMullan* (United Kingdom), *J. Meehan, S. Langdon, D.B. McLaren, S. McLaughlin, W.H. Nailon*

EP-2162

● ELECTRONIC POSTER

**Radiobiology track: Immuno-radiobiology**

- > Combination therapy of microglia and radiotherapy in a rat model of spontaneous glioma

*Y. Suzuki* (Japan), *N. Okonogi, H. Sato, T. Oike, Y. Yoshimoto, K. Mimura, S. Noda, M. Okamoto, T. Tamaki, Y. Morokoshi, S. Hasegawa, H. Ohgaki, H. Yokoo, T. Nakano*

EP-2163

- > Pilot Study: Systemic response after lung SBRT analyzing immune Cells phenotyping

*A. Navarro-Martin* (Spain), *I. Linares, M.A. Berenguer, R. Cañas, F. Guedea*

EP-2164

● ELECTRONIC POSTER

**Radiobiology track: Radiation and tumour metabolism**

- > M6A RNA modification by METTL3 regulates chemo- and radioresistance in pancreatic cancer cells

*S. Tatekawa* (Japan), *M. Konno, A. Asai, J. Koseki, K. Taketo, H. Ishii, K. Ogawa*

EP-2165

● ELECTRONIC POSTER

**Radiobiology track: DNA damage response**

- > Ro90-7501 is a novel radiosensitizer which inhibits ATM phosphorylation and DNA repair

*K. Tamari* (Japan), *Z. Li, K. Otani, Y. Takahashi, K. Minami, Y. Seo, O. Suzuki, F. Isohashi, K. Ogawa*

EP-2166

- > Radiosensitizing effect of eribulin mesylate in human cervical carcinoma cells *in vitro*  
R. Benlloch Rodríguez (Spain), J. Romero Fernández, R. Castejón Díaz, S. Rosado García, P. Sánchez Rubio, S. Sánchez García, I. Martínez Montesinos, I. Zapata Paz, M. López Valcárcel
- EP-2167
- > Analysis of Chromosomal Aberrations by FISH in FaDu tumor cells after *in vivo* X-ray MRT irradiation  
A. Porth (Germany), A. Hunger, T. Setzkorn, N. Mehrabi, K. Burger, S.E. Combs, T.E. Schmid
- EP-2168

● ELECTRONIC POSTER

**RTT track: Patient preparation, positioning and immobilisation**

- > Are treatment times with breast DIBH comparable to free breathing?  
D. Ledson (United Kingdom), V. Acton, R. Biggar
- EP-2169
- > Scheduling optimization to reduce patient waiting beam times in four-room proton therapy center  
C.Y. Lin (Taiwan)
- EP-2170
- > Optimizing individual customized neck rests for proton therapy of brain tumors  
A. Schoubroeck (Denmark), M. Gioertz, P. Randers, A. Harboell, C.R. Hansen, A. Vestergaard
- EP-2171
- > Evaluation of the pitch functionality and setup accuracy of the Solstice SRS Immobilization System  
C.L. Ong (The Netherlands), K. Hunnego, F. Gescher, J. Franssen, E. Franken
- EP-2172
- > Bladder filling in patients undergoing prostate radiotherapy on the MR-linac  
G. Adair Smith (United Kingdom), T. Herbert, R. Lawes, H. Creasey, A. Dunlop, A. Mitchell, A. Pathmanathan, L. Bower, I. Hanson, D. McQuaid, R. Huddart, U. Oelfke, S. Nill, A. Tree, H. McNair
- EP-2173
- > Patients' experiences with whole body irradiation using Tomotherapy  
P. Schon (Sweden), P. Lannerheim-Saure, C. Hagstrom, A. Löfgren
- EP-2174
- > No more Lines – Omitting skin marks, safe to align with tattoo only for lung cancer patients?  
L. Wiersema (The Netherlands), J. Stam, T. Wiersma, J. Belderbos, A. Licup, F. Koetsveld, P. Remeijer
- EP-2175

- > Analysis of inter-fraction tumor position variability in lung SBRT  
*A. Coral (Spain), N. Espinosa, A. Latorre, S. Bermejo, X. Nolla, G. De Segura, C. Diaz, M. Mancera*
- > 4D CBCT based determination of tumor amplitude variation in lung cancer SBRT  
*J. Papp (Hungary), M. Simon, E. Csiki, E. Csobán, A. Molnár, P. Árkosy, Á. Kovács*

EP-2176

EP-2177

● ELECTRONIC POSTER

**RTT track: Imaging acquisition and registration, OAR and target definition**

- > Evaluation of a user-guided deformable registration workflow for multi-modal prostate imaging  
*A. Lastrucci (Italy), A. Barucci, S. Pini, S. Russo, R. Barca, M. Coppola, S. Fondelli, L. Paoletti, F. Rossi, P. Bastiani, M. Esposito*
- > Estimation of intrafractional motion of intra-orbital optic nerve by MRI  
*S. Tsuruoka (Japan), Y. Hamamoto, Y. Kurabayashi, H. Inata, T. Matsuno, T. Mochizuki*
- > The effect of Rectal size and shape on Bladder deformation in Urinary Bladder Radiotherapy  
*N. Hutton, J. Callender, D. Hutton (United Kingdom), L. Williams, S. Wong, H. Wong, I. Syndikus*

EP-2178

EP-2179

EP-2180

● ELECTRONIC POSTER

**RTT track: Treatment planning and dose calculation / QC and QA**

- > Use of treatment log-files for QA of cranial radiosurgery adaptive plans  
*S. Moragues Femenia (Spain), J.F. Calvo-Ortega, M. Hermida-López, J. Casals*
- > Skin dose calculation in breast cancer when the air surrounding the patient contour is considered  
*I. Lorenzo (Spain), J.F. Calvo-Ortega, S. Moragues Femenia, C. Laosa-Bello, J. Casals*
- > Dosimetric impact of CBCT calibration curve on dose calculated by a radiotherapy TPS  
*C. Laosa (Spain), J.F. Calvo-Ortega, S. Moragues Femenia, J. Casals*

EP-2181

EP-2182

EP-2183



- > a study on dose of the junction in radiotherapy of breast cancer including SCL  
*W. Jung (Korea Republic of)* EP-2184
- > Study of the seroma volume changes in the patients who underwent AcceleratedPartialBreastIrradiation  
*D.H. Kim (Korea Republic of), S.J. Son, J.G. Mun, S.J. Seo, J.H. Lee* EP-2185
- > Feasibility planning study for hypofractionated salvage prostate bed radiotherapy.  
*L. Koopman (The Netherlands), S. Van der Neut, C. Roos, C. Hammer, H. Vanhauten, S. Bijmolt, A. Van den Bergh, J. Lagendijk, S. Both, C. Brouwer, S. Al-Uwini* EP-2186
- > Metal artifact correction improves dose calculation of intensity modulated radiation therapy  
*H. Moriwaki (Japan), T. Ikeda, T. Kiyomiya, H. Tajima, K. Shiraishi, A. Sakumi* EP-2187
- > The risk of CIEDs damage by photon beams, define by neutron activation products of CIED materials  
*W. Szyszka (Poland), E. Konstanty, K. Brudecki* EP-2188
- > Compare OARs dose in postoperative high risk prostate cancer patients using IMRT and VMAC technique  
*Y. Chen (Taiwan), L. Chou, T. Wang, Y. Liu* EP-2189

● ELECTRONIC POSTER

**RTT track: Image guided radiotherapy and verification protocols**

- > MVCT in pediatric craniospinal radiotherapy  
*F. Ferraro, A. Lastrucci (Italy), Y. Wandael, C. Galeotti, M. Vernaleone, D. Greto, G. Simontacchi, P. Bonomo, L. Livi* EP-2190
- > Daily Image Guided Radiotherapy - the relevance for patients with metastatic spinal cord compression  
*L. Johansen (Denmark), D. Gasic, V. Gram* EP-2191
- > A systematic approach aimed at reducing IGRT dose in paediatric patients.  
*S. Stead (United Kingdom)* EP-2192
- > Influence of rotational setup errors on dose in target and organs at risk in cranial radiotherapy  
*A.S. Gerhardt (Germany), M.N. Duma, M. Düsberg, J.J. Wilkens, S.E. Combs, M. Oechsner* EP-2193

- > Do lower dose kvcbct protocols produce adequate quality images for head and neck cancer patients?

*M. Forshaw (United Kingdom), A. Taylor, S. Temple, H. Wong, A. Willett, C. Rowbottom*

EP-2194

- > Optimisation of SABR lung CBCT verification

*L. Turtle (United Kingdom), A. Willett, C. Lee, C. Fitzpatrick, R. Biggar*

EP-2195

#### ● ELECTRONIC POSTER

#### RTT track: Motion management and adaptive strategies

- > Dosimetric impact of anatomical changes during IMRT for prostate cancer

*L. Farhat, W. Mneija, H. Daoud (Tunisia), F. Dhouib, T. Sahnoun, W. Siala, J. Daoud*

EP-2196

- > EEBH as a method of managing respiratory movement in treating abdominal structures with SABR

*J. Barber (United Kingdom), B. Taylor, A. Gaya, A. Qureshi, C. Thomas, C. Hartill, V. Staykova, C. Sisodia*

EP-2197

#### ● ELECTRONIC POSTER

#### RTT track: Patient care, side effects and communication

- > Addressing treatment-related sexual side effects: Sub-optimal practice in radiation therapy

*O. Lynch, P. Murphy (Ireland), A. O'Donovan*

EP-2198

- > Attitudes of parents of female secondary school students towards the hpv vaccine

*K. Lawless (Ireland), C. Poole, P. Murphy*

EP-2199

- > Understanding the impact of health literacy on self-efficacy in cancer patients undergoing treatment

*R. Scanlon (Ireland), C. Gillham, A. Craig*

EP-2200

- > Auditing patient's radiotherapy medical file for improvement

*S. Cucchiaro (Belgium), M. Delgaudine, P. Coucke*

EP-2201

- > Iatrogenic sexual dysfunction following BRT supportive therapy for better perception life quality

*E. Piro (Italy), D. Cosentino, A. Martilotta, A. Massenzo, U. Piro, G. Tocci, L. Marafioti*

EP-2202



- > DVH as predictor of acute skin toxicity, its clinical application in breast cancer radiotherapy  
*F. Piro (Italy), D. Cosentino, A. Martilotta, A. Massenzo, U. Piro, G. Tocci, L. Marafioti* EP-2203
- > The impact of breast irradiation using thermoplastic mask on quality of life  
*A. Dinu (Romania), T. Flonta, L. Marcu* EP-2204
- > Patient involvement in developing research-based patient information on proton therapy  
*A. Kristensen (Denmark), H. Hansen* EP-2205
- > How long should men abstain from receiving anal sex following treatments for prostate cancer?  
*S. Ralph (United Kingdom), C. Richardson* EP-2206
- > PROMs: Transperineal insertion of prostate markers – results from a prospective clinical trial  
*A. O'Neill (United Kingdom), K. Crowther, D. Mitchell, S. Jain, A. Hounsell, J. O'Sullivan* EP-2207
- > Evaluating the efficacy of the Cancer Nurse Consultant Role for Radiotherapy Oncology inpatients  
*M. Rolfo (United Kingdom), T. Pearce, J. Armstrong, M. Guiney, S. Ryan* EP-2208

● ELECTRONIC POSTER

**RTT track: Education and training/role development**

- > Non-medical prescribing for Therapeutic Radiographers - extending roles and advancing practice  
*H. Nisbet (United Kingdom)* EP-2209
- > Building a respiratory synchronization model in the CK System during the RT session of liver metas  
Abstract withdrawn EP-2210
- > Impact of virtual learning environment on students' satisfaction, engagement, recall and retention  
*E. Ryan (Ireland), C. Poole* EP-2211
- > Piloting an educational framework for the enhanced role of RTTs in MRI-guided adaptive radiotherapy  
*C. Eccles (United Kingdom), J. Webb, A. Flynn, A. McWilliam, A. Sanneh, M. Van Herk, A. Choudhury, M. Aznar* EP-2212

- > An evaluation of radiotherapy students' perceptions of research and evidence-based practice  
*S. Ketterer (United Kingdom)*

EP-2213

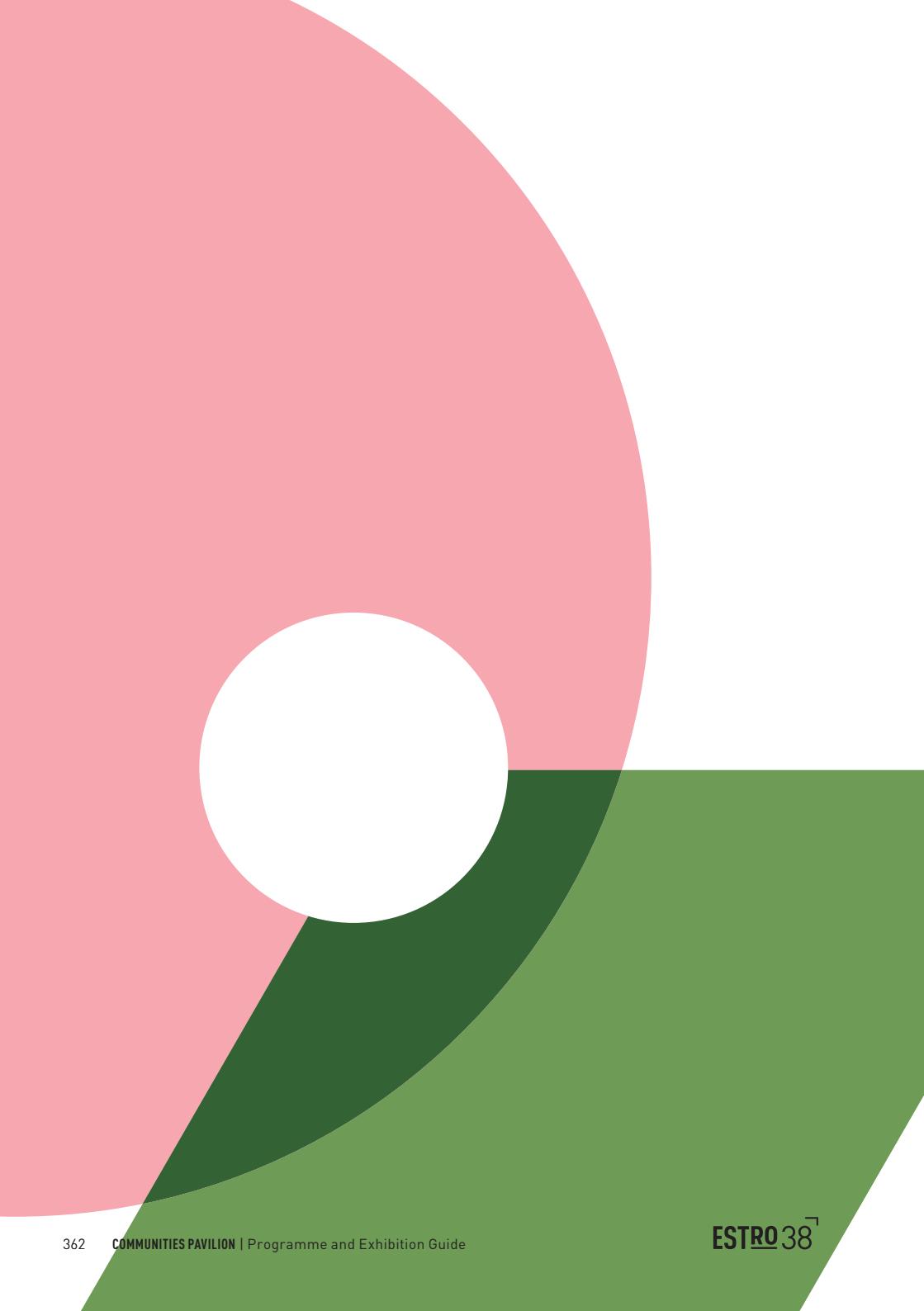
## ● ELECTRONIC POSTER

**RTT track: Risk management/quality management**

- > Abstract withdrawn  
*T. Chan (Singapore), P.W. Tan, J.I. Tang*

EP-2214





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# **COMMUNITIES PAVILION**

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Communities Pavilion

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Communities Pavilions' exhibitors

365

# Communities Pavilion

**ESTRO invites all attendees to visit the Communities Pavilion located next to the exhibition area.**

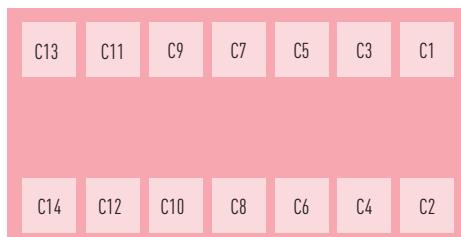
The pavilion is a free-access networking forum that gathers stakeholders from all areas in radiation oncology. Come and check it out and connect with the community.

**Exchange your scientific ideas, projects and potential cooperation with:**

- National societies
- Institutes
- International radiotherapy societies
- Other oncology associations.

## OPENING HOURS

Saturday 27 April to Monday 29 April, from 09:30- 17:00.



European Federation of Organisations for Medical Physicists (EFOMP)	C1
European Federation of Radiographer Societies (EFRS)	C2
European Organisation for Research and Treatment of Cancer (EORTC)	C3
European Society of Radiology (ESR)	C4
Institut Curie	C5
Istituto del Radio "O. Alberti"	C6
Leiden University Medical Center	C7
Manchester Cancer Research Centre	C8
North West Cancer Centre	C9
Proton Collaborative Group (PCG)	C10
Greater Poland Cancer Centre	C11
Particle Therapy Co-Operative group (PTCOG)	C12
University of Florence	C13
Turkish Society for Radiation Oncology	C14

# Communities Pavilions' exhibitors

## European Federation of Organisations for Medical Physicists (EFOMP)

230 Tadcaster Road

York YO24 1ES (UK)

✉ Efi Koutsouveli

☎ +0030 6977 873124

✉ pubcommittee@efomp.org

[www.efomp.org](http://www.efomp.org)

## European Federation of Radiographer Societies (EFRS)

Zuidsingel 65

4331RR Middelburg (NL)

✉ Dorien Pronk-Larive

☎ +31 6 4414 6336

✉ info@efrs.eu

[www.efrs.eu](http://www.efrs.eu)

## European Organisation for Research and Treatment of Cancer (EORTC)

Avenue E. Mounier 83

1200 Brussels (BE)

✉ Davi Kaur

☎ +32 2 774 15 13

✉ davi.kaur@eortc.org

[www.eortc.org](http://www.eortc.org)

C1

## European Society of Radiology (ESR)

Am Gestade 1

1010 Vienna (AT)

✉ Robert Grünkranz

☎ +43 699 103 66 103

✉ +43 1 533 40 64 448

✉ robert.gruenkranz@myesr.org

C4

[www.myesr.org](http://www.myesr.org)

C2

## Institut Curie

25 rue d'Ulm

75005 Paris (FR)

✉ Pierre Anhoury

☎ +33 01 56 24 62 33

✉ pierre.anhoury@curie.fr

C5

[www.curie.fr](http://www.curie.fr)

C3

## Istituto del Radio "O. Alberti"

Asst Spedali Civili di Brescia

Piazzale Spedali Civili, 1

25123 Brescia (IT)

✉ Stefano Maria Magrini

☎ +39 03 03995271

✉ radioterapia@asst-spedalicivili.it

C6

## Leiden University Medical Center

Albinusdreef, 2

Leiden (NL)

✉ Coen Rasch

☎ +31 71 5262947

✉ c.r.m.rasch@lumc.nl

C7

[www.lumc.nl/org/radiotherapie](http://www.lumc.nl/org/radiotherapie)

**Manchester Cancer Research  
Centre (MCRC)**

The University of Manchester  
555 Wilmslow Road,  
Manchester, M20 4GJ (UK)

✉ Dr Katy Holliday  
☎ +44 (0)161 306 0830  
✉ katherine.holliday@manchester.ac.uk

[www.mcrc.manchester.ac.uk](http://www.mcrc.manchester.ac.uk)

**North West Cancer Centre**

Altnagelvin Hospital,  
Londonderry, BT47 6SB, Northern  
Ireland (UK)

✉ Andrew Reilly  
☎ +44 2871 296137  
✉ andrew.reilly@westerntrust.hscni.net

[www.westerntrust.hscni.net/](http://www.westerntrust.hscni.net/)  
[NorthWestCancerCentre](http://www.NorthWestCancerCentre)

**Proton Collaborative Group (PCG)**

4320 Winfield Road, Ste 200,  
Warrenville, IL 60555 (USA)

✉ Jillian Plochocki  
☎ 630-836-8669  
✉ jsmallwood@pcgresearch.org

[www.pcgresearch.org](http://www.pcgresearch.org)

**Greater Poland Cancer Centre**

15 Barbary Street, 61  
866 Poznan (PL)

✉ Kamila Przybylska  
☎ +48 61 8850 535  
✉ przybylska.k@gmail.com

[www.wco.pl](http://www.wco.pl)

**Particle Therapy Co-Operative  
group (PTCOG)**

PTCOG Secretary  
Paul Scherrer Institute (PSI),  
Forschungsstrasse 111  
5232 Villigen-PSI (CH)

✉ Audrey Gabarre  
☎ +420 775 238 184  
☎ +420 261 174 307  
✉ secretary@ptcog.ch

[www.ptcog.ch](http://www.ptcog.ch)

**University of Florence**

Largo Brambilla 3  
Florence (IT)

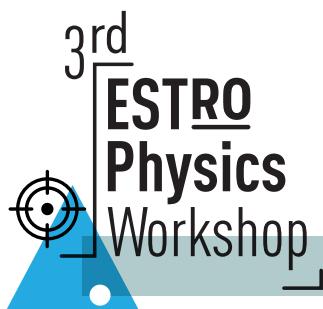
✉ Sara Lucidi  
☎ +39 3297848483  
✉ sara270991@live.it

**Turkish Society for Radiation Oncology** C14

Halaskargazi Caddesi 141/8  
Şişli -İstanbul- Turkey

✉ Yavuz Anacak  
☎ +905554412803  
✉ yanacak@gmail.com

[www.trod.org.tr](http://www.trod.org.tr)



## 3rd ESTRO Physics Workshop

Science in Development

25-26 October 2019  
Budapest, Hungary



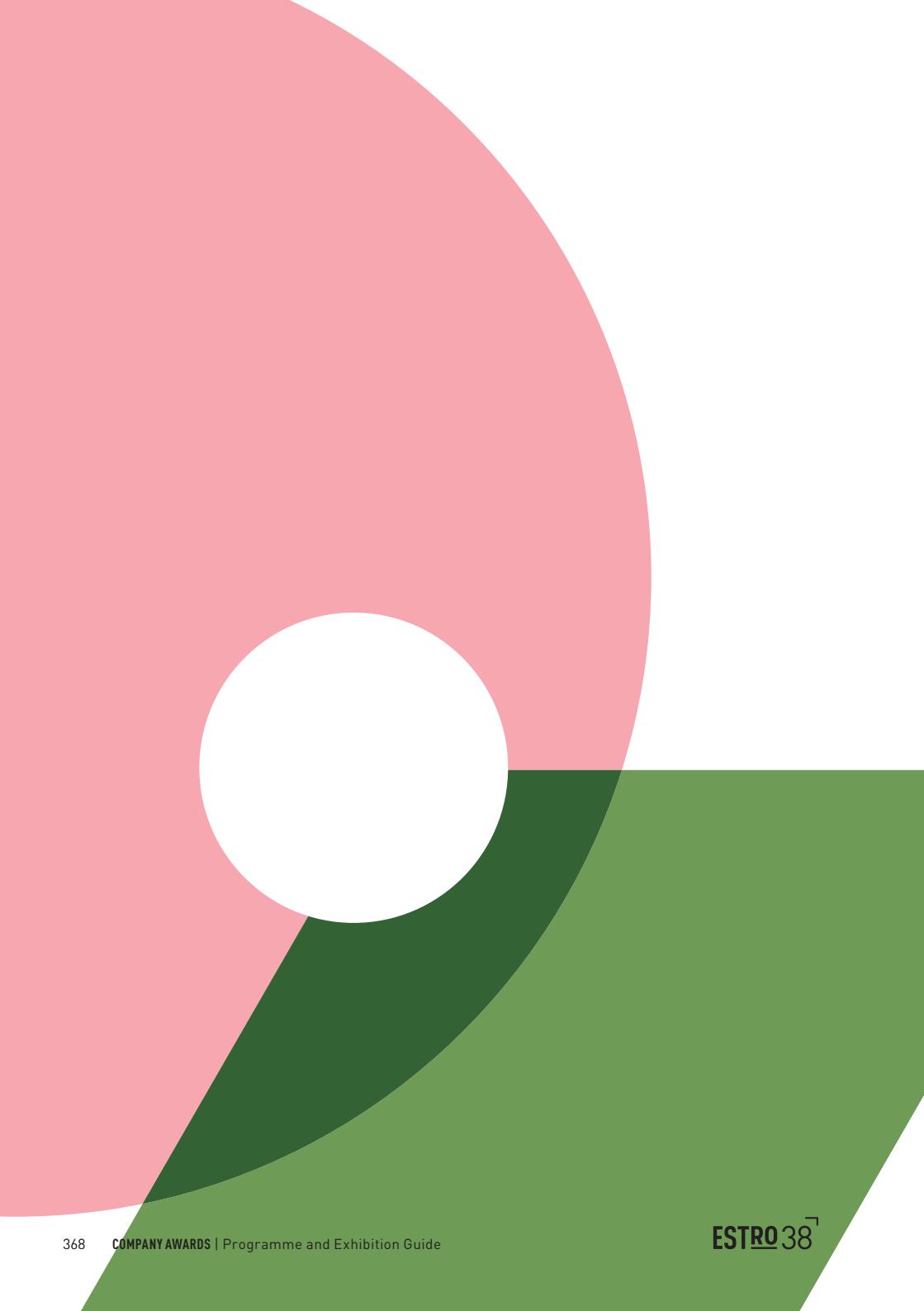
## RTT Workshop 2019

8 November 2019  
Budapest, Hungary



## 7th GEC-ESTRO workshop

21-22 November 2019  
Budapest, Hungary



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# COMPANY AWARDS

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Awardees' biographies	371

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# Company awards overview

## ESTRO-Elekta Brachytherapy Award

**Bi-objective optimization of dosimetric indices for HDR prostate brachytherapy within 30 seconds**

*Anton Bouter (The Netherlands)*

Sunday 28 April | from 16:25-16:35 | Brown 2

## ESTRO-Varian Award

**Distributed learning on 20 000+ lung cancer patients**

*Timo Deist and Frank Dankers (The Netherlands)*

Monday 29 April | from 12:40 to 12:50 | Gold Plenary

## GEC-ESTRO Best junior presentation – sponsored by Elekta Brachytherapy

**Clinical outcomes of focal salvage high-dose-rate brachytherapy for radiorecurrent prostate cancer**

*Max Peters (The Netherlands)*

Sunday 28 April | from 11:00-11:10 | Brown 2

# Awardees' biographies

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## ESTRO-Elekta Brachytherapy Award



**Anton Bouter**

*Centrum Wiskunde & Informatica (CWI)  
Amsterdam, The Netherlands*

Anton Bouter received his B.Sc. and M.Sc. degrees in computer science from the Delft University of Technology, The Netherlands, in 2014 and 2016, respectively. He is currently active as a Ph.D. candidate at the Dutch national research institute for mathematics and computer science (Centrum Wiskunde & Informatica (CWI)). His main research interests include the development of evolutionary optimisation methods and high-performance computing using Graphics Processing Units (GPUs), generally applied to treatment plan optimisation for HDR prostate brachytherapy.



**Timo Deist**

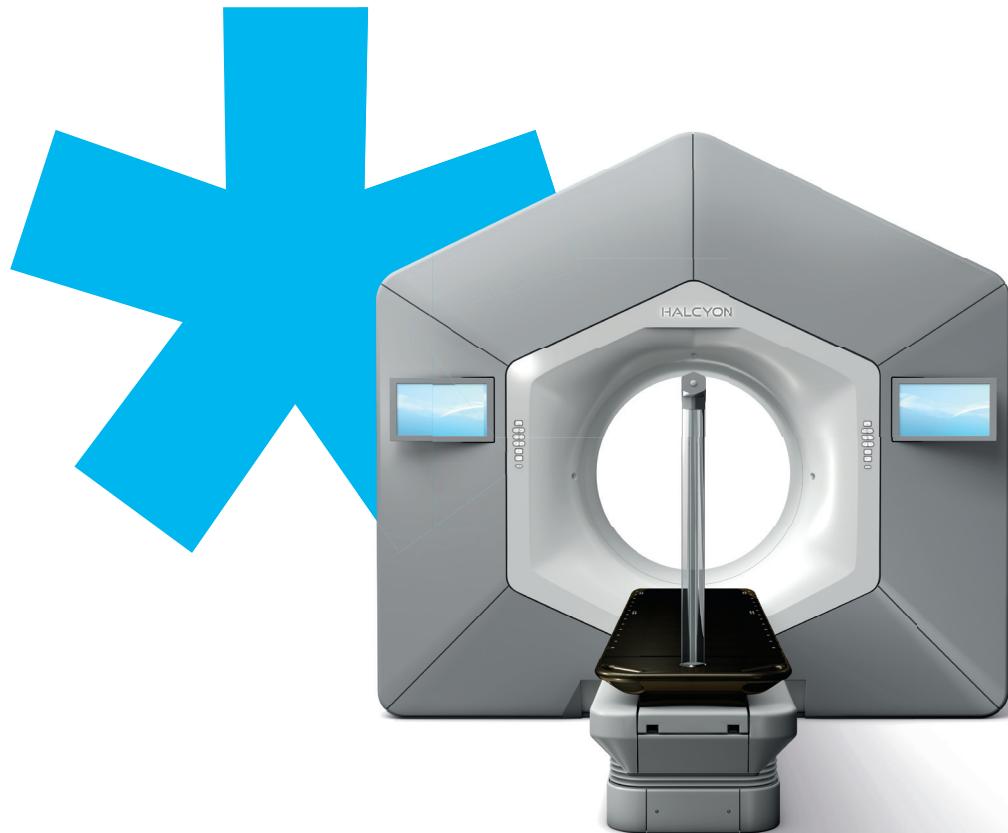
*Maastricht University, Maastricht, The Netherlands, MAASTRO clinic  
Maastricht, The Netherlands*

Timo was born in Essen, Germany, in 1989. In 2008, he embarked on his bachelor's studies in econometrics and operations research at Tilburg University, The Netherlands. After attaining his bachelor's degree in 2012, he completed his master's degree (*cum laude*) in operations research and management science at Tilburg University in 2013. For both his master's and bachelor's theses, he investigated heuristic algorithms for high-dose rate prostate brachytherapy treatment planning optimisation. He was awarded an Erasmus Mundus scholarship and completed a second master's degree in BioHealth computing at the University of Barcelona, Spain, and Université Joseph Fourier in Grenoble, France, in 2014. For his master's thesis, he studied the estimation ancestry coefficients using non-negative matrix factorisation and spatial information.

Timo then returned to The Netherlands to pursue a PhD research on distributed learning and prediction modelling at Maastricht University/MAASTRO clinic under the supervision of Prof. Philippe Lambin and Prof. Andre Dekker. Next to his research for his PhD thesis, he worked part-time at the spin-off company ptTheragnostic B.V. with the goal to develop biomarkers for radiation sensitivity in human mitochondrial DNA. Between October and December 2017, he

visited Dr. David Craft and the department of radiotherapy at the Massachusetts General Hospital/Harvard Medical School (United States) co-funded by an ESTRO travel grant.

In March 2019, he started his postdoctoral research on multi-objective optimisation algorithms for medical image registration at the Centrum Wiskunde & Informatica in Amsterdam, The Netherlands, under the supervision of Prof. Peter Bosman.



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**varian** | **HALCYON**

**Frank Dankers***MAASTRO clinic  
Maastricht, The Netherlands*

Frank Dankers was born in Tilburg, The Netherlands in October 1985. He followed Gymnasium at Valuascollege in Venlo before enrolling in Applied Physics at the Technical University of Eindhoven. With a minor in chemistry he completed his bachelor's program graduating on the topic 'surface tension gradient driven droplet propulsion' supervised by Prof. Anton Darhuber in 2010. During his master's program he focused on fluid dynamics and medical physics. He completed an internship at the radiation oncology department of the Massachusetts General Hospital in Boston (co-funded by the Dutch Cancer Society), which sparked his interest in radiation oncology. He graduated on the topic 'effects of anticonvulsants on the electroencephalogram of neonates with stroke' at Maxima Medical Center in Eindhoven under the supervision of Prof. Pieter Wijn in 2012.

He went on to train as a medical physicist at the radiotherapy department at Radboudumc, Nijmegen, The Netherlands, receiving his professional registration in 2016. He continued working as a medical physicist at Radboudumc while also embarking on a joint PhD research project with MAASTRO clinic, Maastricht, The Netherlands, under the supervision

of Prof. Andre Dekker and Prof. Johan Bussink.

Frank Dankers has an academic background in prediction modeling and machine learning for treatment outcome prediction in lung cancer patients receiving (chemo-)radiotherapy. His current research focuses on deployment and adoption of a distributed learning infrastructure enabling multi-institutional privacy-preserving data analysis. His doctorate research is set to conclude in the first semester of 2019, to be followed by a fulltime position as a medical physicist at Leiden University Medical Center in The Netherlands, from June 2019 onwards.

## GEC-ESTRO Best junior presentation – sponsored by Elekta Brachytherapy



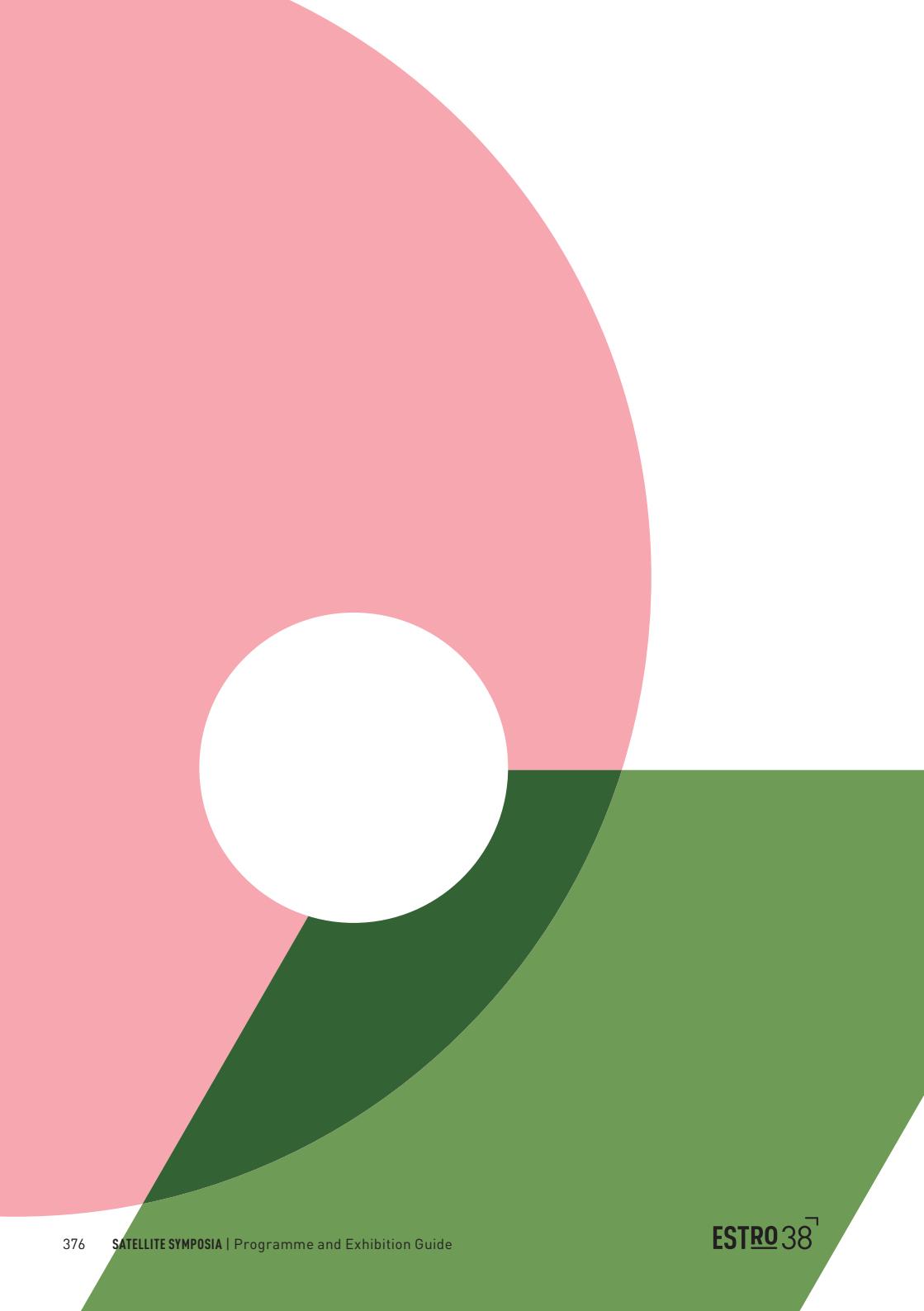
**Max Peters**

*University Medical Center  
Utrecht, The Netherlands*

Max Peters studied medicine at the University Medical Centre in Utrecht from 2007 to 2013, after which he obtained his PhD and a master's in epidemiology by completing a period of research in brachytherapy for prostate cancer, at the Radiation Oncology department. From 2017 to date, he is a resident in Radiation Oncology at the University Medical Centre Utrecht, where he continues to pursue research in focal treatments for prostate cancer.

His clinical focus is in MRI-guided HDR-brachytherapy for patients with recurrent cancer after primary radiotherapy. He works closely with urologists from Imperial College London and University College London, on various focal treatment modalities for primary and recurrent disease. This research primarily involves developing the clinical evidence base for cryotherapy and high intensity focused ultrasound (HIFU). By collaboration and sharing of data and knowledge, he hopes to improve the counselling, optimal technique and treatment selection for patients with prostate cancer.

Alongside his passion for prostate research he works with many different research groups covering various tumour sites to create statistical prediction models in order to enhance adequate patient selection for treatment or to optimise follow-up for high risk groups.



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# SATELLITE SYMPOSIA

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Saturday 27 April 2019

378

Elekta  
Accuray  
Dr. Sennewald Medizintechnik GmbH  
Raysearch Laboratories

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Sunday 28 April 2019

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Varian  
Viewray  
Brainlab  
Sun Nuclear Corporation  
Astrazeneca

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Monday 29 April 2019

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Philips Radiation Oncology Solutions  
Siemens Healthineers  
Boston Scientific/Augmenix

# Elekta

**Saturday 27 April 2019 | 13:15-14:15 | Ambra 1-2**

## Precision Radiation Medicine; Solutions to Address Oligometastatic Disease

Chair: Dr Joel Goldwein Sr.VP Medical Affairs, Elekta

- |       |  |
|-------|--|
| 13:15 | > Current trends in treating Oligometastases : Update from Consortium for Oligometastases REsearch (CORE)<br><i>Faculty: Serena Badellino, MD, University of Turin, Italy</i>            |
| 13:45 | > Clinical experience with the Elekta Unity for the treatment of oligometastatic disease<br><i>Faculty: Dr Martijn Intven, University Medical Center (UMCU) Utrecht, The Netherlands</i> |

Visit Elekta, booth 3800 for more information



# Accuray

Saturday 27 April 2019 | 13:15-14:15 | Ambra 5-6

## Dynamic Tracking and Motion Synchronization: Over 15 Years of Accuray Leadership

Chair: Dr. Vincent Khoo, The Royal Marsden NHS Foundation Trust, London, UK

- |       |   |
|-------|---|
| 13:15 | > <b>Introduction</b><br><i>Faculty: Dr. Vincent Khoo, The Royal Marsden NHS Foundation Trust, London, UK</i>                                       |
| 13:20 | > <b>Clinical Value of Motion Synchronization for Prostate SBRT</b><br><i>Faculty: Dr. Sean Philip Collins, MedStar Health, Washington DC, USA</i>  |
| 13:35 | > <b>Clinical Value of Motion Synchronization for Lung SBRT</b><br><i>Faculty: Dr. Pierre-Yves Bondiau, Centre Antoine Lacassagne, Nice, France</i> |
| 13:50 | > <b>Real-time Motion Synchronization on the Radixact® System</b><br><i>Faculty: Prof. Jennifer Smilowitz, UW Madison, USA</i>                      |
| 14:05 | > <b>Conclusion</b><br><i>Faculty: Dr. Vincent Khoo, The Royal Marsden NHS Foundation Trust, London, UK</i>   |

Visit Accuray, booth 800 for more information



# Dr. Sennewald Medizintechnik GMBH

Saturday 27 April 2019 | 13:15-14:15 | Ambra 8

## Hyperthermia in the age of personalised oncology

Chairs:

Daniel Zips, MD, UMC Tübingen, Germany

Stephan Bodis, MD, Canton Hospital Aarau, Switzerland

- 13:15-13:18 > **Introduction**  
*Faculty: Daniel Zips, UMC Tübingen, Germany*
- 13:18-13:28 > **Hyperthermia as immune modulator in multimodal tumor therapies – immune biological rationale**  
*Faculty: Michael Hader, PhD, UMC Erlangen*
- 13:28-13:38 > **Integration of Pencil Beam Scanning Proton Therapy and Hyperthermia: The University of Maryland Clinical Experience**  
*Faculty: Zeljko Vujaskovic, MD, PhD, University of Maryland, Baltimore, USA*
- 13:38-13:48 > **Management of locally recurrent Breast Cancers with local hyperthermia and radiotherapy: A systematic review and meta-analysis**  
*Faculty: Niloy Datta, MD, Canton Hospital Aarau, Switzerland*
- 13:48-13:58 > **Neoadjuvant chemotherapy combined with regional deep hyperthermia as the new standard for the treatment of patients with high-risk soft tissue sarcomas**  
*Faculty: Lars Lindner, MD, UMC Munich Grosshadern, Germany*
- 13:58-14:08 > **Hyperthermia and preoperative chemoradiation for organ-preservation in rectal cancer patients**  
*Faculty: Cihan Gani, MD, UMC Tübingen, Germany*
- 14:08-15:15 > **Discussion and Summary**  
*Faculty: Stephan Bodis, MD, Canton Hospital Aarau, Switzerland*

Visit Dr. Sennewald Medizintechnik GmbH, booth 1670 for more information

# Raysearch Laboratories

Saturday 27 April 2019 | 13:15-14:15 | Brown 3

## Advancing cancer care through software innovation

*Chair: Piet Dirix, MD, Radiation Oncologist, Iridium Kankernetwerk, Antwerp, Belgium*

- 13:15-13:30 > **Machine learning planning in RayStation: the current status for head and neck cancer VMAT**

*Faculty: Roel Kierkels, PhD, Medical Physicist, University Medical Center Groningen, Netherlands*

- 13:30-13:45 > **A fully integrated proton therapy workflow with RayCare OIS and RayStation TPS**

*Faculty: Ben Frank, Vice President of Operations, Provision Care Proton Therapy, Nashville, USA*

- 13:45-14:10 > **Comprehensive cancer care: bringing it all together**

*Faculty: Johan Löf, Founder & CEO RaySearch Laboratories, Stockholm, Sweden*

- 14:10-14:15 > **Question and Answer session**

*Faculty: Piet Dirix, MD, Radiation Oncologist, Iridium Kankernetwerk, Antwerp, Belgium*

Visit Raysearch Laboratories, booth 1100 for more information



# Varian

**Sunday 28 April 2019 | 13:15-14:15 | Space 3-4**

## Flash Therapy, A Potential Paradigm Shift in Cancer Treatment

- 13:15 – 13:20 > Introduction  
*Bill Hansen, Speaker, Varian*
- 13:20 – 13.40 > What We Know Today about Flash Therapy  
*Dr. Patrick Kupelian, VP Medical Affairs at Varian Medical Systems*
- 13:40 – 13.55 > Results From the First Proton Flash Pre-Clinical Studies  
*Dr. Dee Khuntia, Senior VP and Chief Medical Officer at Varian Medical Systems, Palo Alto*
- 13:55 – 14.00 > ProBeam 360, The Fastest Path to Flash  
*Dr. Dee Khuntia, Senior VP and Chief Medical Officer at Varian Medical Systems*
- 14:00 – 14.15 > Panel discussion with Q&A  
*Dr. Patrick Kupelian, Dr. Dee Khuntia & Prof. Ricky Sharma*

Visit Varian booth 2300 for more information



# Viewray

Sunday 28 April 2019 | 13:15-14:15 | Ambra 8

## The practice of MRI-guided radiotherapy with the MRIdian System

Chair: Martin Fuss, MD, USA, ViewRay Inc

- |       |   |
|-------|---|
| 13:15 | > <b>MRIdian Updates</b><br><i>Faculty: Martin Fuss, MD</i>   |
| 13:20 | > <b>Rapid introduction of on-table adaptive at a new MRIdian site</b><br><i>Faculty: Enis Ozyar, MD, Professor and Chair, Acibadem Maslak Hospital, Department of Radiation Oncology, Istanbul, Turkey</i>           |
| 13:40 | > <b>Three years of clinical experience on MR-guided adaptive radiotherapy with the MRIdian</b><br><i>Faculty: Miguel A. Palacios, PhD, Medical Physicist Radiotherapy, Amsterdam UMC, Amsterdam, The Netherlands</i> |
| 14:00 | > <b>Question and Answer session</b>  |

Visit Viewray, booth 350 for more information



# Brainlab

Sunday 28 April 2019 | 13:15-14:15 | Ambra 1-2

## Improving Radiosurgery for Treatment of Intracranial Metastasis: Why Every Millimeter Counts

Chair: Giuseppe Minniti, MD, UPMC San Pietro Fatebenefratelli, Italy

- 13:15-13:30 > **Evaluating Intra-fraction Motion for Cranial Radiosurgery Patients**  
*Manuel Todorovic, MSc; University Medical Center Hamburg-Eppendorf (UKE), Germany*
- 13:30-13:45 > **Clinical Outcomes for Single Isocenter Treatments in Patients with up to 10 Metastases**  
*Giuseppe Minniti, MD; UPMC San Pietro Fatebenefratelli, Italy*
- 13:45-14:00 > **Clinical Experience Utilizing Elements Multiple Brain Mets SRS 2.0**  
*Mariangela Zamburlini, PhD; UniversitätsSpital Zürich, Switzerland*
- 14:00-14:15 > **Early Validation of ExacTrac Dynamic: New Features & Accuracy of the System**  
*Fatma Rahma, MSc; Rigshospitalet, Denmark*

Visit Brainlab, booth 2800 for more information



# Sun Nuclear Corporation

Sunday 28 April 2019 | 13:15-14:15 | Ambra 5-6

## Advancing QA: Insights on Independence, Integration & Efficiency

Chair: Roberto Casado, Sun Nuclear Corporation, Melbourne, FL

- 13:15-13:25 > **Advancing RT QA - Latest Solutions**  
*Faculty: Greg Robinson, M.S., Sun Nuclear Corporation., Melbourne, USA*
- 13:25-13:45 > **Improving QA Effectiveness with an Integrated and Automated Platform**  
*Faculty: Carl Rowbottom, Ph.D., Clatterbridge Cancer Centre, Bebington, UK*
- 13:45-14:00 > **Automated Transit Dosimetry Using an EPID QA Solution**  
*Faculty: Andrew Reilly, Ph.D., North West Cancer Center, Londonberry, Northern Ireland, UK*
- 14:00-14:15 > **A Unique Diode Array for SRS/SBRT End-to-End**  
*Faculty: Arnd Roser, Ph.D., HELIOS University Clinic, Wuppertal, Germany*

Visit Sun Nuclear Corporation, booth 60-200 for more information. Lunch boxes provided.



# Astrazeneca

**Sunday 28 April 2019 | 13:15-14:15 | Brown 3**

## **Chemoradiation Followed by Immunotherapy: Transforming the Approach for Treating Unresectable Stage III NSCLC**

### Speakers:

*Roy Decker, MD, PhD, Radiation Oncologist, Yale Cancer Center, USA*

*Francesco Grossi, MD, Medical Oncologist, Fondazione IRCCS Ca' Granda Policlinico di Milano, Italy*

*Shankar Siva, MD, PhD, Radiation Oncologist, Peter MacCallum Cancer Centre, Australia*

- 13:15-13:25 > **Immunotherapy Overview and Importance of Multidisciplinary Care in Stage III NSCLC**

*Faculty: Shankar Siva, MD, PhD, Peter MacCallum Cancer Centre, Australia*

- 13:25-13:40 > **Treatment for Unresectable Stage III NSCLC: Approaches and Management of CRT**

*Faculty: Roy Decker, MD, PhD, Yale Cancer Center, United States*

- 13:40-14:00 > **Treatment for Unresectable Stage III NSCLC: Immunotherapy After CRT**

*Faculty: Francesco Grossi, MD, Fondazione IRCCS, Ca' Granda Policlinico, di Milano, Italy*

- 14:00-14:10 > **Question and Answer session Panel**

- 14:10-14:15 > **Summary and Closing Remarks**

*Faculty: Shankar Siva, MD, PhD, Peter MacCallum Cancer Centre, Australia*

Visit Astrazeneca, booth 5800 for more information

# Philips Radiation Oncology Solutions

Monday 29 April 2019 | 13:15-14:15 | Brown 3

## Philips' Innovations in Radiation Oncology: What does the future bring?

*Chair: Ardie Ermers, General Manager Radiation Oncology, Philips Healthcare*

### The Philips Oncology Solutions Vision

*Ardie Ermers, General Manager Radiation Oncology, Philips Healthcare*

### Right time, Right Space – improving processes and patient care in our cancer centre

*Dr. Russel Banner, Radiotherapy Lead Clinical Oncologist, Sout West Wales Cancer Centre, Swansea, United Kingdom*

### Will MR change the future of Radiotherapy forever?- Q&A Session

*Guest: Prof. B. Raaymakers, Experimental Clinical Physics, Department of Radiotherapy University Medical Center Utrecht, Utrecht, The Netherlands*

Visit Philips, booth 4000 for more information.



# Siemens Healthineers

Monday 29 April 2019 | 13:15-14:15 | Ambra 5-6

**Two energies – one goal: Dual Energy CT helps expand precision medicine in Radiation Oncology**

Chair: *Christoph Bauer, Siemens Healthineers, Germany*

13:15 - 13:25 > **Welcome to Siemens Healthineers - what's new at ESTRO 2019**  
*Cécile Mohr, PhD, Siemens Healthineers, Germany*

13:25 - 13:50 > **Dual Energy CT in clinical practice: Enhancing tumor delineation?**  
*Prof. Enric Fernández-Velilla, Hospital del Mar Barcelona, Spain*

13:50 - 14:15 > **Dual Energy – Stopping Power Ratio: Panel discussion about DirectSPR – facilitating clinical implementation of Dual Energy CT-based stopping power prediction - What's the benefit?**  
*Presentation and moderation: Christian Möhler, PhD, Siemens Healthineers  
Panelist: Christian Richter, PhD, Physicist, research group leader, OncoRay – National Center for Radiation Research in Oncology, Dresden, Germany*

Visit Siemens Healthineers, booth 1900 for more information



# Boston Scientific/Augmenix

Monday 29 April 2019 | 13:15-14:15 | Ambra 1-2

## Prostate Radiation Therapy Dose Escalation with Hydrogel Spacing

### Speakers:

*Michael R. Folkert, MD, PhD*

*Director, University of Texas Southwestern Medical Center Department of Radiation Oncology*

**Rectal spacers in dose-escalated and neurovascular sparing prostate SBRT/SABR**

*Professor Giuseppe Sanguineti, MD*

*Department of Radiation Oncology IRCCS Regina Elena National Cancer Institute*

**The role of hydrogel spacing in ultrahypofractionated radiotherapy for prostate cancer**

*Marcio Fagundes, MD*

*Medical Director Radiation Oncology Department Miami Cancer Institute*

**Achieving consistent prostate-rectum spacing in small and large glands with hydrogel spacer**

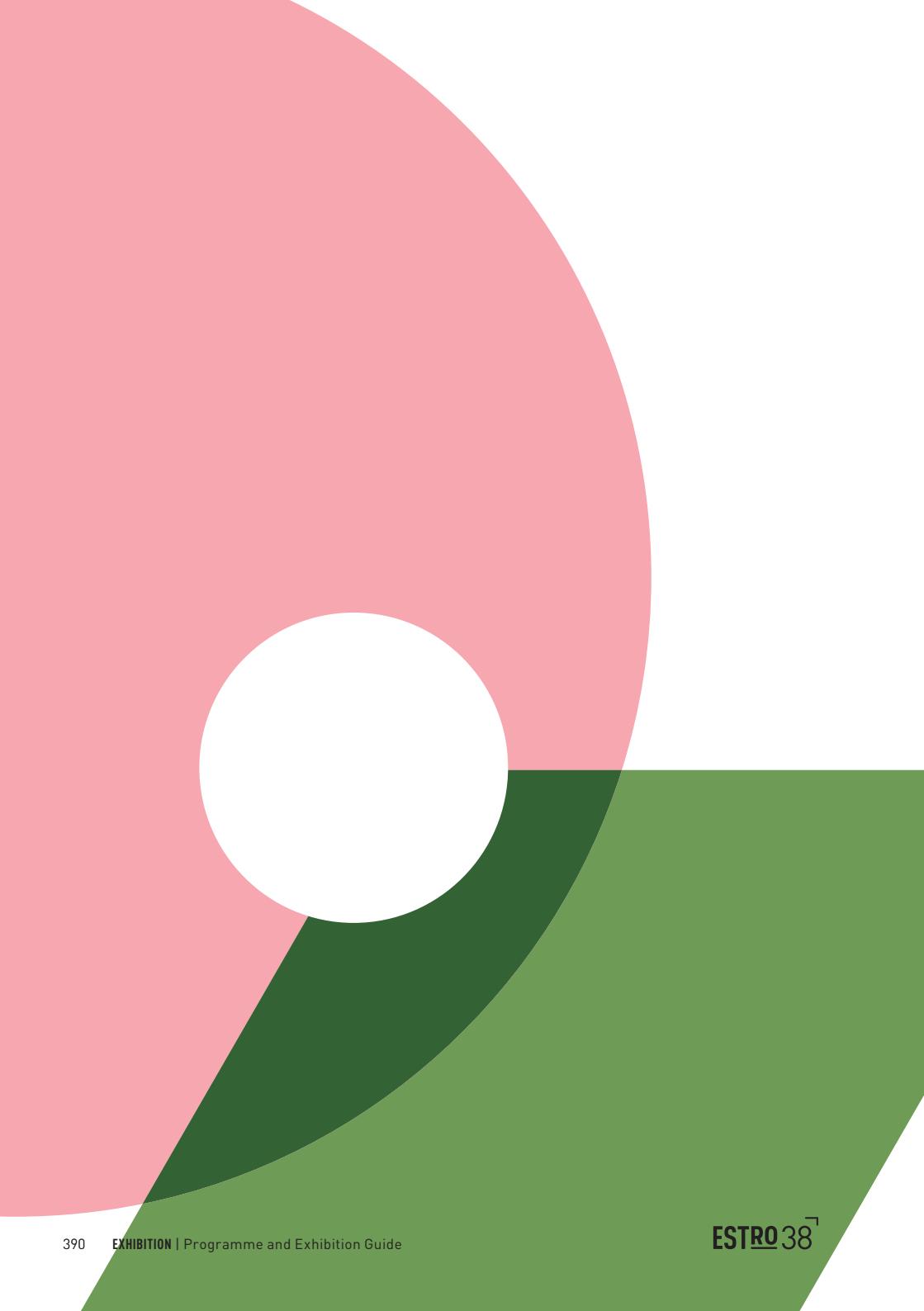
### Moderator:

*Vincent Khoo, MD(Res)*

*Consultant in Clinical Oncology, Royal Marsden NHS Foundation Trust*

Visit Augmenix, booth 3550 for more information





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# EXHIBITION

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# Acknowledgements

ESTRO wishes to thank for their support to this congress:

- **University of Wisconsin**, sponsor of the ESTRO – Jack Fowler Award
- **Elekta**, sponsor of the ESTRO – Elekta Brachytherapy award, the GEC – ESTRO best junior presentation and the Elekta Brachytherapy Travel grants
- **RaySearch Laboratories**, sponsor of the congress lanyards
- **Varian Medical Systems International AG**, sponsor of the ESTRO – Varian Physics Award
- **Elsevier**, sponsor of the ESTRO-ctRO award, phiRO award, tipsRo award, Jens Overgaard Legacy award

and all companies having supported the participation of delegates in the congress and/or participating to the technical exhibition.



# Improving the Patient Journey



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*Coming Soon*



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## Uniform Thickness Bolus Modulated Electron Bolus HDR Surface Brachytherapy

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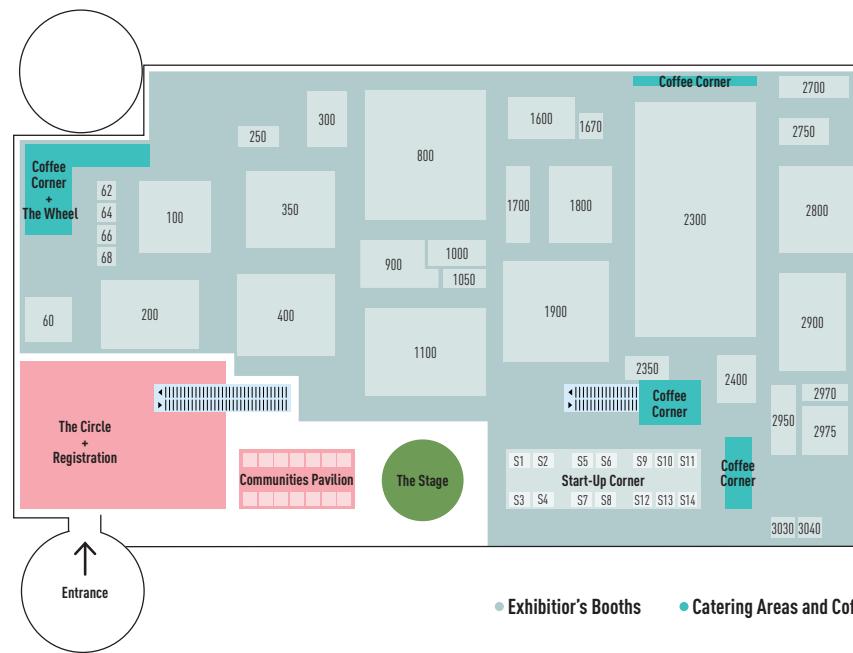


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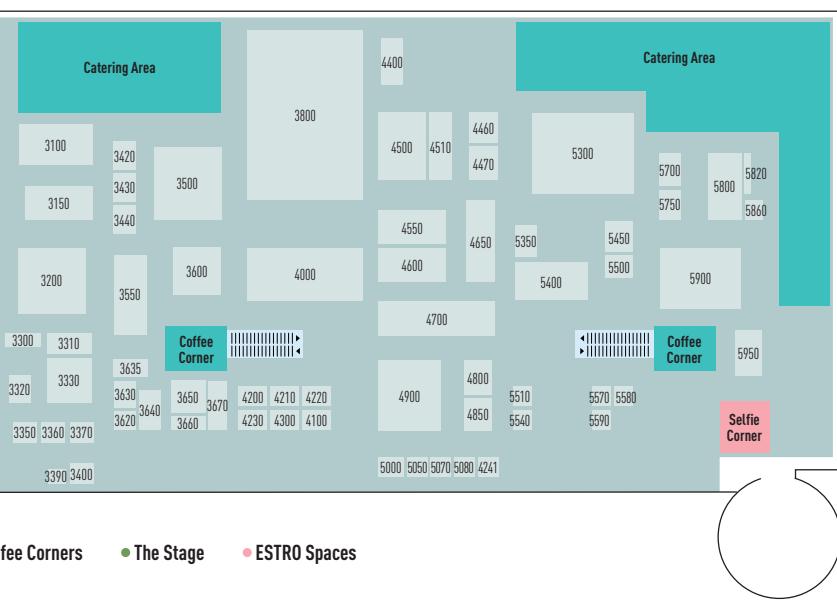
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# Floorplan



## Exhibitors

A2J Healthcare	3320	Cemar Electro Inc	3640	Interventional Systems GmbH	5540
Accuray ●	800	Cirs	3350	Jiahui International Hospital	5070
Adani	3300	Civco Radiotherapy ●	2900	Klarity Medical Products, LLC ●	4900
AEP Linac	4220	C-Rad ●	4500	Lap GmbH Laser Applikationen ●	3200
American Society Of Clinical Oncology (ASCO)	3030	Dib Radiation Protection	5350	Macromedics BV ●	5400
Anzai Medical Co., Ltd	4100	Dosisoft	3635	Med Com GmbH	3360
Aquilab ●	2400	Dr. Sennewald Medizintechnik GmbH	1670	Merit Medical	4850
Ariana Medical Systems	5000	Eckert & Ziegler Bebig ●	3100	Mevion Medical Systems ●	5900
Ashland	4300	Elekta ●	3800	Micropos Medical ●	5500
Astrazeneca	5800	GE Healthcare	1600	Mim Software Inc ●	2350
Beekley Medical	3660	Gold Anchor (Naslund Medical Ab)	3440	Mirada Medical ●	1000
Behyaar Co.	5080	ELMA Research	5050	Modus Qa	3310
Best Medical International	100	Epidos S.R.O	4241	Nelco ●	2950
Boston Scientific/Augmenix ●	3550	Guangzhou Renfu Medical Equipment Co, Ltd	2970	Oncare GmbH	4510
Brainlab ●	2800	Hitachi ●	1700	Oncology Services International	4210
Cablon Medical B.v. ●	5450	IBA ●	3500	Oncology Systems Ltd	5750
Canon Medical Systems Europe	4600	IBA ●	3600	Oncotherm Kft.	5570
Carl Zeiss Meditec AG ●	2750	Intraop Medical ●	4650	Opasca GmbH ●	4550
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Celsius42 GmbH	3040	IRT Systems GmbH	5950	Par Scientific	62



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## Start-Up Corner

Philips Radiation Oncology Solutions ●	4000	Standard Imaging Inc. ●	900	Alpha Tau Medical LTD	S6
Prowess Inc	5700	Star Medical Italy	5510	Anatge	S11
PTW ●	4700	Sun Nuclear Corporation ●	60	Accubooost	S12
Qfix ●	1800	Sun Nuclear Corporation ●	200	Ehmetdx	S14
Qualiformed Sart	3650	Suremark Company	5590	Healthcare Mobile Solutions	S9
RAD Technology Medical Systems ●	1050	Techna Institute, University Health Network	4230	I-See Computing Ltd.	S4
Radiological Imaging Technology, Inc	3630	Tecnologie Avanzate Ta Srl	300	MD-Arge	S10
Radon Medical Equipment Import Export Sales And Trading Ltd. Co	4460	Tema Sinergie S.p.a. / Xcision Medical Systems	2975	Medical Risk Management	S7
Radiology Oncology Systems	4200	UAB "VPC"	3620	MVISION AI LTD	S13
Raysearch Laboratories ●	1100	Varian Medical Systems International Ag	2300	Nanovi A/S	S3
RS&A	68	Varian Medical Systems International AG ●	2700	Novagray	S1
Rt-Safe P.c.	4400	Vertual Ltd	250	Phantomx	S8
S.I.T.- Sordina IORT Technologies SPA	3330	Viewray Incorporated ●	350	Therapanacea	S2
SAS DYN'R	3370	Vision RT ●	400	Trueinvivo D.	S5
Scandidos Ab - Delta4 Family ●	3150	Wisepress Ltd	5820		
Shenzhen Tengfei Yu Technology Co., Ltd.	5580	Xoft, A Subsidiary Of ICAD, Inc.	3670		
Siemens Healthcare GmbH ●	1900	X-Raydoors	4470		
Sky Factory	64	Xstrahl Ltd ●	3420		
Spectronic	3430				

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77400 Thoirigny sur Marne  
France

✉ Typhaine Bocktael  
☎ +33 1 60 94 2294  
📠 +33 1 64 30 6267  
✉ export@a2jlaser.com

[www.a2jlaser.com](http://www.a2jlaser.com)

3320

## AEP Linac

Van Hennaertweg 9  
2952 CA  
Alblasserdam  
The Netherlands

✉ Joep van de Leur  
☎ +31 78 692 2100  
✉ sales@aeplinac.com

[www.aeplinac.com](http://www.aeplinac.com)

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## Accuray International

Route de la Longeraie 9  
Place des Couronnes- Le Véronèse,  
1100 Morges  
Switzerland

✉ Pascal Biner  
☎ +41 79 304 77 54  
✉ pbiner@accuray.com

[www.accuray.com](http://www.accuray.com)

800

## American Society Of Clinical Oncology (ASCO)

2318 Mill Rd Ste 800  
Alexandria  
VA 22314  
USA

☎ +1 571 483 1300  
✉ customerservice@asco.org

[www.asco.org](http://www.asco.org)

3030

## Adani

7 Selitsky Str.  
220075 Minsk  
Belarus

✉ Natallia Gordeeva  
☎ +375 17 3490000  
✉ gordeeva@adani.by

[www.adanisystems.com](http://www.adanisystems.com)

3300

## Anzai Medical Co Ltd

3-6-25 Nishi-Shingawa, Shingawa-Ku  
1410033 Tokyo  
Japan

✉ Yukiko Abe  
☎ +81 3 3779 1611  
📠 +81 3 3779 6606  
✉ y.abe@anzai-med.co.jp

[www.anzai-med.co.jp/en/index.html](http://www.anzai-med.co.jp/en/index.html)

4100

<b>Aquilab SAS</b> 250 rue Salvador Allende 59120 Loos France	2400	<b>Boston Scientific /Augmenix</b> 201 Burlington Road Bedford, MA 01730 USA	3550
✉ David Gibon ☎ +33 3 69 61 51 51 📠 +33 3 69 61 51 50 ✉ david.gibon@aqilab.com		✉ Eileen Gardner ☎ +1 781 895 3235 ✉ egardner@augmenix.com	
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✉ Michaela Neilson ☎ +1 908 952 56 69 ✉ mneilson@ashland.com		✉ Hamid Farrokhpour ☎ +98 913 102 87 79 📠 +98 31 33932276 ✉ hamid.farrokhpour@gmail.com	
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✉ Eryn Lee ☎ +1 757 855 2765 📠 +1 757 857 0523 ✉ elee@cirsinc.com		✉ Marc Uszynski ☎ +33 1 41 24 26 26 ✉ marc.uszynski@dosisoft.com	
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✉ Shelli Locklear ✉ shelli.locklear@civcort.com		✉ Dr. Gerhard Sennewald ☎ +49 89 5421 43-0 ✉ sales@sennewald.de	
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✉ Michel Zahrai ☎ +33 6 85 33 38 17 ✉ m.zahrai@dib-production.fr		<a href="http://www.bebig.com">www.bebig.com</a>	
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<b>ESTRO - European SocieTy for Radiotherapy and Oncology</b> Rue Martin V, 40 1200 Brussels Belgium  ☎ +32 2 775 93 40 ✉ +32 2 779 54 94 ✉ info@estro.org  <a href="http://www.estro.org">www.estro.org</a>	<b>3390</b>	<b>Guangzhou Renfu Medical Equipment Co, Ltd</b> No 2 Zhiye Road Dalong Street Pany District Guangzhou 511450 China  ✉ Ivy Chen ☎ +86 20 3839 1508 ✉ +86 20 3839 1509 ✉ ivy.chen@renfumed.com  <a href="http://www.renfumed.com">www.renfumed.com</a>
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<a href="http://www.mimsoftware.com">www.mimsoftware.com</a>		<a href="http://www.oncare.me">www.oncare.me</a>	
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Oxford Centre for Innovation New Road Oxford OX1 1BY United Kingdom		102 Chestnut Ridge Road Montvale, NJ 07645 USA	
✉ Annamaria Albano ☎ +44 1865 261410 ✉ annamaria.albano@mirada-medical.com		✉ Jim Sharkey ☎ +1 732 730 0662 ✉ +1 732 730 0664 ✉ jim@thinkosi.com	
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<b>www.parscientific.com</b>			
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✉ Dean Howard – Vice President, Business Development ☎ +1 (404) 406 1331 ✉ dhoward@rsainc.net		✉ Anders Adolfson ☎ +46 70 662 74 44 ✉ +46 18 107 702 ✉ anders.adolfson@scandidos.com	
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✉ Evangelos Pappas ☎ +30 210 7563691 ✉ info@rt-safe.com		✉ Christy Zhang ☎ +86 755 83120094 810 ✉ +86 755 83124260 ✉ christy@tfy-medical.com	
<a href="http://www.rt-safe.com">www.rt-safe.com</a>		<a href="http://www.tfy-medical.com">www.tfy-medical.com</a>	
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✉ Gordon Fairburn ☎ +33 442 673 077 ✉ +33 442 210 734 ✉ gordon@dynr.com		✉ Cecile Mohr ☎ +49 9191 18 7292 ✉ cecile.mohr@siemens-healthineers.com	
<a href="http://www.SDXgating.com">www.SDXgating.com</a> <a href="http://www.dynr.com">www.dynr.com</a>		<a href="http://www.healthcare.siemens.com">www.healthcare.siemens.com</a>	

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Via dell'Industria 1/A 04011 Aprilia Italy		Via E Motta 6 20144 Milan Italy	
✉ Francesco Zanetti ☎ +39 0444 233 711 📠 +39 0444 233 790 ✉ francesco.zanetti@sordina.com		✉ Marco Amatteis ☎ +43 664 864 6233 📠 +39 02 480 135 35 ✉ info@starmedical.it	
		<b>www.starmedical.it</b>	
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PO Box 1177 Fairfield IA 52556 USA		3275 Suntree Blvd Melbourne FL 32940 USA	
✉ Bill Thompson ☎ +1 641 472 1747 ✉ billt@skyfactory.com		✉ Mark Siviter ☎ +1 321 259 6862 ✉ marksiviter@sunnuclear.com	
<b>www.skyfactory.com</b>		<b>www.sunnuclear.com</b>	
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Karbingatan 36 25467 Helsingborg Sweden		4645 Industrial Street #2C Simi Valley CA 93063 USA	
✉ Carl Siversson ☎ +46 42 25 20 00 ✉ carl.siversson@spectronic.se		✉ Mike Thornock ☎ +1 805 322 3509 📠 +1 805 435 8047 ✉ mike@suremark.com	
<b>www.spectronic.se</b>		<b>www.suremark.com</b>	
<b>Standard Imaging</b>	<b>900</b>		
3120 Deming Way Middleton, WI 53562 USA			
✉ Mark Spatafore ☎ +1 608 824 7813 📠 +1 608 831 2202 ✉ mspatafore@standardimaging.com			
<b>www.standardimaging.com</b>			

<b>Techna Institute, University Health Network</b> 124-100 College Street Toronto ON M5G1L5 Canada	<b>4230</b>	<b>UAB "VPC"</b> Berzu Str. 2A 14160 Buivydishes Lithuania	<b>3620</b>
✉ Tracey Lui ☎ +1 416 581 7658 ✉ contact@technainstitute.com		✉ Rokas Urbonas ☎ +370 5 253 1228 ✉ +370 5 278 4543 ✉ info@rtcast.eu	
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✉ Gaia Dogliotti ☎ +39 342 3025123 ✉ gaia.dogliotti@tecnologieavanzate. com		✉ Tim Clark ☎ +41 41 749 88 44 ✉ info.europe@varian.com	
<a href="http://www.tecnologieavanzate.com">www.tecnologieavanzate.com</a>		<a href="http://www.varian.com">www.varian.com</a>	
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✉ piran.sioshansi@accubooost.com

[www.accubooost.com](http://www.accubooost.com)

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MI 48170  
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✉ Eduardo Suarez  
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[www.anatge.com](http://www.anatge.com)

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Via Giacosa 38  
10125 Turin  
Italy

✉ Faiza Bourhaleb  
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[www.i-seecomputing.com](http://www.i-seecomputing.com)

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Turkey  
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✉ Tanja Wolff Consulting Belgium  
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Germany  
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+49 175 626 63 20  
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Denmark  
✉ Sten Naae Hornsleth-Jesper Boysen  
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[www.nanovi.com](http://www.nanovi.com)

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10117 Berlin  
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Pépinière Paris Cochin Santé  
29 rue du Fb Saint Jacques  
75014 Paris  
France  
✉ Catherine Martineau-Huynh  
☎ +33 9 62 52 78 19  
✉ enquiries@therapanacea.eu  
[www.therapanacea.eu](http://www.therapanacea.eu)

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Surrey Research Park  
Guildford  
Surrey  
GU2 7YG  
UK

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✉ Nigel Biggs  
☎ +44 786 087 37 17  
✉ nigel.biggs@trueinvivo.co.uk

[www.trueinvivo.co.uk](http://www.trueinvivo.co.uk)

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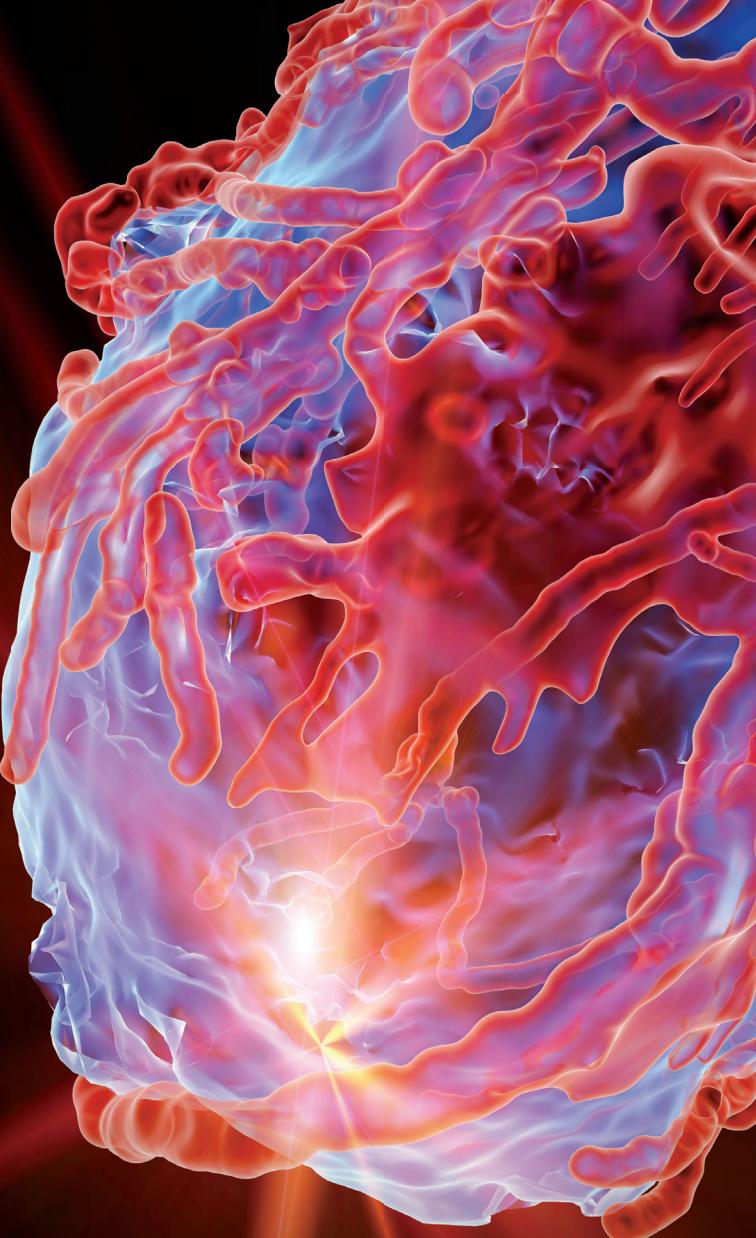
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