Learning never exhausts the mind.

- Leonardo da Vinci -

Stereotactic ablative radiotherapy (SABR) is a technique where high doses of radiation are precisely delivered from many directions to a focused target. This results in an ablative treatment with curative intent and spares surrounding critical structures.

RapidArc radiotherapy technology delivers sophisticated SBRT treatments faster than previously possible and opens up treatment possibilities for your patients.

ESTRO
European Society for Radiotherapy & Oncology
Rue Martin V, 40
1200 Brussels
Belgium
WWW.ESTRO.ORG
<table>
<thead>
<tr>
<th>CONTENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESTRO</strong></td>
</tr>
<tr>
<td>Introduction .................................................................................. 8</td>
</tr>
<tr>
<td>The ESTRO School in 2014 ................................................................. 10</td>
</tr>
<tr>
<td>ESTRO Staff ..................................................................................... 16</td>
</tr>
<tr>
<td><strong>SCHOOL</strong></td>
</tr>
<tr>
<td>19</td>
</tr>
<tr>
<td>EDUCAATIONAL ACTIVITIES ..................................................................... 19</td>
</tr>
<tr>
<td>Which course to attend? .................................................................... 20</td>
</tr>
<tr>
<td>Live Teaching Courses 2014 ............................................................... 22</td>
</tr>
<tr>
<td>School Calendar 2014 &amp; 2015 ................................................................. 94</td>
</tr>
<tr>
<td>Online Education ............................................................................. 96</td>
</tr>
<tr>
<td>Mobility Grants (TTG) ...................................................................... 100</td>
</tr>
<tr>
<td><strong>PUBLICATIONS</strong> ............................................................................. 103</td>
</tr>
<tr>
<td>Educational Publications .................................................................. 104</td>
</tr>
<tr>
<td>Handbook for setting up ESTRO Courses .............................................. 107</td>
</tr>
<tr>
<td>Educational Reviews on the Green Journal ........................................ 108</td>
</tr>
<tr>
<td><strong>CONFERENCES</strong> ............................................................................. 116</td>
</tr>
<tr>
<td>ESTRO CONFERENCES ....................................................................... 116</td>
</tr>
<tr>
<td>ESTRO 33 ......................................................................................... 116</td>
</tr>
<tr>
<td>JOINT CONFERENCES ...................................................................... 140</td>
</tr>
<tr>
<td>EBCC ......................................................................................... 141</td>
</tr>
<tr>
<td>EMUC ......................................................................................... 142</td>
</tr>
<tr>
<td><strong>ESTRO</strong></td>
</tr>
<tr>
<td>145</td>
</tr>
<tr>
<td>GENERAL INFORMATION .................................................................... 145</td>
</tr>
<tr>
<td>Registration Information ................................................................. 146</td>
</tr>
<tr>
<td>ESTRO Membership ......................................................................... 150</td>
</tr>
<tr>
<td>ESTRO Fellow ................................................................................ 153</td>
</tr>
</tbody>
</table>
ESTRO has been very successful over the years in establishing a high quality educational and teaching programme. The “ESTRO School of Radiotherapy and Oncology” has markedly increased the number of teaching courses and participants in the last five years including several courses outside Europe, for example in Russia, China, India, Far East Asia, the Middle-East and Latin America.

ESTRO is offering a growing range of basic and advanced teaching courses on radiobiology, physics, technologies, modern imaging modalities and management, including a great variety of interdisciplinary and multidisciplinary courses, to cover the demand of harmonised training and continued medical education in Europe and beyond.

In 2014 ESTRO 33 will provide a broad portfolio of educational opportunities. The interdisciplinary components of our practice will be addressed in the scientific symposia that look at the new opportunities these components represent for all of us. Five pre-conference courses and eight delineation workshops will enrich the atmosphere of friendship of our meetings with educational values.

The rapidly expanding spectrum of ESTRO’s educational programme is now included in the frame of the EAGLE programme (ESTRO’s Application for Global LEarning), e-learning teaching courses and new online services. The e-contouring FALCON programme (Fellowship in Anatomic deLineation and CONtouring) will continue to enrich our courses, delineation pre-meeting workshops and the new online workshops. These programmes are ESTRO’s answer to the new frontiers of education, which ESTRO wants to implement according to its well-established expertise and tradition.

ESTRO launched DOVE (Dynamic Oncology Virtual ESTRO) in 2013, our online service library aiming to become the largest educational library of radiation oncology on the internet. It will not only provide users with high level learning material, but will also offer tools for interactive learning and discussions.

The availability of the new ESTRO Vision document (see p 111) offers the ESTRO School of Radiotherapy and Oncology further guidance to address the new challenges in education methodology and technology as to monitor the quality of our educational offer in conjunction with the other scientific ESTRO activities.

These wide-ranging services are made possible with the dedication of all the teachers of the ESTRO School who with their valuable input, help maintain the high quality and success of ESTRO’s educational programme, and for this I sincerely thank them. I am equally grateful to the staff of the ESTRO School and particularly Richard Pötter and Christine Verfaillie for their committed and conscientious work in co-ordinating these growing activities.

I hope you will enjoy reading this guide which will provide you with detailed information on teaching courses, e-learning initiatives and conferences. For more information please consult our website www.estro.org.

Finally I invite you to discover the 2014 ESTRO membership with a brand new offer of online services.

Warm regards,
Vincenzo Valentini
ESTRO acknowledges that access to modern radiation oncology treatment is an essential component of high-quality cancer treatment and central to optimal patient care. Further development of our discipline will therefore be critically important to the future strategic development of multidisciplinary cancer care.

In that perspective, access to continued medical education and continued professional and personal development will be crucial to empower professionals in radiation oncology to fully participate in all decisions regarding treatment.

In order to achieve this vision, ESTRO wishes to support the permanent development of basic and advanced educational courses through the established ESTRO School, to further extend this offer with online educational tools and its newly created web-based educational platform DOVE (Dynamic Oncology Virtual ESTRO) and to continue to invest in quality assurance and improvement of its educational offer.

**LIVE ANNUAL COURSES**

Since the start of ESTRO, more than 270 live courses have been organised that were attended by over 30,000 participants. These courses have become the strong, comprehensive basis for our ESTRO School programme. Our major aim is to maintain, and where possible, improve the high quality of these educational activities in Europe and worldwide.

The number of courses organised on an annual basis has increased very rapidly in the last years. In order to continue to guarantee high level education and good quality, the School decided to limit the number of courses per year. As a consequence, introducing new topics in the programme of the School and fully cover the Core Curricula will mean that some courses will need to be organised on a biennial basis.

To allow candidate-participants to plan their courses and to keep biennial planned courses in the spotlight, the School therefore will plan as of now all the courses on a biennial basis.

The liaison persons of the School*, supported by one of the working groups of the Teachers’ Retreat in Geneva, provided a proposal for a 2 years’ calendar for the ESTRO School. The annual programme was planned based on the following principles for the coming years:

- 29 courses will be held in Europe - 6 courses will be held outside Europe
- Topic distribution of the European courses:
  - 6 basic courses
  - 5 technology courses
  - 2 imaging courses
  - 2 physics courses
  - 2 biology courses
  - 5/6 clinical multidisciplinary courses

  The programme for 2014 includes 3 new courses:
  - Advanced Treatment Skills for Treatment Delivery
  - Understanding and Management of Morbidity
  - Advanced Brachytherapy Physics

  Topics of the courses outside Europe in collaboration with AROI (India), CSTRO (China), the Middle East and SEAROG (SE Asia) are defined in consultation with the Radiation Oncology societies of these regions.

We do hope you will find this planning ahead useful and will make sure that the information will be continuously updated on the website of the School (www.estro-education.org).

---

* Liaison persons are members of the Education and Training Committee that follow up on a group of ESTRO courses:
  - P. Poortmans and B. Jereczek: multidisciplinary and clinical courses
  - F. Stewart: (radio)biology focused courses
  - P. Hoskin: brachytherapy focused courses
  - N. Jornet: physics focused courses
  - C. Rasch, H. Nyström, A. Osztavics: technology focused courses
  - A. Osztavics: RTT focused courses
  - C. Rasch: imaging focused courses
EDUCATIONAL ACTIVITIES AT THE ANNUAL CONGRESS

ESTRO also offers one-day teaching courses prior to its congress and several hands-on delineation workshops before and during the annual meeting to improve your contouring skills.

In Vienna in 2014, 5 pre-meeting courses and 8 contouring workshops (more info see p 120-125) are planned. Don’t miss your chance to make use of these excellent educational opportunities. Moreover, next to the teaching lectures at the start of each congress day, a number of multidisciplinary tumour boards on head and neck, breast and rectal cancer will now also be organised throughout the conference.

Pre-meeting courses on Friday 4 April:
- Interdisciplinary: Intracranial stereotactic radiotherapy
- Clinicians: Optimal use of radiotherapy and chemotherapy in organ preservation
- Biologists: Radiation and immunology
- Physicists: Current advancements in treatment planning and optimisation
- RTT: Image guided adaptive radiation therapy
- Contouring Workshop: Malignant Lymphoma, OAR, Oesophageal Cancer, Rectal Cancer

Delineation workshops before and during the congress on:
- Lymphoma - Friday 4 April 2014 | 08:00-10:00 & Saturday 5 April 2014 | 08:00-10:00
- OAR - Friday 4 April 2014 | 10:30-12:30 & Sunday 6 April 2014 | 08:00-10:00
- Oesophagus - Friday 4 April 2014 | 13:30-15:30 & Monday 7 April 2014 | 08:00-10:00
- Rectum - Friday 4 April 2014 | 16:00-18:00 & Tuesday 8 April 2014 | 08:30-10:30

ONLINE EDUCATION

ESTRO education wants to fly higher and further by extending its live educational offer with online learning possibilities. Its well known birds, EAGLE, FALCON and DOVE aim to realise this intention.

EAGLE - ESTRO Applications for Global Learning (more info on p 99)

The School will extend its number of online educational modules for individuals and groups by developing educational packages consisting of learning material in different formats. All information and news concerning these packages will be published on the ESTRO website and made available through the online library DOVE (Dynamic Oncology Virtual ESTRO).

FALCON - Fellowship in Anatomic deLineation and CONtouring (more info on p 98)

In order to further improve the contouring skills of the radiation oncology community and contribute to better treatment planning for cancer patients treated with radiotherapy, ESTRO will continue to:

- offer hands on delineation exercises in about half of the ESTRO live courses
- organise online contouring workshops for different tumour sites
- expand its database of cases delineated by experts accessible to the ESTRO membership and community
- evaluate the impact of education and training on contouring skills
- develop guidelines for delineation of different tumour sites

DOVE – Dynamic Oncology Virtual ESTRO (more info on p 97)

ESTRO launched its new website in April 2013. The most important asset of the new website is DOVE, built as a search engine encompassing various data in radiation oncology. Over the past years, ESTRO has gathered a wealth of educational information in its official ’Green’ Journal, but also in abstracts, posters and webcasts from congresses, guidelines, contouring exercises and other publications. Through DOVE, these data are accessible online for all oncology professionals. A matchless dedicated resource for training and education in radiation oncology that will expand and continue to grow in importance over the years. In addition to providing high level e-learning material, we also plan to offer possibilities and tools for interactive learning as well as for discussion, exchanging ideas and comments.

Anyone can access this service library and see what it contains; full access depends on ESTRO membership status or participation to ESTRO activities and is available at different rates. We look forward to receiving your comments at info@estro.org to improve this tool continuously.

ESTRO MOBILITY GRANTS – TECHNOLOGY TRANSFER GRANTS (TTG)

If you want to visit another institute to learn about or gain experience with a technique, equipment or its application that is not easily available in your institute and which would be useful to you and your department, then please apply for an ESTRO mobility grant, the so-called “Technology Transfer Grants” (TTG). Every year a budget of 50.000€ is made available for short study visits to centres of excellence in Europe or outside. There are two application deadlines per year (Spring and Autumn) and these dates are announced on the ESTRO website as well as by ESTRO flash reminders and the ESTRO Newsletter.

CONTINUOUS IMPROVEMENT OF ESTRO EDUCATION

ESTRO built up an internationally recognised ‘School of Radiation Oncology’ in the last three decades. This would not have been possible without the voluntary input and commitment of its course directors and faculties, renowned international experts whose contribution we appreciate enormously. We want to maintain and even further improve the ESTRO School in order to contribute to the quality of patient care and research in the field of oncology. Therefore it will take the time to assess and evaluate its programme, its educational...
quality, its structure & sustainability and its leadership. Your feedback as participants to the School’s activities and as ESTRO members is very important for us!

We hope that you will enjoy browsing through the ESTRO Guide 2014 and will find it useful to select the next educational activity or congress you wish to attend. Updates and further information on all these activities, mobility grants, ESTRO online educational tools and ESTRO membership will be made available continuously on the website of the School at www.estro.org.

On behalf of the ESTRO Education and Training Committee (ETC) and the ETC Core group:

Richard Pötter
Chairperson ETC

Christine Verfaillie
ESTRO COO

ETC Core group:

ETC:
Barbara Jereczek Fossa, Karin Haustermans, Ben Heijmen, Peter Hoskin, Joanna Izewska, Hakan Nyström, Andreas Osztavics, Coen Rasch, Luis Perez Romasanta, Eduardo Rosenblatt, Marcel Stam, Jack Venselaar.
2013 PARTNERS IN EDUCATION OF THE ESTRO SCHOOL

In 2013, the ESTRO School benefitted from an unrestricted educational grant from:

Special thanks to our sponsors

Special thanks for their participation in teaching courses in 2013

With the collaboration of
WHICH COURSE TO ATTEND?

2014 Roadmap to Teaching Courses

- **MULTIMODAL CANCER TREATMENT**
  - General
  - Site Specific

- **RADIOThERAPY TREATMENT PLANNING & DELIVERY**
  - External Beam Radiotherapy
  - Brachytherapy

- **BIOLOGY**
  - Basic Clinical Radiobiology

- **IMAGING**
  - TVD in Radiotherapy

- **BEST PRACTICE**
  - Best Practice in RT (TTT)

**BASIC**
- Evidence Based Radiation Oncology
- Radiation Oncologist
- Medical Physicist
- Radiobiologist

**ADVANCED**
- Advanced Treatment Planning
- Advanced BT for Physicians
- Biological Basis of Personalised Radiation Oncology
- Modelling

**EDUCATIONAL ACTIVITIES**
- Which course to attend?

**SCHOOL**
- MULTIMODAL CANCER TREATMENT
- RADIOTHERAPY TREATMENT PLANNING & DELIVERY
- BIOLOGY
- IMAGING
- BEST PRACTICE
- EDUCATIONAL ACTIVITIES
LIVE TEACHING COURSES 2014

09-12 February 2014 | Amsterdam, the Netherlands
ADVANCED SKILLS FOR TREATMENT DELIVERY
24

23-27 February 2014 | Amsterdam, the Netherlands
MULTIDISCIPLINARY TEACHING COURSE ON PROSTATE CANCER
26

23-27 February 2014 | Nice, France
CLINICAL PARTICLE THERAPY
28

06-08 March 2014 | Brussels, Belgium
UNDERSTANDING AND MANAGEMENT OF MORBIDITY
30

09-12 March 2014 | Gdansk, Poland
MODERN BRACHYTHERAPY TECHNIQUES
32

09-13 March 2014 | Prague, Czech Republic
DOSE MODELLING AND VERIFICATION FOR EXTERNAL BEAM RADIOTherapy
34

04-08 May 2014 | Madrid, Spain
PHYSICS FOR CLINICAL RADIOTherapy - A JOINT COURSE FOR CLINICIANS AND PHYSICISTS
36

08-11 May 2014 | Prague, Czech Republic
EVIDENCE AND NEW CHALLENGES IN RECTAL CANCER
38

16-18 May 2014 | Tokyo, Japan
TARGET VOLUME DETERMINATION - FROM IMAGING TO MARGINS
40

18-21 May 2014 | Brussels, Belgium
ADVANCED BRACHYTHERAPY PHYSICS
42

25-29 May 2014 | Istanbul, Turkey
BASIC CLINICAL RADIOBIOLOGY
44

30-31 May 2014 | Brussels, Belgium
EANM/ESTRO EDUCATIONAL SEMINAR
46

POSITRON EMISSION TOMOGRAPHY (PET) IN RADIATION ONCOLOGY

08-11 June 2014 | St. Petersburg, Russia
COMBINED DRUG-RADIATION TREATMENT: BIOLOGICAL BASIS, CURRENT APPLICATIONS AND PERSPECTIVES
48

08-12 June 2014 | Torino, Italy
IMRT AND OTHER CONFORMAL TECHNIQUES IN PRACTICE
50

19-21 June 2014 | Dublin, Republic of Ireland
BRACHYTHERAPY FOR PROSTATE CANCER
52

26-29 June 2014 | Poznan, Poland
COMPREHENSIVE QUALITY MANAGEMENT IN RADIOTHERAPY PART I - RISK MANAGEMENT & PATIENT SAFETY
54

29 June - 02 July 2014 | Brussels, Belgium
BIOLOGICAL BASIS OF PERSONALISED RADIATION ONCOLOGY
56

29 June - 02 July 2014 | Athens, Greece
MULTIDISCIPLINARY MANAGEMENT OF HEAD AND NECK ONCOLOGY
58

06-09 September 2014 | Barcelona, Spain
ACCELERATED PARTIAL BREAST IRRADIATION
60

07-11 September 2014 | Florence, Italy
CLINICAL PRACTICE AND IMPLEMENTATION OF IMAGE-GUIDED STEREOTACTIC BODY RADIOTHERAPY
62

14-18 September 2014 | Porto, Portugal
IMAGING COURSE FOR PHYSICISTS
64

16-20 September 2014 | Budapest, Hungary
BASIC TREATMENT PLANNING - BACK TO BACK WITH ADVANCED TREATMENT PLANNING
66

21-25 September 2014 | Budapest, Hungary
ADVANCED TREATMENT PLANNING - BACK TO BACK WITH BASIC TREATMENT PLANNING
68

28 September - 02 October 2014 | Florence, Italy
IMAGE-GUIDED RADIOTHERAPY AND CHEMOTHERAPY IN GYNAECOLOGICAL CANCER - FOCUS ON ADAPTIVE BRACHYTHERAPY
70

05-10 October 2014 | Varna, Bulgaria
EVIDENCE-BASED RADIATION ONCOLOGY: A CLINICAL REFRESHER COURSE WITH A METHODOLOGICAL BASIS
72

20-24 October 2014 | Vienna, Austria
BEST PRACTICE IN RADIATION ONCOLOGY - A WORKSHOP TO TRAIN RTT TRAINERS IN COLLABORATION WITH THE IAEE | PART I: TRAIN THE RTT TRAINERS
74

24-26 October 2014 | Guangzhou, China
MULTIDISCIPLINARY TEACHING COURSE ON LUNG CANCER
76

02-05 November 2014 | Yogyakarta, Indonesia
COMBINED DRUG-RADIATION TREATMENT: BIOLOGICAL BASIS, CURRENT APPLICATIONS AND PERSPECTIVES
78

November 2014 | India (date to be confirmed)
ADVANCED TECHNOLOGIES
80

06-08 November 2014 | Maastricht, the Netherlands
ESOR/ESTRO COURSE: MULTIDISCIPLINARY APPROACH OF CANCER IMAGING
82

09-12 November 2014 | Lisbon, Portugal
3RD MASTERCLASS IN RADIATION ONCOLOGY
84

09-13 November 2014 | Vienna, Austria
TARGET VOLUME DETERMINATION - FROM IMAGING TO MARGINS
86

30 November - 04 December 2014 | Brussels, Belgium
IMAGE-GUIDED RADIOTHERAPY IN CLINICAL PRACTICE
88

07-10 December 2014 | Vienna, Austria
QUANTITATIVE METHODS IN RADIATION ONCOLOGY: MODELS, TRIALS AND CLINICAL OUTCOMES
90

MIDDLE EAST Course topic, venue and date to be confirmed
92
ADVANCED SKILLS FOR TREATMENT DELIVERY
09-12 February 2014 | Amsterdam, the Netherlands

EDUCATIONAL PROGRAMME
This will be a 4-day course, with teaching lectures combined with workshops and interactive sessions. Understanding of English is a prerequisite but expression of English is of lesser importance. We are aiming for 50 – 60 participants to make maximum use of the practical sessions.

We will go through the process of radiation therapy:
- Pre-treatment imaging modalities. What is available and how is it used in target definition?
- Patient preparation and immobilisation. What is (im)possible and is it still important in modern radiation therapy?
- Imaging modalities in the treatment room. What is available and how can it be used to find the target volume?
- Geometrical uncertainties and correction strategies: What are the uncertainties in modern radiation therapy and how do correction strategies affect PTV margins? How to calculate your own margins (workshop)?
- Image registration and evaluation: How to make the best use of the images at hand? Understanding algorithms, ROI’s, correction reference points. How to create protocols for IGRT management (workshops and hands-on).
- Site specific advanced treatment techniques.
- Safety issues: The importance of incidence reporting and a feedback loop.
- Implementing and managing advanced treatment techniques: How to implement new gained skills in your department in a multidisciplinary environment.

FACULTY
Course director
Rianne de Jong, RTT, Academic Medical Center, Amsterdam (NL)

Teachers
Elizabeth Forde, RTT, Trinity College, Dublin (IE)
Mirjana Josipovic, Physicist, The Finsen Center – Rigshospitalet, Copenhagen (DK)
Martijn Kamphuis, RTT, Academic Medical Center, Amsterdam (NL)
Peter Remeijer, Physicist, The Netherlands Cancer Institute, Amsterdam (NL)
Sofia Rivera, Radiation Oncologist, Institut de Cancérologie Gustave-Roussy, Villejuif (FR)

Guest speaker
Mischa Hoogeman, Local expert, Physicist, Erasmus University, Rotterdam (NL)

Local Organisers
Rianne de Jong, RTT, Academic Medical Center, Amsterdam
Martijn Kamphuis, RTT, Academic Medical Center, Amsterdam

COURSE AIM
Although modern radiation therapy is a group effort of physicians, physicists and radiation therapists (RTT), this course aims at RTTs only: In this way we will be able to give an overview of the steps in modern radiation therapy with enough room and time for RTT specific tools and skills. We will teach in theoretical sessions and translate this theory into practical sessions when possible.

TARGET GROUP
The target group for this course is RTT’s who wish and/or need to expand their understanding of modern radiation therapy treatment design and delivery and who want the tools to put this theory into practice. We will provide a programme that will serve both the new and the more experienced RTT. This course provides a complete package and comprehensive overview, and will also help the participant in identifying appropriate ESTRO courses for advanced education and personal development.

It is highly recommended to attend this course in order to prepare for participating to more advanced ESTRO courses such as IGRT and Adv TP.

EDUCATIONAL ACTIVITIES
NEW!

FALCON Fellowship in Anatomic deLineation & CONtouring
This course is using the FALCON platform for the contouring exercises
MULTIDISCIPLINARY TEACHING COURSE ON PROSTATE CANCER
23-27 February 2014 | Amsterdam, the Netherlands

FACULTY

Course director
Alberto Bossi, Radiation Oncologist, Institut Gustave Roussy, Villejuif (FR)

Co-chair
Alberto Briganti, Urologist, Università Vita-Salute San Raffaele, Milan, Italy (IT)

Teachers
Ferran Algaba, Pathologist, Autonomous University of Barcelona (ES)
Nicolas Mottet, Urologist, University Hospital, St. Etienne (FR)
Marco van Vulpen, Radiation Oncologist, UMC Utrecht (NL)
Geert Villeirs, Radiologist, Ghent University Hospital (BE)
Jochen Walz, Urologist, Institut Paoli-Calmettes, Marseille (FR)

Contouring Administrator
Carl Salembier, Radiation Oncologist, Europe Hospitals, Brussels (BE)

Local Organiser
Bradley Pieters, Radiation Oncologist, Academic Medical Center, University of Amsterdam

COURSE AIM
This 5-day teaching course aims at focusing on the management of localised, locally advanced and disseminated prostate cancer. It stresses the importance of multidisciplinary teamwork, where each sub-discipline is interrelated and information exchange is vital. This will be illustrated during state-of-the-art lectures presented by experts in the field, covering important issues such as biology, imaging, pathology, therapy and future developments. Interactive case studies will be integrated on a daily basis and there will be ample time for open discussions amongst participants and experts.

TARGET GROUP
The course is aimed at radiation oncologists, urologists, medical oncologists and other specialists and trainees who have a special interest in prostate cancer and who want to update their knowledge.

EDUCATIONAL PROGRAMME

Sunday 23 February 2014
- Anatomy - embryology linked to imaging
- Histology of the normal, diseased and treated prostate
- Epidemiology & prevention
- Clinical diagnosis of prostate cancer
- Prostate imaging modalities
- Case discussions

Monday 24 February 2014
- Partin and other ways of predicting disease spread
- Staging modalities
- Surgical treatment of localised prostate cancer
- Radiotherapy for localised prostate cancer
- MRI - MRS: application in radiotherapy
- Brachytherapy
- Active surveillance
- Case discussions

Tuesday 25 February 2014
- Patient and prostate positioning
- Target delineation guidelines for radiotherapy of localised prostate cancer
- Acute and late morbidity – Erectile dysfunction
- Treatment of therapy related complications
- Alternative treatments
- Radiotherapy of locally advanced disease
- Case discussions

Wednesday 26 February 2014
- Adjuvant and salvage radiotherapy after radical surgery
- Rising PSA after radical surgery
- Node positive prostate cancer - a surgeon’s view and a radiation oncologist’s view (node positive prostate cancer and new technologies to irradiate pelvic disease)
- Case discussions

Thursday 27 February 2014
- Mechanism of hormonal treatment
- Palliative radiotherapy & surgery
- Chemotherapy and alternative treatments

This course is using the FALCON platform for the contouring exercises

Supported by EAU
CLINICAL PARTICLE THERAPY
23-27 February 2014 | Nice, France

FACULTY
Course directors
Eugen Hug, Radiation Oncologist, ProCure Proton Therapy Centers, New Jersey (US)
Oliver Jäkel, Physicist, Heidelberg University Hospital, Ion Beam Therapy Center and German Cancer Research Center (DKFZ) (DE)

Teachers
Stephanie Combs, Radiation Oncologist, Univ. Klinikum Heidelberg (DE)
Willfried De Neve, Radiation Oncologist, Ghent University Hospital (BE)
Pierro Forsatti, Radiation Oncologist, Centro Nazionale di Adroterapia Oncologica (CNAO), Pavia (IT)
Jean-Louis Habrand, Radiation Oncologist, Institut Gustave Roussy, Villejuif (FR)
Tadashi Kamada, Radiation Oncologist, National Institute of Radiological Sciences (NIRS), Chiba (JP)
Marco Krengli, Radiation Oncologist, Centro Nazionale di Adroterapia Oncologica (CNAO), Pavia (IT)
Anthony Lomax, Physicist, Paul Scherrer Institute, Villigen (CH)
Alejandro Mazal, Physicist, Institut Curie, Proton Therapy Center (CPO), Orsay (FR)
Peter Peschke, Biologist, German Cancer Research Center (DKFZ), Heidelberg (DE)
Carl Rossi, Radiation Oncologist, Loma Linda University Medical Center (USA)
Marco Schippers, Physicist, Paul Scherrer Institute, Villigen (CH)

Local Organizer
Jean Pierre Gérard, Radiation Oncologist, Centre Antoine Lacassagne

COURSE AIM
To provide a detailed overview of the clinical rationale and indications of particle therapy and the status of supporting medical evidence including status of clinical trials.
To understand the distinguishing features of particle therapy compared to other radiotherapy modalities.
To deepen knowledge of physical, biological, and technical aspects of particle therapy implementation in clinical practice.
To study particle treatment systems, dosimetry, treatment delivery, and treatment planning and to update about latest technological developments in particle therapy.
To share experiences of challenges of particle centre projects in different health care environments.

TARGET GROUP
The course is aimed at radiation oncologists, radiation physicists and professionals in allied fields. Knowledge of radiation oncology and radiation physics are prerequisites. The course will provide assistance and information for participants either directly involved in a clinical particle therapy project or wanting to update their knowledge about the status and prospect of particle therapy.

EDUCATIONAL PROGRAMME
- Physical aspects of particle therapy with protons and ions
- Particle generation, accelerator technology
- Biological aspects of particle therapy with protons and ions
- RBE determination, modeling and biological planning optimisation for carbon ions
- Carbon ion RT at NIRS
- Specifics of physical treatment planning for proton RT
- Specifics of active scanning and IMPT
- Specifics of treatment planning for carbon ion RT
- Biological plan optimisation for carbon ion RT
- Clinical applications of ion beams
- Introduction of Clinical Partical Therapy
- Clinical specifics of Carbon Ion Therapy
- Carbon Ion RT at NIRS
- Current indications for proton and carbon ions
- Update on modern photon RT
- Physical and technical approaches to the treatment of moving organs
- How to start a new particle therapy facility – from project planning to clinical operation

- Protocol and Journal club about latest clinical and physics developments
- New technologies for hospital based particle centres
- Current indications for protons and ions I
- Current indications for protons and ions II
- Current indications for protons and ions III
- Current indications for protons and ions IV
- Current indications for carbon ions
- New technologies for hospital based particle centers
- New trends in radiation oncology and integration of particle therapy
- Future clinical directions and medical physics developments
- Proton therapy: Passive techniques
- Particle therapy: Active raster scanning/fast scanning
- Parallel session on clinical and physical aspects of particle therapy
- Clinical: Side effects of particle therapy, new trends in radiation oncology and integration of particle therapy
- Physics: Image Guidance techniques, dosimetry and quality assurance
- Tour of facility
- Discussions
UNDERSTANDING AND MANAGEMENT OF MORBIDITY

06-08 March 2014 | Brussels, Belgium

NEW!

FACULTY
Course director
Wolfgang Dörr, Radiation Biologist, Medical University of Vienna (AT)

Course Co-Director
Ingela Turesson, Radiation Oncologist, Uppsala University, Hospital Akademiska Sjukhuset, Sweden (SE)

Teachers
Nicolaus Andratschke, Radiation Oncologist, University Hospital Rostock (DE)
Jörg Hartmann, Medical Oncologist, University Kiel (DE)
Dorota Gabryś, Radiation Oncologist, Maria Skłodowska-Curie Memorial Cancer Center and Institute of Oncology, Gliwice (PL)
Hans Langendijk, Radiation Oncologist, University Medical Center Groningen (NL)

Faculty will be completed with extra teachers, please visit www.estro.org for more information.

COURSE AIM
- to introduce general principles of normal tissue radiopathogenesis and radiobiology
- to provide approaches for assessment and documentation of treatment-related morbidity
- to provide management strategies for “systemic” morbidity (nausea/emesis, fatigue)
- to illustrate important facets of treatment-/morbidity-related quality of life (including assessment instruments) and emotional dysfunction
- to provide a comprehensive overview of relevant and currently accepted approaches for prevention, mitigation and treatment of adverse events and supportive care
- to detail specific aspects of morbidity in head-and-neck and chest radiation oncology (OAR: brain, spinal cord, brachial plexus, oral cavity, salivary glands, sensory organs, oesophagus, heart, lung)

Complimentary to the lectures, general discussion sessions and clinical case presentations will serve to illustrate the relevance of the various aspects of morbidity for daily clinical work, and to answer specific (morbidity-related) questions of the participants.

TARGET GROUP
The course is primarily aimed at trainees in radiation oncology, supportive care personnel and at radiation oncologists early in their career and/or eager to update their knowledge on general and organ specific morbidity aspects in modern radio(chemo-/immune-)therapy. For PhD students in radiation oncology and related disciplines, this course can broaden their knowledge. As the focus is on clinical applications, the faculty consists of radiation oncologists, psychologists and radiobiologists.

EDUCATIONAL PROGRAMME
General lectures on
- General pathogenesis of normal tissue reactions
- Classification and documentation of morbidity
- Reporting: Prevalence vs. incidence
- Impact of exposure parameters (4 + R’s)
- Volume effects and tolerance concepts
- General morbidity: Fatigue, nausea and emesis
- Quality of Life: General aspects, documentation
- Psychological disorders/emotional dysfunction
- Coping with disease and post-disease life
- Management and supportive care guidelines
- Specific aspects of chemo-/immuno-therapy

Module-specific lectures on
- Skin and adnexae
- Brain, spinal cord, peripheral nerves
- Sensory functions (visus, taste, olfaction, hearing)
- Oral cavity (mucositis, caries, trismus, osteonecrosis)
- Salivary glands
- Lung, oesophagus, heart
- Aspects of paediatric (radio-)oncology

Clinical case discussions
The participants are invited to collectively discuss expected (based on treatment protocol and planning) morbidity and to develop management strategies of observed adverse events in clinical cases prepared by the faculty and/or put forward by participants.
MODERN BRACHYTHERAPY TECHNIQUES

09-12 March 2014 | Gdansk, Poland

EDUCATIONAL ACTIVITIES

SCHOOL

EDUCATIONAL ACTIVITIES

FACTORY

Course director

Erik Van Limbergen, Radiation Oncologist, UZ Gasthuisberg, Leuven (BE)

Teachers

Dinos Baltas, Medical Physicist, Klinikum Offenbach (DE)
Peter Hoskin, Radiation Oncologist, Mount Vernon Hospital, London (UK)
Renaud Mazeron, Radiation Oncologist, Institut Gustave Roussy, Villejuif (FR)
Didier Peiffert, Radiation Oncologist, Centre A. Vautrin, Nancy (FR)
Bradley Pieters, Radiation Oncologist, Academisch Medisch Centrum, Amsterdam (NL)

Local organiser

Anna Kowalczyk, Radiation Oncologist, Medical University of Gdansk

COURSE AIM

To cover the basis and general principles of brachytherapy: historical notes on evolution of brachytherapy, sources, afterloading systems, imaging for brachytherapy, dosimetry, radiobiology of different dose rates (LDR, HDR, PDR and permanent implants), radioprotection, organisation of a brachytherapy department.

To discuss different technical & dosimetrical aspects of interstitial, endoluminal and endocavitary brachytherapy.

To discuss the main clinical subjects: gynaecological (cervix, endometrium), head and neck (oral cavity, oropharynx.), urology (a.o. prostate seed implants), skin, soft tissue sarcomas, paediatric malignancies.

TARGET GROUP

The course is aimed primarily at trainees in radiotherapy, radiation oncologists, radiation physicists and technologists wishing to update themselves on the latest developments. This course is also highly recommended as an essential basis for the advanced course on 3D imaged-based brachytherapy for prostate and gynaecological malignancies.

EDUCATIONAL PROGRAMME

- Sources used in brachytherapy
- Physics and dose calculation
- Clinical radiobiology in brachytherapy: general principles and practical examples
- Radioprotection and afterloaders
- Optimisation of stepping source brachytherapy
- Interstitial brachytherapy
- Place of intracavitary brachytherapy in cervix, endometrium and vaginal cancer
- Place of endoluminal brachytherapy in oesophageal and bronchus carcinoma
- Recommendations for recording and reporting in interstitial, intracavitary and endoluminal brachytherapy
- Eye plaque brachytherapy
- Permanent seed and HDR prostate implants
- Radiobiology of permanent implants
- Practical examples of interstitial, intracavitary, endoluminal brachytherapy for clinicians
- Practical exercises and interactive sessions for physicists
DOSE MODELLING AND VERIFICATION
FOR EXTERNAL BEAM RADIOTHERAPY
09-13 March 2014 | Prague, Czech Republic

FACULTY
Course directors
Tommy Knöös, Physicist, Skåne University Hospital, Lund (SE)
Brendan McClean, Physicist, St. Luke’s Radiation Oncology Network, Dublin (IE)

Teachers
Anders Ahnesjö, Physicist, Uppsala University (SE)
Maria Mania Aspradakis, Physicist, Cantonal Hospital of Lucerne (CH)
Guenther H. Hartmann, Physicist, German Cancer Research Center, Heidelberg (DE)
Núria Jornet, Physicist, Hospital de la Santa Creu i Sant Pau, Barcelona (ES)
Jörgen Olofsson, Physicist, Umeå University Hospital (SE)

Local Organizer
Hana Stankusova, Medical Faculty Hospital Motol, Prague

COURSE LEARNING OBJECTIVES
- Identify and interpret the input data requirements for the configuration of beam models.
- Illustrate modeling of the patient, treatment beam and energy deposition in the treatment planning process.
- Present the concepts behind simple and advanced dose calculation algorithms as implemented on modern treatment planning systems and monitor unit or dose calculation check software tools.
- Compare and critically evaluate the tools and methods available for the verification of the calculated dose.
- Assess aspects of quality assurance specific to the treatment planning process.

TARGET GROUP
The course is primarily aimed at and recommended for medical physicists and experienced dosimetrists working in treatment planning. The participants should preferably have at least attended the ESTRO course «Physics for Clinical Radiotherapy» or equivalent and should have some practical experience in radiotherapy physics.

EDUCATIONAL PROGRAMME
Input Data
- Linac head design
- Detectors for measurement
- Relative dosimetry
- Measurement parameters
- Commissioning a TPS (where do the data go? How is it used?)
- Patient and phantom characterisation

Modeling
- Theory of dose calculation
- Basic concepts of ray trace and fluence
- Multisource models
- Point kernel- and pencil beam kernels-based algorithms
- Small field modelling
- Stochastic and grid based approaches
- Dose modelling for electrons
- Commercial implementation of kernel approaches
- Comparison of different approaches

Verification
- Uncertainties in measurement
- Methods for data comparison
- Factor-based monitor unit and dose check software tools
- In vivo dosimetry
- 2D and 3D detectors

QA
- International recommendations (ESTRO, IAEA etc)
PHYSICS FOR CLINICAL RADIOTHERAPY
A JOINT COURSE FOR CLINICIANS AND PHYSICISTS
04-08 May 2014 | Madrid, Spain

FACULTY
Course director
Ben Heijmen, Physicist, Erasmus Medical Centre, Rotterdam (NL)

Teachers
Michael Gubanski, Radiation Oncologist, Karolinska University Hospital - Södersjukhuset, Stockholm (SE)
Vibeke Hansen, Physicist, Royal Marsden NHS Trust and The Institute of Cancer Research (UK)
Ann Henry, Radiation Oncologist, Cookridge Hospital, Leeds (UK)
Mischa Hoogeman, Physicist, Erasmus Medical Centre, Rotterdam (NL)
Ian Kunkler, Radiation Oncologist, Western General Hospital, Edinburgh Cancer Centre (UK)
Silvia Molinelli, Physicist, Fondazione CNAO, Pavia (IT)
Luis A. Pérez-Romasanta, Radiation Oncologist, Hospital de Ciudad Real (ES)

Faculty will be completed with extra teachers, please visit www.estro.org for more information

Local Organiser
Begoña Caballero, Radiation Oncologist, Fuenlabrada University Hospital Madrid

EDUCATIONAL PROGRAMME
Lectures on
- IMRT - physics and clinical aspects
- Stereotactic radiotherapy (cranial and extra-cranial)
- Rotational therapy (Tomotherapy, VMAT)
- IGRT (equipment, strategies, clinical examples)
- Establishment of PTV margins
- Imaging for GTV definition
- CT for treatment preparation and planning
- Volumes in external beam radiotherapy
- Dose prescription and plan evaluation
- Field junctions
- Commissioning and Quality Assurance/Control
- Brachytherapy
- Radiobiology in the clinic
- In-vivo dosimetry
- Radiation protection
- Induction of secondary tumours

For clinicians:
- Principles of radiation therapy equipment
- Basic radiation physics
- Dose calculation

For physicists:
- Dosimetry
- Dose calculation algorithms
- Oncologic concepts

Clinical case discussions
The participants are invited to prepare treatment plans for four selected clinical cases (homework), based on case descriptions and CT scans as provided prior to the course. During the course, the plans are discussed in small groups, guided by a clinician and physicist teacher.

TARGET GROUP
The course is primarily aimed at trainees in radiation oncology or radiation physics, and at radiation oncologists and medical physicists early in their career and/or eager to update their knowledge on physics and technical aspects of modern radiotherapy. The course is also suitable for dosimetrists and radiation technologists having a strong interest in the application of physics and technology in radiotherapy. For PhD students in radiation therapy or physics, this course can broaden their knowledge. As the focus is on clinical application, the faculty team consists of both radiation oncologists (50%) and medical physicists (50%).
EDUCATION AND NEW CHALLENGES IN RECTAL CANCER
08-11 May 2014 | Prague, Czech Republic

FACULTY
Course director
Vincenzo Valentini, Radiation Oncologist, Università Cattolica S.Cuore, Rome (IT)

Teachers
Regina Beets-Tan, Radiologist, University Hospital Maastricht (NL)
Andreas Cervantes, Medical Oncologist, University Hospital of Valencia (ES)
Claudio Coco, Surgeon, Università Cattolica S.Cuore, Rome (IT)
Karim Haustermans, Radiotherapist, University Hospital Gasthuisberg, Leuven (BE)
Lars Påhlman, Surgeon, Uppsala University Hospital (SE)
Claus Rödel, Radiation Oncologist, Johann Wolfgang Goethe University, Frankfurt (DE)
Cornelius Van de Velde, Surgeon, Leiden University Medical Center, Leiden (NL)

Contouring Administrator
Maria Antonietta Gambacorta, Radiation Oncologist, Università Cattolica S.Cuore, Rome (IT)

Local organizer
Hana Stankusova, Radiation Oncologist, University Hospital Motol, Prague

COURSE AIM
This course, jointly organised by ESTRO, ESSO and ESMO, seeks to promote an integrated approach between all specialists involved in rectal cancer to tailor the best treatment for each individual patient. The most relevant ongoing questions in multidisciplinary management of rectal cancer patients will be addressed by case discussion, open debates and interaction with experts. In a truly multidisciplinary atmosphere, you will be able to identify the major uncertainties of the daily practice and learn how to handle them. You will have the opportunity to design a new research starting from available state of the art evidence. The presence of colleagues with different specialties from all over the world will enrich your perspective and your daily practice. Don’t miss this chance to encounter the best science in rectal cancer patients’ management.

TARGET GROUP
The target group consists of surgeons, radiotherapy oncologists, medical oncologists and diagnosticians involved in the multidisciplinary treatment of rectal cancer.

EDUCATIONAL PROGRAMME
Thursday 8 May 2014
• What we consider innovation versus state of art the perspective of:
  - EURECCA, Diagnose, Surgery, Pathology, Radiation Oncology, Medical Oncology
  - Case discussion

Friday 9 May 2014
• The house believes that for low risk tumour only surgery is enough
  - Are there tumours at low risk for local recurrence and mets?
  - Is imaging reliable to identify low risk tumours?
  - Is mucosectomy enough for all cT1?
  - Is TME for all stage I?
  - Is TME for cT3a/b N0?
  - Is radiotherapy helpful for cT3a/b N0?
  - Is chemotherapy helpful for cT3a/b N0?
  - Discussion
• Workshops
  - The house believes that for some intermediate risk tumour surgery is not possible
  - Are there tumours at intermediate risk for local recurrence and mets?
  - Is imaging reliable to identify intermediate risk and responders tumours?
  - Can RT replace surgery for intermediate tumour?
  - Can surgeons recommend no surgery in responder patients?
  - Can medical oncologists recommend no chemotherapy in responders?
  - Are imaging based models reliable to identify no surgery candidate patients?
  - How to manage aged patients?
  - Discussion

Saturday 10 May 2014
• The house believes that for high risk tumour intensification is mandatory
  - Are there tumours at high risk for local recurrence and mets?
  - Is imaging reliable to identify high risk tumours?
  - How do we intensify radiotherapy in high risk tumours?
  - How do we intensify chemotherapy in high risk tumours?
  - Are imaging based models reliable to identify no surgery candidate patients?
  - Discussion
• Workshops
  - The house believes that appropriate use of technology saves live
  - How to evaluate the pathological report?
  - How to evaluate imaging quality?
  - How to evaluate TME quality?
  - How to evaluate endoscopy/robot surgery quality?
  - How to evaluate IMRT quality?
  - How to evaluate IGRT quality?
  - How to evaluate Brachy/IORT quality?
  - How to evaluate chemotherapy delivery quality?
  - How to monitor surgery related late side effects?
  - How to monitor radiotherapy related late side effects?
  - Discussion

Sunday 11 May 2014
• Workshops
  - General debate on ‘New proposal for randomised studies’

This course is using the FALCON platform for the contouring exercises
This course is tailored specifically to the Japanese Society of Therapeutic Radiation Oncology’s (JASTRO) needs and demands. The course is primarily targeting the Japanese Radiation Oncology society and provides specific solutions to Japanese issues. Additionally, the Japanese course is a shortened version of the original European version. Should you wish to attend the full version of the course please see the details of the Target Volume Determination course held in Vienna, Austria in November 2014.

**FACULTY**

Course director
Vincent Khoo, Clinical Oncologist, Royal Marsden Hospital, London (UK)

Teachers
Daryl Lim Joon, Radiation Oncologist, Austin Health & Repatriation Medical Centre, Melbourne (AU)
Martina Kunze-Busch, Physicist, UMC St Radboud, Nijmegen (NL)
Yolande Lievens, Radiation Oncologist, Ghent University Hospital (BE)
Peter Remeijer, Physicist, The Netherlands Cancer Institute, Amsterdam (NL)

Faculty will be completed with extra teachers, please visit www.estro.org for more information.

Local Organisers
Kenji Nemoto, Radiation Oncologist, School of Medicine, Yamagata University
Hideki Hirata, Radiation Oncologist, Faculty of Medical Sciences of Kyushu University

**COURSE AIM**

- To understand the principles of different imaging modalities utilised for target volume definition (TVD) such as ultrasound, computed tomography (CT), magnetic resonance imaging (MRI), positron emission tomography (PET).
- To understand the need for TVD and planning nomenclatures for primary tumour, nodal regions and organs-at-risk in treatment planning and for treatment strategies such as IMRT and image guidance (IGRT).
- To appreciate the limitations of current imaging modalities for TVD and review ‘state-of-the-art’ imaging modalities for TVD.
- To explore the use of functional and molecular imaging in TVD for biological targets.
- To review the diagnostic imaging and therapy interface for image registration and verification as well as margin determination.

**TARGET GROUP**

The course is aimed at trainees in radiation oncology and radiotherapy physics with at least 1 year experience, diagnostic radiologists with an interest in cancer imaging, radiation technologists with special interest in planning. However, any senior who would like to refresh part of her/his knowledge would benefit from this course.

**EDUCATIONAL PROGRAMME**

- Imaging techniques for GTV/CTV including ultrasound, CT, MRI and PET
- Functional and molecular imaging in oncology
- Optimal imaging guidelines in selected tumour sites
- Evidence base for target volumes for CNS, H&N, prostate and lung tumours with multimodality imaging data
- Target volume and margin definitions and determination including inter-observer variations
- Acquisition of imaging data for treatment planning
- Image registration for conformal therapy, IMRT and IGRT
- Image handling, image fusion and networking
- Geometric uncertainties in conformal radiotherapy and IMRT
- Practical collaborative group exercises
- Interactive plenary sessions for case solutions

To promote interdisciplinary discussion between oncologists, physicists and technologists in small workgroups for GTV, CTV, PTV determination in selected tumour sites (lung, prostate, H&N, and CNS).

These workshops will involve practical exercises with compulsory homework by all attendees that will be made available online.

**TARGET VOLUME DETERMINATION – FROM IMAGING TO MARGINS**

16-18 May 2014 | Tokyo, Japan

This course is using the FALCON platform for the contouring exercises

**FALCON**

Fellowship in Anatomic deLineation & CONtouring

This course is using the FALCON platform for the contouring exercises
ADVANCED BRACHYTHERAPY PHYSICS

18-21 May 2014 | Brussels, Belgium

NEW!

FACULTY
Course directors
Jack LM Venselaar, Physicist, Verbeeten Instituut, Tilburg (NL)
Dimos Baltas, Physicist, Sana Klinikum Offenbach GmbH (DE)

Teachers
Luc Beaulieu, Physicist, Centre Hospitalier Université de Quebec (CA)
Christian Kirisits, Physicist, Medical University Vienna (AT)
Panagiotis Papagiannis, Physicist, University of Athens (GR)
Mark Rivard, Physicist, Tufts University School of Medicine, Boston (US)

Guest lecturers
Mark De Ridder, Radiation Oncologist, Universitair Ziekenhuis Brussel (BE)
Philip Poortmans, Radiation Oncologist, Instituut Verbeeten, Tilburg (NL)

COURSE AIM
- To provide physics knowledge relevant to modern brachytherapy, including radiobiology, physics backgrounds of experimental dosimetry, calibration of radioactive sources, treatment planning, use of MC techniques in brachytherapy planning, fundamentals and limitations of algorithms, and developments therein.
- To provide an overview of sources and delivery systems, and the essential quality assurance aspects, in-vivo dosimetry, and developments therein.
- To provide an introduction to modern prescription and delivery concepts in brachytherapy, including imaging, optimisation strategies and treatment plan evaluation, and the required quality assurance and concepts of risk assessment.

TARGET GROUP
The course is primarily aimed at medical physicists who are interested in extending their knowledge in the field of brachytherapy physics. A basic knowledge of the sub-specialty is required, preferably based on at least 1 year of experience in clinical practice. Participation in a previous course (such as the Modern Brachytherapy Techniques teaching course) is recommended. Also, any senior who would like to refresh part of his/her knowledge would benefit from this course.

EDUCATIONAL PROGRAMME

This is a 3.5 day course organised to create a high level of understanding of the physics backgrounds of brachytherapy delivery and its technical aspects. The following items will be covered:

Advanced dose calculations:
- TG43: essentials and limitations
- 3D models based dose calculations
- 3D Monte Carlo techniques
- Open issues and consequences of introducing 3D dose calculations
- Commissioning of MBDC in clinical practice

Dose optimisation and evaluation:
- Optimization and inverse planning
- Dose plan evaluation
- Practical session on treatment planning

Imaging in brachytherapy:
- Overview of imaging modalities for brachytherapy
- Reconstruction using 3D imaging
- Tissue segmentation and characterisation in 3D
- Demands on QA of imaging

Measurements in brachytherapy:
- Source strength determination
- Experimental dosimetry in brachytherapy
- In-vivo dosimetry

Radiobiology and modelling, prescription and reporting:
- Overview of radiobiology in brachytherapy
- Models and modelling
- Prescribing and reporting

Accuracy and quality management:
- Risks and safety in brachytherapy
- Uncertainties in brachytherapy
- Quality management
- Failure mode and effect analysis

This course will be organised in cooperation with manufacturers of equipment for treatment planning and delivery. Interaction with the industry is encouraged.
BASIC CLINICAL RADIOBIOLOGY
25-29 May 2014 | Istanbul, Turkey

FACULTY
Course directors
Michael Joiner, Radiation Biologist, Wayne State University, Detroit (USA)

Teachers
Wolfgang Dörr, Radiation Biologist, Medical University of Vienna (AT)
Dorota Gabryś, Radiation Oncologist, Maria Skłodowska Curie Memorial Cancer Center and Institute of Oncology, Gliwice, (PL)
Vincent Grégoire, Radiation Oncologist, UCL Clinique Universitaire St Luc, Brussels (BE)
Marianne Koritzinsky, Radiation Biologist, University Health Network, Toronto (CA)
Albert van der Kogel, Radiation Biologist, Radboud University Nijmegen Medical Center (NL)

Local Organiser
Sedat Turkan, Radiation Oncologist, Cerrahpasa Medical School, Istanbul University

COURSE AIM
The aim is to provide an introduction to radiation biology as applied to radiotherapy. It will cover the basic mechanisms of cell death/survival and the radiation response of tumours and normal tissues. Formulas of tissue tolerance will be explained. The biological basis for current approaches to the improvement of radiotherapy will be described including novel fractionation schemes, retreatment, IMRT, modification of hypoxia, hadron therapy, combined radiotherapy/chemotherapy and biological modifiers of tumour and normal tissue effects.

TARGET GROUP
The course is aimed at trainees in radiotherapy, radiation oncologists who recognise a lack of basic radiobiological science or want to update their knowledge (i.e. for CME), medical physicists who wish to familiarise themselves with this field, physicians from other disciplines administering ionising radiation, and RTTs.

EDUCATIONAL PROGRAMME
- A series of basic lectures introducing molecular and clinical radiobiology
- Mechanisms and models of radiation cell killing
- The linear-quadratic approach to fractionation
- Molecular basis of radiation response
- Radiobiology and tolerance of normal tissues to (re)treatment
- Alternative fractionation schedules in radiotherapy
- Tumour hypoxia and the microenvironment
- Combined radiotherapy and chemotherapy
- The volume and dose-rate effect in radiotherapy
- Biological response modifiers (tumours, normal tissues) and molecular approaches to therapy
- Protons and other particles in radiotherapy
- Radiation-induced malignancies
EANM/ESTRO EDUCATIONAL SEMINAR

POSITRON EMISSION TOMOGRAPHY (PET) IN RADIATION ONCOLOGY

30-31 May 2014 | Brussels, Belgium

FACULTY

Course director
Bart Reymen, Radiation Oncologist, MAASTRO Clinic, Maastricht (NL)
Wouter Vogel, Nuclear Medicine Physician, The Netherlands Cancer Institute, Amsterdam (NL)

Contouring Administrator
Judith van Loon, Radiation Oncologist, MAASTRO Clinic, Maastricht (NL)

COURSE AIM

Upon completion of the course the delegate:
- can list the implications of PET in radiation oncology
- can address technical issues to implement PET in radiation treatment planning
- has knowledge of the current evidence and state of the art of PET in radiation oncology
- is able to incorporate PET into planning-CT, perform delineation and recognise pitfalls

TARGET GROUP

The course is open to pairs of nuclear medicine physicians and radiation oncologists from the same hospital whom want to learn about PET / CET in radiotherapy treatment planning (RTP) in order to develop and/or start up local co-operation on PET/CT based RTP in their institution. The attendance is limited to 30 participants (15 pairs of 2 people).

EDUCATIONAL PROGRAMME

The course will include:
- Basic lectures on:
  - RTP for nuclear medicine physicians
  - PET for radiation oncologists
- Hands-on workshops on:
  - Basic PET-based RTP in NSCLC and HNSCC
  - Advanced PET-based RTP e.g. brain tumours
- Lectures will be given on:
  - Technical issues of PET: filters, thresholds, image fusion, pitfalls
  - Requirements of PET acquisition and data processing for incorporation in staging/treatment planning: (re)positioning, gating
  - The use & added value of PET for RTP and treatment follow up (including discussions on new tracers) for several tumour sites (e.g. lung cancer, HNSCC, brain tumours, malignant lymphoma, prostate cancer)
- In addition, informative material will be provided on the use of PET in other selected tumour types.

This course is using the FALCON platform for the contouring exercises.
COMBINED DRUG-RADIATION TREATMENT:
BIOLGICAL BASIS, CURRENT APPLICATIONS
AND PERSPECTIVES
08-11 June 2014 | St. Petersburg, Russia

FACULTY
The course faculty includes international experts from the various “bench to bedside” fields which will allow a high level of interaction between teachers and participants.

Course director
Barbara Jereczek-Fossa, Radiation Oncologist and Clinical Oncologist, European Institute of Oncology and University of Milan (IT)

Teachers
Giuseppe Curigliano, Medical Oncologist, European Institute of Oncology, Milan (IT)
Rafal Dzidziuszko, Radiation Oncologist and Medical Oncologist, Medical University, Gdansk (PL)
Jesper Grau Eriksen, Clinical Oncologist, Odense University Hospital (DK)
Robert Glynne-Jones, Clinical Oncologist, Mount Vernon Cancer Centre, Northwood (UK)
Christophe Hennequin, Radiation Oncologist, Hospital Saint-Louis, Paris (FR)
Tan Li Tee, Clinical Oncologist, Oncology Centre Addenbrooke’s NHS Trust, Cambridge (UK)

Local Organiser
Maria Lavrova, Physicist, Regional Clinical Hospital

COURSE RATIONALE
Effective cancer treatment necessitates both high efficacy of local treatment and combatting sub-clinical systemic disease. Consequently, cancer therapy today involves various combinations of local and systemic treatment modalities. Of those, combining drugs and radiation has been attracting particular attention both in terms of its biological rationale and its potential of increasing the therapeutic outcome. The course aims at updating participants about established and emerging knowledge in this field. It will provide the key-messages that biological and clinical research is bringing to the oncology community nowadays.

COURSE AIM
- To update participants about biological effects of combining drugs and radiation in normal and tumour tissue
- To present evidence-based clinical applications of combined modality treatment using drugs and radiation in major human malignancies
- To introduce the concept of the personalised medicine
- To stimulate case-based discussion on the interdisciplinary treatment of cancer
- To present future perspectives for combining drugs and radiation

TARGET GROUP
The course is aimed at residents and specialists in radiation oncology as well as in clinical and medical oncology involved in the multidisciplinary treatment of cancer.

EDUCATIONAL PROGRAMME
General lectures
- Biologic basis for combining drugs with radiation
- Combining drugs with radiation: quantifying the therapeutic gain
- Combining new drugs with radiotherapy
- Radiation and non-cytotoxic drugs
- Hypoxic cell radiosensitisers
- Cytoprotective agents and radiotherapy: what is safe and what is not?
- Alteration of radiotherapy fractionation and concurrent chemotherapy
- Designing clinical trials for combined modality treatments
- Personalising cancer therapy: rationale and challenges

Site specific lectures including practical case discussions
- Head and neck cancer
- Non small cell lung cancer
- Small cell lung cancer
- Breast cancer
- Prostate cancer
- Bladder cancer
- Cervical cancer
- Oesophageal cancer
- Rectal cancer
- Anal canal
- Pancreas
- Gastric cancer
- Brain tumours
- Lymphomas
IMRT AND OTHER CONFORMAL TECHNIQUES IN PRACTICE

08-12 June 2014 | Torino, Italy

FACULTY
Course director
Marco Schwarz, Physicist, ATreP, Agenzia Provinciale per la Protonterapia, Trento (IT)

Co-Chair
Renaud de Crevoisier, Radiation Oncologist, Centre Eugène Marquis, Rennes (FR)

Teachers
Giovanna Gagliardi, Physicist, Karolinska University Hospital, Stockholm (SE)
Frank Lohr, Radiation Oncologist, Mannheim (DE)
Matthias Söhn, Physicist, University Hospital Grosshadern, LMU Munich (DE)
Koen Tournel, Physicist, UZ Brussel – VUB, (BE)

Faculty will be completed with extra teachers, please visit www.estro.org for more information.

Local Organisers
Umberto Ricardi, Radiation Oncologist, University of Turin
Riccardo Ragona, Physicist, University of Turin

COURSE AIM
To present and discuss:
- The scientific basis of IMRT and high conformity radiation techniques
- The technical aspects of treatment preparation and treatment delivery
- The quality assurance process
- Inverse planning optimization and its practical implementation
- The latest developments in IMRT irradiation modalities
- The clinical aspects of IMRT, including clinical outcomes and site-specific issues
- The relation between IMRT and other advanced radiotherapy techniques (e.g. IGRT and adaptive therapy)

TARGET GROUP
The course is aimed at radiation oncologists, radiation physicists and radiation technologists involved in the implementation and clinical use of advanced techniques in their department. Basic knowledge of radiation oncology and radiation physics is a prerequisite, some experience in CT-based treatment planning is highly beneficial. The participants will preferably be ‘graduates’ of the ESTRO course on ‘Physics for Clinical RT’ or an equivalent training in radiation physics. Simultaneous participation of a physicist and/or a clinician and/or a radiation technologist from the same institute is encouraged.

EDUCATIONAL PROGRAMME
- Rationale of 3DCRT/IMRT
- Delivery modalities
- Dosimetry and commissioning
- Quality assurance
- Imaging and contouring
- Treatment plan optimisation
- Dose-volume constraints
- Impact of motion and geometrical uncertainties on IMRT
- Clinical case discussions
- IGRT and IMRT
- Adaptive therapy and IMRT
- Volumetric IMRT techniques

Practical demonstrations on-site in close collaboration with the local staff.

Prior to the course, the participants will be asked to prepare a ‘homework’ based on two clinical cases sent by ESTRO. The results of such work will be discussed in small groups during the course.

This course will be organised in close co-operation with the manufacturers of equipment for planning, delivery and QA of IMRT and Conformal RT. Their practical demonstrations will be an important part of the course.
BRACHYTHERAPY FOR PROSTATE CANCER
19-21 June 2014 | Dublin, Republic of Ireland

FACULTY
Course director
Peter Hoskin, Radiation Oncologist, Mount Vernon Hospital, London (UK)

Teachers
Bashar Al Qaisieh, Clinical Physicist, Cookridge Hospital, Leeds (UK)
Jean-Marc Cosset, Radiation Oncologist, Institut Curie, Paris (FR)
Stefan Machtens, Urologist, Marien-Krankenhaus, Bergisch Gladbach, (DE)
Frank-André Siebert, Universitätsklinikum Schleswig-Holstein, Kiel (DE)

Contouring Administrator
Carl Salembier, Radiation Oncologist, Europe Hospitals, Brussels (BE)

Local Organiser
Michelle Leech, RTT, Trinity College, Dublin

COURSE AIM
- To provide an overview of the epidemiology and treatment options for localized prostate cancer
- To explain patient selection/indications and contra indications for brachytherapy
- To provide an overview of the techniques, equipment and staffing for prostate brachytherapy
- To give an overview of the results, side effects/complications & their management, management of PSA failure after brachytherapy

TARGET GROUP
The course is aimed at all those who may be members of the prostate brachytherapy team and for those wishing to set up prostate brachytherapy i.e.: urologists, radiation oncologists, radiologists who are sometimes responsible for the ultrasound, physicists, and nurse specialists.

EDUCATIONAL PROGRAMME
This two-and-half day ESTRO course covers an overview on epidemiology and treatment options for localised prostate cancer and gives an adequate introduction to brachytherapy. Patient selection for both HDR and seed implants will be discussed with treatment indications and contra-indications. To start this service equipment and staffing for brachytherapy could be important; therefore this is also included in the programme. Special steps of working, such as volume study, types of treatment planning, different implant techniques, as well as post implant planning are presented with possibilities of interactive discussions between participants and the teaching staff. Interactive application videos promote understanding theoretical learning. Comparisons of differences in the indication of permanent (seed) vs. temporary (HDR) brachytherapy implants, as well as management of PSA failure are discussed.

This course is using the FALCON platform for the contouring exercises
COMPREHENSIVE QUALITY MANAGEMENT IN RADIOTHERAPY

PART I – RISK MANAGEMENT & PATIENT SAFETY

26-29 June 2014 | Poznan, Poland

FACULTY
Course director
Pierre Scalliet, Radiation Oncologist, UCL Cliniques Universitaires St.Luc, Brussels (BE)

Teachers
Mary Coffey, RTT, School of Medicine, Trinity College, Dublin (IE)
Peter Dunscombe, Medical Physicist, Tom Baker Cancer Centre, Calgary (CA)
Tommy Knöös, Medical Physicist, Skåne University Hospital, Lund (SE)
Marco Krengli, Radiation Oncologist, Centro Nazionale di Adroterapia Oncologica (CNAO), Pavia (IT)
Petra Reijnders-Thyssen, Manager Patient Safety, Maastro Clinic, Maastricht (NL)

Local Organiser
Julian Malicki, Medical Physicist, Greater Poland Cancer Centre, Poznan

TARGET GROUP
The course is aimed at radiation oncologists, medical physicists, radiation technologists and any other health professional interested in risk management and patient safety.

EDUCATIONAL PROGRAMME
- What is risk? Psychology of making mistakes;
- Ethics for radiation medicine professionals. A just reporting culture;
- Example of the genesis of an accident (take a recent example, relevant to the RT of today);
- ROSIS the precursor in Europe. Frequency of incidents (who reports and what type of incidents are reported);
- Taxonomy and classification, distinction between incident and accident;
- Analysis and return on experience (root cause analysis);
- Failure mode and effect analysis;
- PRISMA as example (The Netherlands);
- Health failure mode and effect analysis (HFMEA), a prospective risk management method;
- Practical exercises (hands on);
- Communication to patient;
- Communication to the media;
- Communication to the organisation (departmental, hospital level);
- Specific training of staff, internal and external (team management);
- National systems for reporting to regulatory authorities (France);
- Comprehensive quality management in radiotherapy;
- Legal aspects of incident reporting;
- Performance indicators.

working on improvements in the radiotherapy process (prevention) is an efficient way to greatly decrease the risk of accidents. In some European countries it is even mandatory to record and report on precursors.

In addition, preventive analysis can be done of any radiotherapy process, trying to identify a priori critical elements that need specific monitoring or quality controls (failure mode analysis).

EDUCATIONAL ACTIVITIES
ESTRO Live Teaching Courses
BIOLOGICAL BASIS OF PERSONALISED RADIATION ONCOLOGY
(This course was previously called Molecular Oncology for the Radiation Oncologist)

29 June - 02 July 2014 | Brussels, Belgium

FACULTY
Course directors
Kevin Harrington, Radiation Oncologist, The Institute of Cancer Research, London (UK)
Martin Pruschy, Biologist, University Hospital Zürich (CH)

Teachers
Jan Alsner, Biologist, Aarhus University Hospital (DK)
Marie-Catherine Vozenin, Biologist, Centre Hospitalier Universitaire Vaudois, Lausanne (CH)
Conchita Vens, Biologist, The Netherlands Cancer Institute, Amsterdam (NL)
Daniel Zips, Radiation Oncologist, Universitätsklinik für Radio-Onkologie, Tübingen (DE)

COURSE AIM
The purpose of this course is to provide an appreciation for the biological basis of the 5 Rs of radiation oncology and their relationships to the so-called hallmarks of cancer. A combination of lectures and tutorial sessions with question/answer sessions and literature discussions are used throughout the course. Following completion, participants should have sufficient knowledge to read and appreciate the literature, to understand the concepts of personalised radiation oncology from the biological point of view, follow new developments in applied radiation biology and radiation oncology, and begin to collaborate with their local research groups in this field.

TARGET GROUP
The course is aimed at radiation oncologists in training (compulsory in several centers), radiation oncologists in practice, 1st year PhD students, and any other individuals interested (physicists, statisticians, technologists) in obtaining a basic understanding of the link between the 5 Rs of radiation oncology and the hallmarks of cancer. Lectures and tutorials are constructed in such a way that little or no background knowledge of molecular biology is necessary. A background in classical radiobiology is a plus, as is attendance in the ESTRO course on basic clinical radiobiology, but neither of these is an absolute requirement.

EDUCATIONAL PROGRAMME
Main topics of the course:
- The hallmarks of cancer
- The 5 Rs of radiation oncology, primarily from the biological point of view
- Cell signalling pathways that influence tumour cell growth and survival and their responses to radiation
- Mechanisms of DNA repair and how they influence sensitivity to radiation
- The ways in which cancer (and normal) cells die following therapeutic irradiation
- The importance of tumour metabolism in determining the response to radiation
- The physiological response to radiation at the cellular and tumour level and how this impacts on tumour and normal tissue behaviour
- The biological rationales for developing new targeted therapies
- Rational strategies for combined treatment modalities with targeted agents as a means of delivering personalised medicine
- Mechanisms of harnessing the immune system to increase anti-tumour responses following radiotherapy
MULTIDISCIPLINARY MANAGEMENT OF HEAD AND NECK ONCOLOGY
29 June - 02 July 2014 | Athens, Greece

FACULTY
Course directors
Vincent Grégoire, Radiation Oncologist, Cliniques Universitaires St-Luc, Brussels (BE)
Jean-Louis Lefebvre, Head and Neck Surgeon, Centre Oscar Lambret, Lille (FR)
Lisa Licitra, Medical Oncologist, Istituto Tumouri, Milan (IT)

Teachers
Cai Grau, Radiation Oncologist, Aarhus University Hospital (DK)
Eric Lartigau, Radiation Oncologist, Centre Oscar Lambret, Lille (FR)
René Leemans, Head & Neck Surgeon, VU University Medical Center, Amsterdam (NL)
Jean-Pascal Machiels, Medical Oncologist, Cliniques Universitaires St-Luc, Brussels (BE)
Piero Nicolai, Oto-Rhino-Laryngologist and Head and Neck Surgeon, University of Brescia (IT)

Contouring Administrator
Jesper Grau Eriksen, Clinical Oncologist, Odense University Hospital (DK)

Local Organiser
Vassilis Kouloulias, Radiation Oncologist, University General Hospital of Athens

COURSE AIM
Over the last decade tremendous progress has been made in the management of patients with head & neck cancer. Progress has been made in the understanding of the pathogenesis of head and neck malignancies which rapidly leads to the elaboration of tailored treatments. Functional imaging has emerged as a complementary modality to anatomic imaging methods for better staging, treatment response evaluation and optimal treatment targeting. Surgery has significantly improved, in particular with better reconstruction techniques reducing the limits of operability. Randomised studies have demonstrated the increasing role of combined modality approaches with chemotherapy and biological targeted therapies. New radiation techniques, expected to impact on survival and quality of life of head and neck patients, have taken off and are being validated.

In this framework, ESTRO, ESMO and EHNS have decided to join forces to organise this multidisciplinary course aiming at promoting an integrated approach to the diagnosis, staging, treatment and follow-up of patients with head and neck malignancies. The course will be interactive through integration of multidisciplinary lectures and more focused workshops. The faculty includes renowned European experts involved in the multidisciplinary treatment of head and neck cancer.

TARGET GROUP
The course is aimed at specialists and trainees with an interest and expertise in head and neck surgery (head and neck surgeons, oto-rhino-laryngologists, maxillo-facial surgeons, reconstructive surgeons, etc.), radiation oncologists, medical oncologists, and other medical specialties involved in the treatment of patients with head and neck cancer.

EDUCATIONAL PROGRAMME
- Anatomy (clinical and radiologic aspects)
- Incidence, pathology, risk factors (including HPV) of head and neck tumours
- Clinical work-up for oral cavity and pharyngo-laryngeal tumours, and staging “Organ preservation” approach
- Rationale for unconventional radiotherapy fractionation, hypoxic sensitisers, concomitant chemo, EGFR inhibitors and new targeted agents
- Management of oral cavity tumours: medical oncology, surgery and radiotherapy (including brachytherapy)
- Management of nasopharyngeal carcinoma
- Management of oropharyngeal tumours: medical oncology, surgery and radiotherapy (including brachytherapy)
- Management of hypopharyngeal and laryngeal tumours: surgery, radiotherapy and medical oncology chemotherapy approach
- Management of the neck nodes
- Concepts behind selection and delineation of target volumes in radiotherapy
- Morbidity (acute and late) of treatment
- Supportive care during and after treatment
- Metastatic disease
- Management of recurrent tumours
- Second primary tumours

This course uses the FALCON platform for the contouring exercises

FALCON
ACCELERATED PARTIAL BREAST IRRADIATION
06-09 September 2014 | Barcelona, Spain

FACULTY
Course director
Philip Poortmans, Radiation Oncologist, Institute Verbeeten, Tilburg (NL)

Teachers
Tibor Major, Medical Physicist, National Institute of Oncology, Budapest (HU)
Birgitte Offersen, Clinical Oncologist, Aarhus University Hospital (DK)
Roberto Orecchia, Radiation Oncologist, European Institute of Oncology, Milan (IT)
Vratislav Strnad, Radiation Oncologist, University Hospital Erlangen (DE)

Guest lecturers
Núria Jornet, Medical Physicist, Hospital de la Santa Creu i Sant Pau, Barcelona (ES)
Isabel-Teresa Rubio, Breast Cancer Surgeon, Vall D’Hebron Hospital (ES)

Contouring administrator
Sandra Hol, Radiation Technologist, Institute Verbeeten, Tilburg (NL)

Local Organiser
Núria Jornet, Medical Physicist, Hospital de la Santa Creu i Sant Pau, Barcelona

Faculty will be completed with extra teachers, please visit www.estro.org for more information.

COURSE AIM
Accelerated partial breast irradiation (APBI) is becoming increasingly popular as a treatment option for early stage breast cancer. Numerous patients have been included in several prospective randomised clinical trials using a wide variety of techniques. We expect that long term results will be presented in the coming years.

In this course dedicated to APBI, we will present some general issues of breast cancer but especially focus on patient selection and on the variety of techniques that can be used for the delivery of APBI. We will elaborate extensively on the technical aspects of the delivery of this specific form of radiation therapy, including optimal target volume delineation.

This course is planned to be organised in the even years and should be clearly distinguished from the multidisciplinary course that will continue to being organised in the odd years. As breast cancer is a very common cancer and APBI can be considered as a quite recognisable approach in modern breast cancer treatment, we hope that by organising both courses on an alternate basis we meet a need of the radiation oncology community.

Apart from presentations, interactivity will be stimulated by organising clinical case discussions, target volume contouring exercises and debates. The faculty includes specialists in all technical approaches currently used for delivering APBI.

To complete the comprehensive approach, we will invite representatives from the companies to present their technical solutions.

TARGET GROUP
The course is primarily intended for specialists and trainees in the field of radiation oncology that are interested in extending their knowledge specifically of the management of early stage and low risk breast cancer.

EDUCATIONAL PROGRAMME
- Epidemiology: is the proportion of early stage low risk patients increasing?
- The role of imaging in diagnosis and treatment
- The role of pathology in diagnosis and treatment
- Clinically relevant aspects of the biology of breast cancer
- Local surgery: choices and techniques (including oncoplastic)
- APBI techniques including external beam; intraoperative electron beam; interstitial and endocavitary brachytherapy
- Other techniques for APBI
- Pre-operative APBI
- Fractionation schedules
- DCIS: also eligible for APBI?
- Combination of external beam APBI with advanced treatment techniques including IMRT and breathing control
- Cosmetic outcome after APBI
- Long-term effects
- Current clinical trials
- Target volume delineation including workshops
- Clinical case discussions
CLINICAL PRACTICE AND IMPLEMENTATION OF IMAGE-GUIDED STEREOTACTIC BODY RADIOTHERAPY
07-11 September 2014 | Florence, Italy

FACULTY
Course directors
Matthias Guckenberger, Radiation Oncologist, University Hospital Würzburg, Germany (DE)
Dirk Verellen, Physicist, UZ Brussel (VUB) (BE)

Teachers
Marianne Aznar, Physicist, Rigshospitalet, Copenhagen (DK)
Michael Brada, Radiation Oncologist, Leaders in Oncology Care, London (UK)
Karim Dieckmann, Radiation Oncologist, Medical University of Vienna (AT)
Misha S. Hoogeman, Physicist, Erasmus Medical Center-Daniel den Hoed Cancer Center, Rotterdam (NL)
Morten Hoyer, Radiation Oncologist, Aarhus University Hospital (DK)
Coen Hurkmans, Physicist, Catharina Hospital, Eindhoven (NL)
Eric Lartigau, Radiation Oncologist, Centre Oscar-Lambret et Université Lille-ll (FR)
Alejandra Méndez Romero, Radiation Oncologist, Erasmus Medical Center-Daniel den Hoed Cancer Center, Rotterdam (NL)
Suresh Senan, Radiation Oncologist, VU University Medical Center, Amsterdam (NL)

Local Organiser
Lorenzo Livi, Radiation Oncologist, Florence University

COURSE AIM
- To learn the historical background and development of cranial radiosurgery (SRS) and stereotactic body radiotherapy (SBRT)
- To understand the radiobiological consequences of hypo-fractionated, inhomogeneous dose distributions
- Cranial radiosurgery: to discuss the practice of frame-less image-guided versus frame-based stereotactic cranial radiosurgery
- To identify potential sources of uncertainties in the work-flow of SBRT: imaging, target delineation, treatment planning, treatment delivery and treatment evaluation
- To offer an overview of available treatment planning and delivery technologies and how to integrate these in clinical practice of SBRT
- To compare available technologies and help define applicability for particular use.
- To give an evidence-based review on potential indications for SBRT: early stage NSCLC, primary and secondary liver metastases, prostate cancer, vertebral metastases, oligometastases, re-irradiation
- To give an overview of normal-tissue toxicity, tolerability and radiological changes in SBRT
- To learn how to establish and implement a clinical program for SBRT

TARGET GROUP
The course is aimed at all professionals in the field of radiation oncology, who are involved in the clinical practice of SBRT and cranial SRS at any point in the treatment chain: radiation oncologists, physicists and radiation technologists with a dedicated focus on SBRT and SRS. The course targets both individuals, who are currently at the planning stage of establishing a clinical stereotactic programme as well as individuals, who already have a running stereotactic practice. A special focus will be the importance of integrating all professionals into a team.

EDUCATIONAL PROGRAMME
This 5-day ESTRO teaching course will support establishing and further developing a clinical stereotactic programme. The following items will be covered with special focus on special requirements in SBRT:
- Radiobiology of hypo-fractionated, inhomogeneous dose distributions for normal tissue and cancer cells
- Uncertainties in clinical practice of SBRT and SRS
- Technological means for compensation of these uncertainties at all stages of radiotherapy treatment
- Evidence-based clinical practice of SBRT and potential indications for SBRT
- Requirements for building and further development of a clinical stereotactic program

On Sunday, a historical background of stereotactic radiotherapy will be given followed by the radiobiological and technological background; different technological platforms will be demonstrated. A debate will discuss the fast spread of stereotactic radiotherapy in our community. The teaching lectures on Monday will review and discuss the technology and physical practice of SBRT and SRS; on Tuesday, various clinical aspects will be discussed and SBRT for early stage NSCLC will be reviewed in detail. All teaching lectures will focus on the multi-disciplinary character of SBRT. Interaction and discussion between the professional groups is highly encouraged. Workshops will be organised on Tuesday and Wednesday, which will focus on different tumours sites: a practical approach to these indications will be demonstrated by case presentations and discussions. The last day will focus on the establishment of a clinical stereotactic programme and end with a panel discussion.
FACULTY
Course director
Uulke van der Heide, Medical Physicist, The Netherlands Cancer Institute, Amsterdam (NL)

Teachers
Piet Dirix, Radiation Oncologist, University Hospital Gasthuisberg, Leuven (BE)
Koos Geleijns, Physicist, Leiden University Medical Center (NL)
Gary Liney, Physicist, Ingham Institute for Applied Medical Research, Liverpool (UK)
Eirik Malinen, Physicist, University of Oslo (NO)
Cynthia Ménard, Radiation Oncologist, Princess Margaret Hospital, Toronto (CA)
Tufve Nyholm, Physicist, Umeå University (SE)
Daniela Thorwarth, Physicist, Uniklinik für Radioonkologie, Tübingen (DE)

COURSE AIM
- Improve the understanding of the physics principles of MRI, PET and CT
- Understand the key technical challenges and solutions unique to the application of MRI, PET and advanced CT in radiotherapy
- Explore potential applications of these imaging modalities in clinical practice.
- Understand the potential and challenges of biological imaging methods in radiotherapy treatment planning and follow-up.

TARGET GROUP
The course is aimed at trainees in radiotherapy physics, researchers as well as more experienced radiotherapy physicists with an interest in the application of advanced imaging techniques in their radiotherapy practice.

EDUCATIONAL PROGRAMME
- Basic principles of MRI physics
- Fast scanning techniques and volume sequences on MRI
- MRI equipment
- Geometrical integrity of MR images
- Physics aspects of MRI-guided interventions
- Physics of 4D CT
- Physics of cone-beam CT
- PET image reconstruction, SUV thresholding
- The use of PET tracers other than FDG
- Physics principles of advanced functional MRI techniques
- Clinical application in radiotherapy for cancers in brain, head-neck, pelvis (cervix, prostate)
BASIC TREATMENT PLANNING
BACK TO BACK WITH ADVANCED TREATMENT PLANNING
16-20 September 2014 | Budapest, Hungary

FACULTY
Course director
Michelle Leech, Associate Professor, TCD Discipline of Radiation Therapy, Dublin (IE)

Teachers
Steve Buckney, Senior Dosimetrist, St. Luke’s Radiation Oncology Network, Dublin (IE)
Charles Gillham, Radiation Oncologist, St. Luke’s Radiation Oncology Network Dublin (IE)
Martijn Kamphuis, RTT, Academic Medical Centre, Amsterdam (NL)
Paul Kelly, Radiation Oncologist, Cork University Hospital (IE)
Brian Kristensen, Physicist, Herlev University (DK)
Danilo Pasini, RTT, Policlinico Universitario A. Gemelli, Rome (IT)
David Sjöström, Physicist, Herlev University (DK)

Local Organiser
Scilla Pesznyak, Physicist, National Institute of Oncology

TP SYSTEMS
Elekta (XiO, Monaco and Oncentra External Beam), Philips (Pinnacle 3), Varian (Eclipse) and RaySearch (RayStation).

COURSE AIM
The course consists of didactic lectures, interactive sessions and practical treatment planning sessions. Introductory lectures will be given on specified sites and participants will then discuss, plan and review practical clinical scenarios. On the designated sites participants will delineate organs at risk and subsequently complete a range of 3D plans for presentation and discussion. This will facilitate a greater depth of understanding of both the planning and evaluation processes. Participants will be asked to provide details of clinical organ at risk delineation and treatment planning solutions from their individual departments as part of the interactive approach.

LEARNING OUTCOMES
On completion of this course, participants will be able to:
- To provide education in organ at risk delineation and treatment planning, for designated sites, as an integral part of the pre-treatment preparation of patients.
- To learn the basic computer planning methodology, as well as the principles of organ at risk delineation, verification and how to evaluate and improve treatment plans.
- To give the participants the opportunity to gain practical experience of producing and evaluating treatment plans using a 3D computer planning system under the guidance of the faculty and through peer exchange.
- To provide a forum for participants to gain and exchange knowledge on treatment planning practices and standards throughout the radiotherapy community.

TARGET GROUP
The target audience for this course is radiation therapists (RTTs) with little or no experience of organ at risk delineation and 3D Conformal treatment planning. The course is also suitable for other radiation healthcare professionals (trainee radiation oncologists and trainee radiation physicists) who wish to improve their organ at risk delineation and basic treatment planning skills.

EDUCATIONAL PROGRAMME
- Introduction to Treatment Planning Process
- Clinical overview of designated sites
- Organ at risk delineation for 3D Conformal treatment planning
- The process of treatment plan evaluation including the tools available
- Imaging and verification in planning process
- Practical laboratory planning sessions on designated clinical sites
- Group feedback on plan evaluation and improvement as well

This course is using the FALCON platform for the contouring exercises.
EDUCATIONAL PROGRAMME

Sunday 21 September 2014
- Broadening the therapeutic bandwidth
- Applying ICRU in treatment planning
- Multi-modality imaging in treatment planning
- Non-IMRT planning – from simple to complex
- Treatment planning algorithms & their clinical differences
- Vendor presentation
- Planning aspects breast irradiations
- Clinical case 1: breast with supra clavicular lymph nodes
- Individual planning (non-IMRT)

Monday 22 September 2014
- Discussion of planning from Day 1
- The rationale behind IMRT
- Concepts of inverse planning
- Practical aspects of IMRT planning I
- Physical and biological optimisation
- Pareto fronts in clinical practice
- Vendor presentation
- Clinical case 2: Anus with groins
- Planning aspects case 2
- Individual planning (either IMRT or non-IMRT)

Tuesday 23 September 2014
- Discussion of planning from Day 2
- Basic principles of rotational IMRT planning
- Geometrical uncertainties and how to deal with them
- Vendor presentation
- Advanced planning strategies for lung tumours
- Clinical case 3: (Lung T3N1M0)
- Planning aspects case 3
- Individual planning (IMRT and non-IMRT)

Wednesday 24 September 2014
- Discussion of planning from Day 3
- Adaptive planning strategies
- Dose painted planning
- Probabilistic and robust planning
- IMRT QC issues for planners
- Vendor presentation
- Advanced planning strategies for H&N tumours
- Clinical case 4: bilateral oropharynx
- Planning aspects case 4
- Individual planning (IMRT)

Thursday, 25 September 2014
- Vendor presentation
- Discussion of planning from Day 4
- IMRT breast planning
- Individual planning of case 1 (breast IMRT) or prostate IMRT
- Close and distribution of certificates
IMAGE-GUIDED RADIOThERAPY AND CHEMOTHERAPY IN GYNAECOLOGICAL CANCER – FOCUS ON ADAPTIVE BRACHYTHERAPY

28 September - 02 October 2014 | Florence, Italy

FACULTY
Course directors
Christine Haie-Meder, Radiation Oncologist, Institut Gustave Roussy, Villejuif (FR)
Richard Pötter, Radiation Oncologist, Medical University Hospital, Vienna (AT)

Teachers
Daniel Berger, Physicist, Medical University Hospital, Vienna (AT)
Johannes Dimopoulos, Radiation Oncologist, Metropolitan Hospital, Athens (GR)
Ina Jürgenliemk-Schulz, Radiation Oncologist, University Medical Centre, Utrecht (NL)
Umesh Mahantshetty, Radiation Oncologist, Tata Memorial Hospital, Mumbai (IN)
Primoz Petric, Radiation Oncologist, National Center for Cancer Care & Research, Doha (Qatar)
Peter Petrow, Radiologist, Institut Curie, Paris (FR)
Kari Tanderup, Physicist, University Hospital, Århus (DK)

Local Organiser
Lorenzo Livi, Radiation Oncologist, University of Florence

COURSE AIM
- To provide a comprehensive overview on the whole field of gynaecological radiation therapy focussing on brachytherapy and external irradiation in cervix cancer, endometrial cancer, vaginal and vulvar cancer including combination with chemotherapy
- To provide an overview on evidence-based medicine in cervical and endometrial cancer
- To learn about advanced image-based techniques including IMRT and optimization process in brachytherapy using stepping source technology
- To introduce image-based and adaptive concepts of GTV, CTV and PTV in gynaecological radiation oncology including both external irradiation and brachytherapy (with adaptation during 4D treatment)
- To enable practical implementation of advanced concepts and techniques in gynaecological external irradiation and brachytherapy, including parametrial boost and nodal boost techniques
- To give the results of image-guided adaptive brachytherapy in cervix cancer

TARGET GROUP
The course is aimed at radiation and gynaecological oncologists, medical physicists and radiation technologists involved in gynaecological tumour treatments, interested in the implementation of advanced concepts and techniques. A basic knowledge of gynaecologic oncology is required.

EDUCATIONAL PROGRAMME
- Normal and pathologic anatomy of the female pelvis
- Image based anatomy and pathology including US, CT, PET CT and MRI
- CTV/ITV for external irradiation
- GTV, CTV, PTV at diagnosis and at time of brachytherapy
- Combination of external irradiation and brachytherapy
- Different application techniques in brachytherapy, including endocavitary and interstitial techniques
- Image requirements for irradiation
- Treatment planning:
  - Brachytherapy techniques, based on standard and individual loading patterns using point doses, including point A and ICRU reference points
  - Advanced techniques in brachytherapy, including individual loading patterns based on images
  - Advanced techniques including conformal external irradiation and IMRT
  - Image-based dose-volume assessment applying DVT parameters
- Dose-volume constraints for CTVs and organs at risk
- Dose, dose-rate and fractionation and overall treatment time
- HDR, PDR, MDR, and LDR equivalencies
- Radiobiological effects from combined external irradiation and brachytherapy, linear quadratic model
- Planning aims, prescribing, recording and reporting including the recommendations from the new ICRU/GEC-ESTRO report
- Nodal dose evaluation, including external irradiation and brachytherapy
- Nodal and parametrial boosts
- EMBRACE and RetroEMBRACE study
- Therapeutic outcome: radiochemotherapy, image based EBRT and brachytherapy
- Principles and practice of evidence-based medicine in gynaecologic radio-oncology
- Delineation workshops: external irradiation and brachytherapy
- Treatment planning workshops
- Possibility to participate in additional web-based contouring training before and after the course

This course is using the FALCON platform for the contouring exercises
EVIDENCE-BASED RADIATION ONCOLOGY: A CLINICAL REFRESHER COURSE WITH A METHODOLOGICAL BASIS
05-10 October 2014 | Varna, Bulgaria

FACULTY
Course director
Jan Willem Leer, Radiation Oncologist, Radboud University Nijmegen Medical Center (NL)

Teachers
Christopher Cottrill, Radiation Oncologist, St Bartholomew’s Hospital, London (UK)
Bernard Dubray, Radiation Oncologist, Centre Henri Becquerel, Radiothérapie et Physique Médicale, Rouen (FR)
Tan Li Tee, Radiation Oncologist, Addenbrooke’s NHS Trust, Cambridge, (UK)
Johannes Kaanders, Radiation Oncologist, Radboud University Nijmegen Medical Center (NL)
Elzbieta Senkus-Konefka, Radiation Oncologist, Medical University of Gdansk (PL)

Local Organiser
Elitsa Encheva, Radiation Oncologist, University Hospital Saint Marina, Varna

COURSE AIM
In this course, the state of the art of treatment with radiation oncology of major tumour sites (breast, upper GI, prostate, rectum, lung, head and neck, cervix) and palliation will be discussed on basis of the evidence.

The format of the course will be a combination of lectures and case discussions. As an introduction to each tumour site, the participants have to discuss a cancer case in small groups, that will be further discussed in plenary session.

In addition, the methodology of clinical research will be explained to understand how evidence based medicine is developed.

Finally, basic scientific skills, e.g. critical reading, writing and basic statistics are part of the course-programme.

TARGET GROUP
This basic course is aimed primarily at trainee radiation oncologists and experienced radiation oncologists who want an update of their clinical knowledge.

EDUCATIONAL PROGRAMME
The course will cover:
- General introduction to evidence-based medicine, objectives of treatment
- Imaging, target volume, fractionation, combined modalities
- How to interpret clinical data and trials, meta-analysis, statistics
- Prostate cancer
- Lung cancer
- Rectal cancer
- Head and neck cancer
- Palliation
- Gynaecological cancer
- Breast cancer
- Upper GI
BEST PRACTICE IN RADIATION ONCOLOGY - A WORKSHOP TO TRAIN RTT TRAINERS
IN COLLABORATION WITH THE IAEA
PART I - TRAIN THE RTT TRAINERS
20-24 October 2014 | Vienna, Austria

FACULTY
Course directors
Mary Coffey, Adjunct Professor, Division of Radiation Therapy, Trinity College Dublin (IE)
Guy Vandevelde, RTT, Lecturer, High School of Health Sciences University of Brussels (BE)

Teachers
Michelle Leech, Associate Professor, Division of Radiation Therapy Trinity College Dublin (IE)
Andreas Osztavics, RTT, Medical University of Vienna, AKH (AT)
Danilo Pasini, RTT, Policlinco Universitario A. Gemelli, Rome (IT)
Eduardo Rosenblatt, Radiation Oncologist, International Atomic Energy Agency, Vienna (AT)
Viviane Van Egten, ESTRO (BE)

PROGRAMME AIM
- To define the gaps in radiotherapy content and encourage a greater focus on radiotherapy in the national education programmes and increasing the standard of education for RTTs
- To equip RTTs with the skills necessary to design, organise, deliver and evaluate educational initiatives in their own language to RTTs in their own country
- To raise the profile of ESTRO increase RTT membership and participation
- To encourage RTT’s to set up a regional or national network (eg. working parties, regional or national groups/society)

TARGET GROUP
- Ten groups of three participants from 10 European countries. Participants should represent or collaborate with the academic and clinical staff and the national society.
- Participants must be familiar with the current national education programme for RTTs
- Participants should commit to:
  - Initiate liaison with the national education provider and prepare appropriate documentation
  - Attend and evaluate the two face to face courses and maintain communication with the faculty in the interim period
  - Design, deliver, evaluate and feedback a series of educational initiatives over a three year period

SELECTION PROCEDURE
Applications are accepted per country. Provide 3 names and a short description of the topics of the first planned course and the target audience (10 lines maximum). Where IAEA support is applicable the IAEA will make the country selection.

TIMELINES
Applications to be received by February 28, 2014.
Selection to be done by March 14, 2014.
Notification and detailed information of the preparatory work to be sent by March 31.

EDUCATIONAL PROGRAMME
Train the RTT Trainers
(5 days – 9 to 13 September 2014)
During this first week they will have introductory lectures on how to design, organise, and deliver and evaluate a course, supported by practical sessions. At the end of the preparatory course, it is expected that participants will have:
- an outline programme, potential lecturers, evaluation procedure, checklist and timetable of tasks for the first course
- commenced the preparation of the topic that they will teach, have gained skills in lecture presentation and started to prepare their first lecture, developed a support network and identified a liaison person in their national education institute
- Communicate regularly with the faculty highlighting any difficulties encountered

First local course
(3 days – between January and July 2015)
To deliver and evaluate the first local course. Two of the international faculty will attend and may contribute if appropriate.

The consolidation course
(3 days – October 2015)
To evaluate the first course delivered, plan for the next two courses and indicate how the education element will be sustained.

Interim support for participants.
Interim support to the participants will be provided through e-learning via Eagle.

Second and third course will be delivered between January and December 2016.
MULTIDISCIPLINARY TEACHING COURSE ON LUNG CANCER
24-26 October 2014 | Guangzhou, China

This course is tailored specifically to the Chinese Society of Therapeutic Radiation Oncology’s (CSTRO) needs and demands. The course is primarily targeting its members and provides specific solutions for Chinese issues.

FACULTY
Course director
Paul Van Houtte, Radiation Oncologist, Institut Bordet, Brussels (BE)

Teachers
Jaroslaw Kaźdżal, Thoracic Surgeon, John Paul II Hospital, Krakow (PL)
René Mirimanoff, Radiation Oncologist, CHUV, Lausanne (CH)
Gonzalo Varela, Thoracic Surgeon, Hospital Universitario de Salamanca (ES)
Virginie Westeel, Pulmonologist, CHU Besançon, University of France-Comté (FR)

Faculty will be completed with extra teachers, please visit www.estro.org for more information.

Local Organiser
Cai Ling, Radiation Oncologist, Sun Yat Sen University Cancer Center

COURSE AIM
This advanced multidisciplinary course, jointly organised by ESTRO, ESMO, EACTS, ESTS, ESSO aims at promoting an integrated approach to the diagnosis and management of lung cancer. The goal is to individualise the patient treatment approach based on the clinical presentation, prognostic factors, tumour extent and the patient. In the last decades, we have seen major technical and clinical improvements both for the diagnosis (including the different imaging procedures) and the treatment (surgery, radiotherapy, chemotherapy and targeted therapies) for this very common and aggressive tumour, with clear benefit for the patients.

The course will be very interactive through the integration of lectures, debates and case discussions and definitely multidisciplinary with a programme outlining the different treatments for lung cancer from evidence based medicine to the on-going research. The faculty will include chest physicians, radiologists, medical oncologists, thoracic surgeons and radiation oncologists.

TARGET GROUP
The course is meant for specialists and trainees with some expertise in radiotherapy, surgery or chemotherapy who are interested in the management of lung cancer.

EDUCATIONAL PROGRAMME
- Pitfalls in imaging procedures
- PET in daily clinical practice
- The biology of lung cancer
- Patient evaluation before radical treatment
- From mediastinal staging to lobectomy with lymph node dissection
- Adjuvant & neo-adjuvant chemotherapy for resectable tumours
- Chemotherapy or chemo-radiotherapy for borderline resectable tumours
- The limitations of surgery for stage III tumours
- Is there still a place for postoperative radiotherapy?
- State-of-the-art chest radiotherapy
- Chemoradiotherapy for locally advanced NSCLC
- The oligometastatic concept
- The use of molecular markers
- Management of acute and late effects of chemoradiotherapy
- The challenge of brain metastases
- Integration and organisation of supportive care
- Multimodality treatment of SCLC
- Clinical case discussions
- Mesothelioma
- Thymoma
This course is tailored specifically to the South East Asian Radiation Oncology Group (SEAROG) needs and demands. The course is primarily targeting the South East Asian Radiation Oncology group and provides specific solutions for their issues.

FACULTY
The course faculty includes international experts from various “bench to bedside” fields which will allow a high level of interaction between teachers and participants.

Course director
Barbara Jereczek-Fossa, Radiation Oncologist and Clinical Oncologist, European Institute of Oncology and University of Milan (IT)

Teachers
Giuseppe Curigliano, Medical Oncologist, European Institute of Oncology, Milan (IT)
Rafał Dzidziuszko, Radiation Oncologist and Medical Oncologist, Medical University, Gdansk (PL)
Jesper Grau Eriksen, Clinical Oncologist, Odense University Hospital (DK)
Tan Li Tee, Clinical Oncologist, Oncology Centre Addenbrooke’s NHS Trust, Cambridge (UK)

Local Organiser
Soehartati Gondhowiardjo, Radiation Oncologist, Cipto Mangunkusumo General Hospital, Jakarta

COURSE RATIONALE
Effective cancer treatment necessitates both high efficacy of local treatment and combating sub-clinical systemic disease. Consequently, cancer therapy today involves various combinations of local and systemic treatment modalities. Of those, combining drugs and radiation has been attracting particular attention both in terms of its biological rationale and its potential of increasing the therapeutic outcome. The course aims at updating participants about established and emerging knowledge in this field. It will provide the key-messages that biological and clinical research is bringing to the oncology community nowadays.

COURSE AIM
- To update participants about biological effects of combining drugs and radiation in normal and tumour tissue
- To present evidence-based clinical applications of combined modality treatment using drugs and radiation in major human malignancies
- To introduce the concept of the personalised medicine
- To stimulate case-based discussion on the interdisciplinary treatment of cancer
- To present future perspectives for combining drugs and radiation

TARGET GROUP
The course is aimed at residents and specialists in radiation oncology as well as in clinical and medical oncology involved in the multidisciplinary treatment of cancer.

EDUCATIONAL PROGRAMME

General lectures
- Biologic basis for combining drugs with radiation
- Combining drugs with radiation: quantifying the therapeutic gain
- Combining new drugs with radiotherapy
- Radiation and non-cytotoxic drugs
- Hypoxic cell radiosensitisers
- Cytoprotective agents and radiotherapy: what is safe and what is not?
- Alteration of radiotherapy fractionation and concurrent chemotherapy
- Designing clinical trials for combined modality treatments
- Personalizing cancer therapy: rationale and challenges

Site specific lectures including practical case discussions
- Head and neck cancer
- Non small cell lung cancer
- Small cell lung cancer
- Breast cancer
- Prostate cancer
- Bladder cancer
- Lymphomas
- Gynaecological cancer
This course is tailored specifically to the Association of Radiation Oncologists of India’s (AROI) needs and demands. The course is primarily targeting the Indian Radiation Oncology society and provides specific solutions to the Indian issues.

FACULTY
Course director
Coen Rasch, Radiation Oncologist, Academic Medical Center, Amsterdam (NL)

Teachers
Sara Broggi, Physicist, Instituto Scientifico San Raffaele, Milano (IT)
Renaud de Crevoisier, Radiation Oncologist, Centre Eugène Marquis, Rennes (FR)
Rianne de Jong, Radiation Technologist, Academic Medical Center, Amsterdam (NL)
Tom Depuydt, Physicist, UZ Brussel (VUB) (BE)
Andrew Hope, Radiation Oncologist, Princess Margaret Hospital, Toronto (CA)
Uwe Oelfke, Physicist, Institute of Cancer Research, London (UK)
Marco Schwarz, Physicist, ATreP, Agenzia Provinciale per la Protonterapia, Trento (IT)
Jan-Jakob Sonke, Physicist, The Netherlands Cancer Institute, Amsterdam (NL)

Faculty will be completed with extra local teachers, please visit www.estro.org for more information.

COURSE AIM
- Understanding of the principles and background of IMRT and IGRT
- Knowledge on the impact of various geometrical uncertainties and where they can be minimised
- Knowledge of QA of IMRT and IGRT
- An overview of available techniques, being able to choose between techniques and knowledge of their limitations
- Planar and 3D in room imaging
- Workflow and efficiency at the department for implementation of IMRT and IGRT
- Clinical rationale, limitations and evidence for advanced technologies
- Knowledge of inverse treatment planning optimisation, biological optimisation and dose painting

TARGET GROUP
The course is aimed at radiation oncologists, radiation physicists and radiation technologists who will participate in advanced technologies like IMRT and IGRT in their department. Some experience in the field of conformal therapy, target delineation and treatment planning is a prerequisite. Making advanced technologies work is a team effort therefore simultaneous participation of the three disciplines is strongly recommended.

EDUCATIONAL PROGRAMME
- On-site demonstrations of advanced techniques
- Panel and participants discussion: IMRT and IGRT, the case pro and against
- Dose volume constraints
- Methods of optimisation
- Dosimetry of IMRT
- Imaging and target delineation
- Geometrical uncertainties
- Planar and volumetric imaging
- Image registration
- Setup correction strategies
- Clinical sessions on thorax, pelvic, and head and neck cancer covering the interaction of physics and clinic.
- Workflow in the clinic including “how they do that” tips.
ESOR/ESTRO COURSE: MULTIDISCIPLINARY APPROACH OF CANCER IMAGING
06-08 November 2014 | Maastricht, the Netherlands

FACULTY

Chairpersons
Regina Beets-Tan, Radiologist, Maastricht University Hospital (NL)
Vincenzo Valentini, Radiation Oncologist, Università Cattolica S. Cuore, Rome (IT)

Teachers
Lorenzo Bonomo, Radiologist, Università Cattolica S. Cuore, Rome (IT)
Guido Lammering, Radiation Oncologist, Heinrich Heine University Düsseldorf (DE)
Riccardo Manfredi, Radiologist, University of Verona (IT)
Yves Menu, Radiologist, Saint Antoine Hospital, Paris (FR)
Ursula Nestle, Radiation Oncologist, Universitätsklinikum Freiburg (DE)
Nickolas Papanikolaou, Radiologist, University Hospital of Heraklion (GR)
Cornelius van de Velde, Surgeon, Leiden University Medical Center (NL)
Daniel Zips, Radiation Oncologist, Universitätsklinik für radio-oncologie, Tübingen (DE)

Local Organiser
Regina Beets-Tan, Radiologist, Maastricht University Hospital

COURSE AIM
This course, jointly organised by ESOR and ESTRO, aims at promoting an integrated approach between specialists involved in multidisciplinary tumour boards to tailor the best treatment for each individual patient by exploiting the use of imaging.

The goal is to understand each other’s specialty needs and to practice common language. The course aims to provide knowledge of an integrated approach of imaging in the diagnosis and treatment of various cancer types. Didactic lectures followed by workshops will cover all aspects of the use of imaging in lung, liver, pancreatic and rectal cancer. A renowned European multidisciplinary faculty of expert radiologists, surgeons and radiation-oncologists will provide the participants an in-depth knowledge of imaging technology as well as an understanding of how its information can be used for clinical decision making, treatment planning, adaptation and response assessment.

LEARNING OBJECTIVES
- to learn about imaging and radiation technology and protocols used in radiology and radiation oncology
- to learn about relevant diagnostic questions in each other’s specialty
- to become familiar with current treatment options in lung, liver, pancreatic and rectal cancer
- to know the role and performance of CT, MR and PET/CT in the multidisciplinary management of patients with these tumours
- to understand how imaging information impacts treatment stratification, planning and adaptation
- to know the performance of CT, MR and PET/CT for evaluation of treatment response and to understand the pitfalls in interpretation

TARGET GROUP
The target group consists of last year residents and specialists in radiology and radiation oncology who are interested to learn and improve their knowledge on an optimal approach to multidisciplinary treatment management exploiting the use of imaging.

EDUCATIONAL PROGRAMME

Thursday 6 November 2014
- Imaging technology in radiology and radiotherapy: protocols that matter
- Lecture session 1 (parallel) Imaging technology in radiotherapy for radiologist - Basic principle in radiation technology - Clinical application
- Lecture session 2 (parallel) Imaging technology in radiology for radiotherapist - Basic principle in MR technology - Clinical application
- Liver Tumours: primary liver tumour and colorectal metastases - Treatment options - CT and MRI of liver tumours
- Pancreatic tumours - Treatment options - CT and MRI of pancreatic tumours
- Imaging guided adaptation of treatment - Workshops on liver and pancreatic cancer
- Workshop 1: How to interpret MR, PET, CT images
- Workshop 2: How to delineate risk compartments according to RT techniques

Friday 7 November 2014
- Lung cancer – Lung imaging evidences
- Pathways of lung spread and relevant treatment options
- Imaging local tumour and nodal spread
- Imaging guided adaptation of treatment before and after
- Workshops on lung cancer
- Workshop 1: How to interpret MR, PET, CT images
- Workshop 2: How to delineate risk compartments according to RT techniques

Saturday 8 November 2014
- Rectal cancer, tumour extension at primary staging and at response evaluation
- Pathways of rectal cancer spread and relevant treatment options
- Imaging local tumour and nodal spread
- Imaging guided adaptation
- Workshops on rectal cancer
- Workshop 1: How to interpret MRI rectal cancer staging and restaging images
- Workshop 2: How to delineate risk compartments according to RT techniques
**3RD MASTERCLASS IN RADIATION ONCOLOGY**

09-12 November 2014 | Lisbon, Portugal

---

**FACULTY**

Chairs of the Masterclass
- Michael Baumann, Radiation Oncologist, UK Carl Gustav Carus, Dresden (DE)
- Jacques Bernier, Radiation Oncologist, Clinique de Genolier (CH)
- Roberto Orecchia, Radiation Oncologist, European Institute of Oncology, Milan (IT)
- Richard Pötter, Radiation Oncologist, Medical University Hospital, AKH Vienna (AT)

---

**INTRODUCTION**

ESO and ESTRO are pleased to announce the third edition of the Masterclass in Radiation Oncology, this year with a renewed format offering a deeper look into the state of art and evidence based innovation strategies in radiation oncology. The programme, focusing on the pillars and on the hot topics in radiation oncology, has been designed to offer a unique learning experience and to provide a practice-oriented training to radiotherapists and to clinical oncologists with knowledge in the field. The programme will offer plenary lectures focusing on the state-of-the-art treatments and opportunities to integrate emerging technologies and basic research results in innovative clinical strategies. Furthermore, participants will present an innovation or research proposal outlining novel development work (physics, imaging, biology, QA, etc.) with a clinically relevant question and study design (first in man, early phase or later phase) that considers the multidisciplinary environment. All participants will reside at the course venue and their participation is compulsory throughout the course, with its approximately 30 hours of programme. The Masterclass will be entirely in English and fluency in English is compulsory for admission.

---

**LEARNING OBJECTIVES**

- Evaluation and application of appropriate methodology in translational research, research design, and in the establishment of endpoints
- Discuss and update on technology research and options, including treatment planning, emerging technologies and trials
- Improve knowledge on emerging biology research and future perspectives, including systemic treatment, combined treatment, pathology and biological endpoints
- Understand the importance and benefits of the multidisciplinary approach

_The Masterclass is_  
- A one-week residential educational event  
- Full immersion  
- Clinically oriented, with special consideration on integration of innovative technologies and knowledge into the clinical setting  
- Evidence-based  
- Multidisciplinary, to cover pathology, staging and imaging, biology, physics, technologies with an overview on medical and surgical oncology  
- An international faculty of experts delivering lectures on principles of radiation oncology

---

**MAIN TOPICS**

- Evidence-based methodology for innovation in radiation oncology  
- Physics and technology  
- Radio- and cancer biology  
- Clinical radiation oncology  
- Multidisciplinarity

**PARTICIPANT’S PROFILE**

- Age between 30 and 45 years  
- Knowledge and at least 3 years’ experience in clinical radiation oncology or medical oncologists with basic knowledge in radiotherapy  
- Involvement in scientific activities  
- Fluency in English

Attendance is limited to 50 participants and admittance is by competition application only. Successful applicants are granted free registration but the cost of full board accommodation and the course venue and travel are to be covered by the participants.

More information on the application and selection procedure please visit our website.

**DEADLINES**

By application only - 30 July 2014

**EDUCATIONAL PROGRAMME**

**Methodology**

- Radiation Oncology Research: anything special?  
- Is translational research delivering the goods  
- Research designs for evidence-based radio-oncology (including retrospective analyses)  
- Local therapy endpoints: side-effects, adverse events, QoL + local and regional failure  
- Radiotherapy fractionation: Biological and physical optimization  
- Group discussion: research design, added value of translational research

**Technology**

- Technology research, more related to treatment planning  
- Emerging technologies (Hadron, but not only, broader approach)  
- Technology oriented trials, How to provide evidence for technologies  
- Elaborated trials, studies on technology testing. Innovation in RO, new research approach  
- Group discussion: how to bring these trials into existence

**Biology**

- Lecture on NEW biology (emerging research and looking ahead)  
- Biomarkers  
- What’s emerging in systemic treatment  
- Combined treatment, biological endpoint  
- Pathology (pathology from a multidisciplinary point of view)  
- Group discussion: how specific protocols will be done

**Multidisciplinary - the importance of the multidisciplinary approach**

- Introductory talk, multidisciplinary development of trials  
- Drug radiation - Clinical applications of drug-radiation interactions  
- Medical oncology approach - Combining local and systemic treatments: Is more always better?  
- Surgical approach (by concept, not organ oriented and lead to an integrated discussion)  
- Group discussion
TARGET VOLUME DETERMINATION - FROM IMAGING TO MARGINS
09-13 November 2014 | Vienna, Austria

FACULTY
Course director
Gert de Meerleer, Radiation Oncologist, Ghent University Hospital (BE)

Teachers
Martina Kunze-Busch, Physicist, UMC St Radboud, Nijmegen (NL)
Daryl Lim Joon, Radiation Oncologist, Austin Health & Repatriation Medical Centre, Melbourne (AU)
Peter Remeijer, Physicist, The Netherlands Cancer Institute, Amsterdam (NL)
Esther Troost, Radiation Oncologist, MAASTRO, Maastricht (NL)

Faculty will be completed with extra teachers, please visit www.estro.org for more information.

Local Organiser
Dietmar Georg, Physicist, Medical University Vienna

COURSE AIM
- To understand the principles of different imaging modalities utilised for target volume definition (TVD) such as ultrasound, computed tomography (CT), magnetic resonance imaging (MRI), positron emission tomography (PET).
- To understand the need for TVD and planning nomenclatures for primary tumour, nodal regions and organs-at-risk in treatment planning and for treatment strategies such as IMRT and image guidance (IGRT).
- To appreciate the limitations of current imaging modalities for TVD and review ‘state-of-the-art’ imaging modalities for TVD.
- To explore the use of functional and molecular imaging in TVD for biological targets.
- To review the diagnostic imaging and therapy interface for image registration and verification as well as margin determination.
- To promote interdisciplinary discussion between oncologists, physicists and technologists in small workgroups for GTV, CTV, PTV determination in selected tumour sites (e.g. CNS, H&N, thoracic and pelvis).
- These workshops will involve practical exercises with compulsory homework by all attendees that will be made available on line.

TARGET GROUP
The course is aimed at trainees in radiation oncology and radiotherapy physics with at least one year experience, diagnostic radiologists with an interest in cancer imaging, radiation technologists with special interest in planning. However, any senior who would like to refresh part of her/his knowledge would benefit from this course.

EDUCATIONAL PROGRAMME
- Imaging techniques for GTV/CTV including ultrasound, CT, MRI, and PET
- Functional and molecular imaging in oncology
- Optimal imaging guidelines in selected tumour sites
- Target volume and margin definitions and determination including inter-observer variations
- Acquisition of imaging data for treatment planning
- Image handling, image fusion and networking
- Target volumes for CNS tumours
- GTV to PTV for H&N tumours
- Target volumes for Breast nodal regions
- Planning volumes for lung cancer including planning with PET/CT
- GTV to PTV for pelvic tumours & pelvic nodes including urological, gynaecological and GI tumours
- Geometric uncertainties in conformal radiotherapy and IMRT
- Image registration for conformal therapy, IMRT and IGRT
- Practical collaborative group exercises
- Interactive plenary sessions for case solutions

This course is using the FALCON platform for the contouring exercises

Gert de Meerleer
Course Director
Miika Palmu
Project Manager
IMAGE-GUIDED RADIOTHERAPY IN CLINICAL PRACTICE

30 November - 04 December 2014 | Brussels, Belgium

FACULTY

Course directors
Coen Rasch, Radiation Oncologist, Academic Medical Center, Amsterdam (NL)
Marianne Aznar, Physicist, The Finsen Center – Rigshospitalet, Copenhagen (DK)

Teachers
Rianne de Jong, Radiation Technologist, Academic Medical Center, Amsterdam (NL)
Matthias Guckenberger, Radiation Oncologist / Radiotherapist, Julius-Maximilians University, Würzburg (DE)
Helen McNair, Technologist, The Royal Marsden NHS Foundation Trust, London (UK)
Jan-Jakob Sonke, Physicist, The Netherlands Cancer Institute, Amsterdam (NL)
Dirk Verellen, Physicist, UZ Brussel (VUB), Brussels (BE)

Local Organiser
Dirk Verellen, Physicist, UZ Brussel (VUB), Brussels

COURSE AIM

■ To cover both theoretical and practical aspects related to the clinical implementation of in-room imaging in radiotherapy
■ To review imaging techniques that can be applied in the workflow of conformal radiotherapy and understand how individual links in the chain of events will influence clinical outcome (from treatment prescription to preparation & planning, to patient set-up & verification and finally follow-up).
■ To identify potential sources of errors in target delineation/localisation and how IGRT can be of help, with special emphasis on conformal radiotherapy, intensity modulated radiotherapy and management of organ motion.
■ To understand the concept “target delineation – target localisation” at each particular step in the treatment chain and identify appropriate techniques to increase both efficiency as well as efficacy.
■ To offer an overview of available technologies and how to integrate these in clinical practice.
■ To compare available technologies and help define applicability for particular use.
■ To understand the functionality of the equipment and technology, and identify limitations of a particular method.

TARGET GROUP

The course is aimed at all professionals in the field of radiation oncology who are involved in target localisation at any point in the treatment chain, this includes radiation oncologists, radiation physicists, and radiation technologists. A good understanding of issues related to target delineation, target localisation and patient set-up is a prerequisite as well as some experience in the field. As the emphasis will be on integration of IGRT techniques and practical implementation, the “team effort” is important and simultaneous participation of physicists, radiation oncologists and radiation technologists is strongly encouraged.

EDUCATIONAL PROGRAMME

This is a 5-day course organised to identify the influence of image guidance at important steps in the workflow of radiation therapy. The following items will be covered in view of in-room imaging for therapy guidance:
■ Image guidance required for treatment prescription
■ Image guidance in treatment preparation and treatment planning
■ Image guidance in patient set-up and target localisation during treatment
■ Image guidance in treatment follow-up

Small workshops will be organised on Monday and Tuesday to cover specific techniques using film and demo material of the available commercial systems. The format will be based on interactive discussion sessions between the company vendors, representative users, teachers and participants.

On Sunday 30 November, site visits are planned to provide the participants with hands-on experience including different commercially available systems. Because no patients are treated on Sunday, practical hands-on will be emphasised. When registering for the course, details on hosting sites will be available online and during the registration process you will be asked to indicate your preference in order to enable the organisation of the visits. For practical reasons and ensuring interactivity, the group sizes are restricted to about 40 participants per site (the availability of the hands-on venue depends on a first-come, first-serve basis).
QUANTITATIVE METHODS IN RADIATION ONCOLOGY: MODELS, TRIALS AND CLINICAL OUTCOMES
07-10 December 2014 | Vienna, Austria

FACULTY
Course director
Søren M. Bentzen, Biologist, University of Wisconsin Medical School, Clinical Science Center, Department Human Oncology, Madison (USA)

Teachers
Francesca Buffa, Physicist, University of Oxford (UK)
Philippe Lambin, Radiation Oncologist, MAASTRO Clinic (NL)
Hans Langendijk, Radiation Oncologist, University Medical Centre Groningen (NL)
Randall Ten Haken, Physicist, University of Michigan (USA)
Peter van Luijk, Physicist, University Medical Centre Groningen (NL)
Ivan Richter Vogelius, Physicist, The Finsen Center-Righospitalet, Copenhagen (DK)

Local Organiser
Dietmar Georg, Physicist, Medical University Vienna

COURSE AIM
be aware of the most commonly used quantitative methods in radiation oncology and radiation biology and the assumptions behind these
be able to identify appropriate quantitative methods of analysis for a given data set
be able to critically evaluate modeling results especially with respect to proper validation and estimates of uncertainties

TARGET GROUP
The course is aimed at physicians, medical physicists and radiation therapists.

EDUCATIONAL PROGRAMME
Radiation oncology is unique among the medical specialties due to a strong quantitative overhead. Bioeffect models of normal tissue complication probability (NTCP) and tumour control probability (TCP) support clinical decision making and are increasingly used in mathematical optimization of radiation therapy plans. While most of the models are fairly simple – in some cases over-simplified – the problem is that their predictive value is limited by uncertainties in the model parameters. Uncritical reliance on model results may compromise patient safety or treatment outcome. The aim of this course is to make the attendees critical users of models and better at making model-supported decisions.

Topics covered:
- Models and modelling, hypothesis testing and parameter estimation, type I and II uncertainties
- Clinical trials and evidence-based medicine, Phase 0-IV trial designs, meta-analysis, clinical endpoints, survival statistics and the Cox proportional hazards model
- Statistical modelling and exploratory data analysis, simple mechanistic models, external and internal validity of models, bootstrap and Monte Carlo methods, goodness of fit
- Dose-response models, normal tissue complication probability (NTCP) and tumour control probability (TCP) models, modelling combined modality therapy, patient-to-patient variability in response, the linear-quadratic model and beyond, generalised equivalent uniform dose, use of models in treatment planning
- Predictive assays, ROC and AUC, sensitivity, specificity, positive and negative predictive value
- Hierarchical clustering, principal component analysis, neural network, support vector machines, data mining
- High dimensionality data sets, over-fitting, training and validation sets, sample splitting, K-fold validation
MIDDLE EAST
COURSE TOPIC, VENUE AND DATE TO BE CONFIRMED

MY COURSES IN 2014
The ESTRO School aims to assist in harmonising and raising the standards of radiation oncology education in Europe and beyond. The School offers a wide range of educational activities and in the last years a lot of effort was put in developing e-learning and e-tools in order to extend and coordinate teaching resources worldwide. These programmes and tools were symbolically called after far and high flying birds: DOVE, FALCON and EAGLE.

♦ DOVE

In April 2013, ESTRO launched DOVE, an online service library that aims to become the largest educational library of radiation oncology on the internet. Through a single logon, you can access peer-reviewed ESTRO resources such as:

- congress webcasts, abstracts and posters;
- course materials and educational videos;
- FALCON delineation cases;
- Green Journal articles;
- ESTRO guidelines and publications
- and in the future also non-ESTRO resources.

For easy retrieval of required educational material, the library offers a powerful search engine based on the MeSH thesaurus. You can refine your search by including subject, time and format filters and DOVE allows you to save, print and email the selected material.

This new service will be more than just an internet library or database. In addition to providing users with high level learning material, it will also offer possibilities and tools for interactive learning as well as for discussion, exchanging ideas and comments. Anyone can access the service library and see what it contains; full access depends on ESTRO membership status or participation to ESTRO activities and is available at different rates.
EAGLE

EAGLE is set up to be a framework for online educational services providing interactive elearning modules based on educational material of different formats. These modules offer coached learning for individuals and for virtual classes.

ESTRO started to develop online teaching modules a few years ago; having the possibility now through DOVE to offer direct access to a wealth of information, we plan to produce many more learning ‘packages’, grouping educational material on specific topics and combining them with specific tests or examinations. We hope to create a wide portfolio of elearning modules in this way in order to overcome the problems of access to knowledge and better fulfil the needs for continuing medical education in radiation oncology worldwide.

FALCON

FALCON (Fellowship in Anatomic deLineation and CONtouring) is an educational ESTRO project that was started in 2010. FALCON is aimed at improving the contouring skills of the radiation oncology community and at contributing to better treatment planning of cancer patients treated with radiotherapy.

An online educational contouring tool was acquired and integrated into the portfolio of educational ESTRO activities such as live courses, workshops at ESTRO meetings, online virtual workshops and for the database of contouring cases accessible for the ESTRO members.

In the coming years ESTRO will continue to:

- use the contouring tool in about half of the ESTRO live courses and in dedicated contouring workshops to train the delineation skills of the participants before, during and/or after the course or workshop.
- organise online contouring workshops for different tumour sites such as breast, head and neck, rectum, gynae,... These workshops can take maximum 20 participants and are conducted through webconferences over a time span of three weeks. The sessions are very interactive and offer the opportunity to compare delineations from participants and experts and discuss the interobserver variability and the available guidelines.
  (dates of these online workshops are published on the website in the calendar of the School - www.estro.org/school/courses/FirstLevel/Live+courses).
- expand its database of cases delineated by experts, accessible to the ESTRO membership and community; a limited number of cases is available for free at all time to ESTRO members, access to the full database can be purchased online.
- develop guidelines for delineation of the different tumour sites.
ESTRO MOBILITY GRANTS (TTG)

It seems that not all ESTRO members know about the availability or the scope of the ESTRO Technology Transfer Grants. Possibly the name we have chosen to define these awards is not optimal and suggestions for alternative branding will be gratefully received.

To help clarify the intention of these grants, here is a brief summary of the scope of the awards and required information from applicants. This is for you if you want to visit another institute to learn about or gain experience with a technique, equipment or its application that is not easily available in your own institute and which would be useful to you and your department in future studies or clinical treatments.

**ESTRO TECHNOLOGY TRANSFER GRANTS (TTG)**

**Target group**

ESTRO members who are specialist or trainee Radiation Oncologists, Radiation Physicists, RTTs or Biologists are all eligible for TTGs. In addition to individual applications, ESTRO encourages teams of physicists or oncologists together with RTT to apply together, where appropriate. Although TTGs are primarily aimed at people in a relatively early stage of their career, many exceptions are made for more senior people who wish to learn a specific technique or application.

**Scope**

ESTRO will cover travel and accommodation for a visit to another institute with the expertise or technique to be learned. Salaries will not be covered. Visits of 1-3 weeks, with a total budget of €1500-€2000 per project (max €2500) are envisaged. The term “Technology Transfer” can be broadly interpreted. The main idea is to facilitate exchange of expertise or technical know-how between institutes.

**ESTRO budget**

There is a yearly budget of €50,000 available for these grants.

**Application for TTG**

There are two application deadlines per year (Spring and Autumn) and dates are announced on the website of ESTRO (under the education tab), as well as by ESTRO flash reminders. Application forms are available on the website (Education tab) and the following information is required:

- A short, clear description of project aim and methodology, as well as indication of the likely benefit of the visit to the applicant and their institute.
- Letters of support from the applicant’s department head and from the host institute
- A short CV of the applicant(s)
- Cost estimates

After the visit, a 2 page report should be sent to the ESTRO office within one month of completion (these reports will be posted on the ESTRO website).

**Evaluation methodology**

Applications are submitted twice a year and evaluated by a panel of 4-5 members of the Education Committee, including at least one clinician, physicist, RTT and biologist. All applications are scored for suitability and likely benefit to the applicant and their home
institute. Applications judged to fulfil suitability criteria are ranked according to clarity and feasibility of the aims of the visit and methodology described. These ranking scores are used to assign priority for funding within the available budget.

Applications judged to have potential merit but to lack focus or methodological detail are returned with advice on how to modify and resubmit the application.

**Evaluation Panel**
- Fiona Stewart, Biologist
- Michelle Leech, RTT
- Håkan Nyström, Physicist
- Sofia Rivera, Radiation Oncologist
- Ann Barrett, Radiation Oncologist

**DEADLINES:** 30 APRIL AND 31 OCTOBER 2014
All applications should be addressed to: grants@estro.org

**Results per Mobility Grant application 2008-2013**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>RO</th>
<th>PHYSICS</th>
<th>RTT</th>
<th>BIOLOGIST</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008 (Autumn)</td>
<td>4</td>
<td>9</td>
<td>5</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>2009</td>
<td>21</td>
<td>22</td>
<td>8</td>
<td>0</td>
<td>51</td>
</tr>
<tr>
<td>2010</td>
<td>22</td>
<td>21</td>
<td>6</td>
<td>0</td>
<td>49</td>
</tr>
<tr>
<td>2011</td>
<td>17</td>
<td>11</td>
<td>3</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>2012</td>
<td>21</td>
<td>15</td>
<td>8</td>
<td>0</td>
<td>44</td>
</tr>
<tr>
<td>2013 (Spring)</td>
<td>18</td>
<td>11</td>
<td>3</td>
<td>0</td>
<td>32</td>
</tr>
</tbody>
</table>

**Funding rates**

<table>
<thead>
<tr>
<th>YEAR</th>
<th># PROPOSALS</th>
<th># FUNDED</th>
<th>% FUNDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>27</td>
<td>19</td>
<td>70</td>
</tr>
<tr>
<td>2009</td>
<td>42</td>
<td>22</td>
<td>52</td>
</tr>
<tr>
<td>2010</td>
<td>46</td>
<td>25</td>
<td>54</td>
</tr>
<tr>
<td>2011</td>
<td>28</td>
<td>21</td>
<td>75</td>
</tr>
<tr>
<td>2012</td>
<td>40</td>
<td>33</td>
<td>82</td>
</tr>
</tbody>
</table>

**Main reasons for rejection**
- Aims too broad and unfocused
- Poor methodology
- Topic or host institute not appropriate
- Too commercial
- Priority score too low for funding
EDUCATIONAL PUBLICATIONS

**ESTRO (PHYSICS) BOOKLETS**
(with the support of Europe Against Cancer and Atomic Energy Agency):

- **Booklet No. 1 | 2nd edition**
  Methods for in Vivo Dosimetry in External Radiotherapy
  by J. Van Dam, G. Marinello

- **Booklet No.2**
  Recommendations for a Quality Assurance Programme in External Radiotherapy
  by P. Aletti, P. Bey

- **Booklet No.3**
  Monitor Unit Calculation for High Energy Photon Beams
  by A. Dutreix, B. E. Bjärngard, A. Bridier, B. Mijnheer, J. E. Shaw, H. Svensson

- **Booklet No.4**
  Practical Guidelines for the Implementation of Quality System in Radiotherapy

- **Booklet No.5**
  Practical Guidelines for the Implementation of in Vivo Dosimetry with Diodes in External Radiotherapy with Photon Beams (entrance dose)
  by D. Huyskens, R. Bogaerts, S. Broggi, C. Fiorino, N. Jornet, M. Lööf, H. Nyström, M. Ribas, D. I. Thwaites, J. Verstraete

- **Booklet No. 6**
  Monitor Unit Calculation - For High Energy Photon Beams - Practical Examples
  by B. Mijnheer, A. Bridier, C. Garibaldi, K. Torzsok, J. Venselaar

- **Booklet No.7**
  Quality Assurance of Treatment Planning Systems - Practical Examples for non-IMRT Photon Beams
  by B. Mijnheer, A. Olszewska, C. Fiorino, G. Hartmann, T. Knöös, J.C. Rosenwald and H. Welleweerd

- **Booklet No. 8**
  A Practical Guide to Quality Control of Brachytherapy Equipment
  by J. Venselaar, J. Pérez-Calatayud

- **Booklet No. 9**
  Guidelines for the Verification of IMRT
  by B. Mijnheer, D. Georg

- **Booklet No.10**
  Individual Dose Calculations Concept and Models
  by M. Karlsson, A. Ahnesjö, D. Georg, T. Nyholm, J. Olofsson

**PRACTICAL RADIOTHERAPY PLANNING 4TH EDITION**
by A. Barrett, J. Dobbs, S. Morris, T. Roques

**BASIC CLINICAL RADIOBIOLOGY 4TH EDITION**
by M. Joiner, A. Van der Kogel

**THE GEC ESTRO HANDBOOK OF BRACHYTHERAPY**
by A. Gerbaulet, R. Pötter, J.-J. Mazeron, H. Meertens, E. Van Limbergen
Supported by Nucletron, Oncura and Varian

**MULTIDISCIPLINARY MANAGEMENT OF RECTAL CANCER**
by V. Valentini, H. J. Schmoll, C. J. H. Velde
TIGER PROJECT
A radiotherapeutic oriented solution to the problem of teaching the axial human anatomy by promoting comparison between highly detailed anatomical sections by the Visible Human Project of National Library of Medicine with CAT scan images, training in contouring outlines of anatomic structures and finally evaluation of individualised tutorial programmes – Demo version and information www.estro.org (click ‘School’ and then ‘E-learning’)

HAND-OUTS PUBLISHED FOR TEACHING COURSES
USB keys including the presentations of the teachers are given to all the participants of our teaching courses. Additionally, once the teaching course is over, the updated presentations of the faculty are available on the ESTRO website, exclusively for the participants of each specific teaching course.

HANDBOOK FOR SETTING UP ESTRO COURSES

The European School of Radiotherapy and Oncology aims to improve, professionalise and standardise knowledge and practice in radiation oncology and associated professions in Europe and beyond.

To accomplish this mission ESTRO promotes a large range of education tools, in particular high-quality teaching courses. The courses are designed to meet the needs of practicing radiation oncologists, radiation oncology residents, radiation biologists, radiation physicists, radiation technologists, oncology nurses and oncology administrators, as well as oncologists working in related specialties.

To facilitate the task of the people involved in the set-up and organisation of ESTRO courses, a set of guidelines have been developed and are compiled in this manual.

The manual contains 4 sections designed for
- Course directors and teaching faculty
  - Defining the course aims
  - Defining the target group
  - Defining the course content
  - Faculty
  - Defining the course format
  - Course book
  - Preparation of course material
  - Accreditation and certification
  - Evaluation tools
  - Course tests
- Local organisers
- Project Managers (ESTRO office)
- Companies

The handbook can be found on:
www.estro.org/school/courses/FirstLevel/Live+courses
Updated European core curriculum for radiotherapists (radiation oncologists). Recommended curriculum for the specialist training of medical practitioners in radiotherapy (radiation oncology) within Europe


Radiotherapy and Oncology
February 2004 (Vol. 70, Issue 2, Pages 107-113)


Radiotherapy and Oncology
February 2004 (Vol. 70, Issue 2, Pages 115-116)

Training loUkook for radiotherapy

Hunter RD, Maciejewski B, Leer JW, Kinay M, Heeren G, for the European Board of Radiotherapy (Radiation Oncology)

Radiotherapy and Oncology
February 2004 (Vol. 70, Issue 2, Pages 117-121)

Guidelines for the infrastructure of training institutes and teaching departments for radiotherapy in Europe

Röttinger E, Barrett A, Leer JW, for the European Board of Radiotherapy

Radiotherapy and Oncology
February 2004 (Vol. 70, Issue 2, Pages 123-124)

Guidelines for education and training of medical physicists in radiotherapy: Recommendations from an ESTRO/EFOMP working group


Radiotherapy and Oncology
February 2004 (Vol. 70, Issue 2, Pages 125-135)

Revised European core curriculum for RTs

Coffey M, Degerfält J, Osztavics A, van Hedel J, Vandevelde G

Radiotherapy and Oncology
February 2004 (Vol. 70, Issue 2, Pages 137-158)

Conformal radiotherapy of urinary bladder cancer

Muren LP, Smaaland R, Dahl 0

Radiotherapy and Oncology
December 2004 (Vol. 73, Issue 3, Pages 387-398)

Urinary incontinence in prostate cancer patients treated with external beam radiotherapy


Radiotherapy and Oncology
February 2005 (Vol. 74, Issue 2, Pages 197-201)

Magnetic resonance imaging anatomy of the prostate and periprostatic area: a guide for radiotherapists, 14 July 2005

Villeirs GM, L.Verstraete K, De Neve WJ, De Meerleer GO

Radiotherapy and Oncology
July 2005 (Vol. 76, Issue 1, Pages 99-106)

Experience of external beam radiotherapy given adjuvantly or at relapse following surgery for craniopharyngioma, 10 October 2005

Pemberton L.S, Dougal M, Magee B, Gattamaneni HR

Radiotherapy and Oncology
October 2005 (Vol. 77, Issue 1, Pages 99-104)

The role of whole pelvic radiotherapy in locally advanced prostate cancer, 24 April 2006


Radiotherapy and Oncology
April 2006 (Vol. 79, Issue 1, Pages 1-14)

Practical integration of [18F]-FDG-PET and PET-CT in the planning of radiotherapy for non-small cell lung cancer (NSCLC): The technical basis, ICRU-target volumes, problems, perspectives, 25 October 2006

Nestle U, Kremp S, Grossa AL

Radiotherapy and Oncology
November 2006 (Vol. 81, Issue 2, Pages 209-225)

A virtual reality solution for evaluation of radiotherapy plans corrected proof, 17 January 2007

Patel D, Muren LP, Mehus A, Kvinsland Y, Ulvang DM, Villanger KP

Radiotherapy and Oncology
February 2007 (Vol. 82, Issue 2, Pages 218-221)

Evidence-based radiation oncology in head and neck squamous cell carcinoma.

Renzo Corvò

October 2007 (Vol. 85, Issue 1, Pages 156-170)
The role of radiotherapy in lung cancer: where is the evidence?
Jacek Jassem
May 2007 (Vol. 83, Issue 2, Pages 203-213)

Evidence based radiation oncology: breast cancer.
Philip M. Poortmans
July 2007 (Vol. 84, Issue 2, Pages 84-101)

Evidence-based radiation oncology: definitive adjuvant and salvage radiotherapy for non-metastatic prostate cancer.
Barbara Alicja Jereczek-Fossa, Roberto Orecchia
August 2007 (Vol. 84, Issue 2, Pages 197-215)

Anatomical bases for the radiological delineation of lymph nodes areas. Upper limbs, chest and abdomen.
Benoît Lengelé, Catherine Nyssen-behets, Pierre Scaillet
Radiotherapy and Oncology
September 2007 (Vol. 84, Issue 3, Pages 335-347)

Anatomical bases for the radiological delineation of lymph node areas. Major collecting trunks, head and neck.
Benoît Lengelé, Marc Hamoir, Pierre Scaillet, Vincent Grégoire
Radiotherapy and Oncology
October 2007 (Vol. 85, Issue 1, Pages 146-155)

Evidence-based radiation oncology in head and neck squamous cell carcinoma.
Renzo Corvò
Radiotherapy and Oncology
October 2007 (Vol. 85, Issue 1, Pages 156-170)

Evidence and research in rectal cancer
Vincenzo Valentini, Regina Beets-Tan, Josep M. Borras, Zoran Krivokapić, Jan Willem Leer, Lars Pålhmans, Claus Rödel, Hans Joachim Schmoll, Nigel Scott, Cornelius Van de Velde, Christine Verfaillie
Radiotherapy and Oncology
June 2008 (Vol. 87, Issue 3, Pages 449-474)

Anatomical bases for the radiological delineation of lymph node areas. Part III: pelvis and lower limbs.
Benoît Lengelé, Pierre Scaillet
Radiotherapy and Oncology
July 2009 (Vol. 92, Issue 1, Pages 22-33)

Evidence-based radiation oncology: oesophagus
Bernhard Berger, Claus Belka
Radiotherapy and Oncology
September 2009 (Vol. 92, Issue 2, Pages 276-290)

The role of Human papillomavirus in head and neck cancer and the impact on radiotherapy outcome.
Pernille Lassen
Radiotherapy and Oncology
June 2010 (Vol. 95, Issue 3, Pages 371-380)

Pathogenetic mechanisms in radiation fibrosis
John Yarnold, Marie-Catherine Verfaillie
Radiotherapy and Oncology
October 2010 (Vol. 97, Issue 1, Pages 149-161)

The updated ESTRO core curricula 2011 for clinicians, medical physicists and RTTs in radiotherapy/radiation oncology
April 2012 (Vol. 103, Issue 1, Pages 103-108)

Competencies in radiation oncology: a new approach for education and training of professionals for radiotherapy and oncology in Europe
Richard Pötter, Jesper Grau Eriksen, Andy W. Beavis, Mary Coffey, Christine Verfaillie, Jan Willem Leer, Vincenzo Valentini
April 2012, (Vol. 103, issue 1, Pages: 1-4)

ESTRO 2012 Strategy Meeting: Vision for Radiation Oncology
Vincenzo Valentini, Jean Bourhis, Donal Hollywood
April 2012, (Vol. 103, issue 1, Pages: 99-102)

The International Atomic Energy Agency (IAEA): An active role in the global fight against cancer
Eduardo Rosenblatt, Eduardo Zabizarreta, Jan Wondergem, Elena Fidarova, Joanna Izewska
September 2012, (Vol. 104, issue 3, Pages: 269-271)

Application of anorectal sparing devices in prostate radiotherapy
Robert Jan Smeenk, Emile N.J.T. van Lin
February 2013, (Vol. 106, issue 2, Pages: 155-156)

Radiotherapy for benign brain tumours coming of age; example of vestibular schwannoma
February 2013, (Vol. 106, issue 2, Pages: 157-160)
Increasing Quality in Radiation Therapy

Delta^4 Family

- Pre Treatment verification
- Clinical significance QA
- Motion Management QA in 6D
- At Treatment verification

Delta^4 – Confidence based on real measurements
It is my privilege and great pleasure as President of ESTRO and Chair of the congress, to invite you to ESTRO 33 which will take place in Vienna from 4 to 8 April 2014. The welcome letter that follows was written by ESTRO’s President-elect, Donal Hollywood who recently passed away. Sharing Donal’s feelings and perspective related to this event, I am pleased to leave this message as written by Donal.

ESTRO looks forward to welcoming you in Vienna.

Vincenzo Valentini
ESTRO President
Chairperson of ESTRO 33

ESTRO 33 is the premier European event in Radiation Oncology and will focus on new and emerging developments in the field.

Since the foundation of ESTRO, more than 30 years ago, Radiation Oncology has fortunately seen continuous change with virtually every aspect of the basic science of our discipline and of the clinical treatment drastically improving for the benefit of patient care. In this context, ESTRO 33 will assist ESTRO’s recent Vision for 2020 statement that: “Every cancer patient in Europe will have access to state of the art radiation therapy, as part of a multidisciplinary approach where treatment is individualised for the specific patient’s cancer, taking account of the patient’s personal circumstances”.

In line with the ESTRO Vision document, the ESTRO 33 Scientific Programme will aim to cover mainly the following scientific topics.

- The integration of new clinical and preclinical evidence from biology, molecular/functional and anatomic imaging in Radiation Oncology
- The physical and biological optimisation of radiation therapy
- The use of new systemic agents together with the delivery of high precision radiation therapy in a safety aware environment
- Combined-modality treatment using radiation and either cytotoxic and/or targeted therapeutics
- The use of high-precision radiotherapy used with curative intent in patients with metastatic and locally recurrent disease
- New developments in Radiation Oncology that further improve the safety of high-precision radiotherapy
New approaches to adaptive radiotherapy integrating novel developments in biology, imaging, technology, and the assessment of tumour response and patient outcome

The potential future use of novel biological modifiers of tumour and normal tissue response

The development of validated predictive models of treatment outcome based on complex databases comprising clinical, biologic, genetic, imaging, dosimetric and population data

Quality programmes, including clinical audit and comprehensive safety systems in Radiation and Clinical Oncology that maintain the principles of providing the highest quality of patient care and treatment in a safety-aware environment

Health services research in radiotherapy and oncology, including the long term analysis of changes in specialist staffing in the discipline, the level of equipment, the appropriate implementation of new technology, patient access to new treatment approaches; together with the critical analysis of these strategic developments using cost-benefit, cost-utility and other means of health economic review and health technology assessment

Clinical trials (phase 0, I, II, and III) in radiotherapy and combined modality

On behalf of the Scientific Programme Committee, we are pleased to invite you to attend the ESTRO 33 congress in Vienna, Austria from 4 to 8 April 2014. ESTRO is an interdisciplinary society where radiation oncologists, medical physicists, biologists, RTTs (Radiation Therapist) and nurses aspire to join forces with other organisations in the oncology field that share ESTRO’s vision of excellence in cancer treatment. At ESTRO 33, we draw attention to the multidisciplinarity and interdisciplinary components of our practice, with emphasis on the new opportunities that they represent for all professionals of oncology, not only in research but also in the daily care of patients.

The interdisciplinary component of our society will be highlighted during sessions addressing prominent topics in Radiation Oncology such as individualised approaches, safety and quality, adaptive strategies and new technologies. Recent trends in medical physics and radiation biology will also be receiving wider coverage from different perspectives.

The multidisciplinary component of our profession will be highlighted in several joint sessions with other oncology societies.

ESTRO 33 will continue with the tradition of starting the congress with a series of pre-meeting courses and contouring workshops. Some of the many highlights in the scientific programme will include presentations of the best abstracts and several joint sessions with international scientific organisations.

As in previous conferences, ESTRO 33 will offer an additional Young Scientists Track on Sunday, 6 April. This track is fully organised by our young members and it enables them to meet young colleagues, share common interests, network and start to build their own collaborative projects at an international level.

Finally, all of the leading exhibitors will contribute to ESTRO 33, Europe’s largest industrial exhibition in Radiation Oncology, offering the opportunity to view the latest products and services in cancer treatment and cancer care.

Hosting the annual ESTRO congress in Vienna is not a pure coincidence: this is the city where radiotherapy started more than 100 years ago and special sessions in the scientific programme will pay homage to the Vienna School of Radiotherapy and to some of the pioneers of radiotherapy.

The Scientific Programme Committee is working hard to further develop the ESTRO annual congress as the prime scientific gathering of Radiation Oncology in the world. Therefore we encourage you to participate in this year’s edition by submitting your abstracts.

Sincerely,

Daniel Zips and Claudio Fiorino
Chairpersons of the Scientific Programme Committee
Course Aim
The course aims to provide the participant with a comprehensive overview of intracranial stereotactic radiosurgery. Within the limitation of a one-day programme, the course aims to address the major issues related to intracranial stereotactic radiosurgery:

- The basics, principles and practice of high precision stereotactic radiosurgery treatment delivery
- Frame-based versus frameless SRS
- Target volume definition and treatment planning
- Issues related to quality assurance, treatment verification and basic radiobiology
- An overview of the major clinical indications
- Comparison and discussion on indications in comparison to other treatment possibilities

The course will cover tools available today, but also give an overview of latest developments and some of the remaining challenges.

Learning objectives
- Obtain knowledge about the practical aspects of stereotactic radiosurgery imaging
- Understand principles of radiation physics and radiobiology, as they apply to single-session, focused, small volume irradiation
- Understand the basics in QA and safety specific for SRS
- Able to create radiosurgery dose plans for the most common indications in intracranial SRS
- Decide which patient to treat with radiosurgery, and where the limitations might be

Who should attend?
All professionals involved in the treatment chain of stereotactic radiosurgery are invited. This includes radiation oncologists, medical physicists, RTTs and neurosurgeons.

Content
Overview of 50 years stereotactic radiosurgery
- Overview of different treatment technologies and equipment (past-present-future)
- Frame-based versus frameless

Dosimetry and biology
- Dose calculation, small field dosimetry, process management and QA (dedicated and non-dedicated approaches)
- Radiobiology and volume limitations in SRS
- Different prescription models, target volumes and delineation issues

Clinical applications
- Pre-treatment imaging, past-present-future
- The neurosurgeon and the radiation oncologist
- Vestibular schwannoma (to fractionate or not to fractionate)
- AVM
- Metastases
- Meningioma’s
- Functional SRS

Course Aim
To provide an update of standard-of-care treatment and new developments in multimodality organ preservation treatment for anal, rectal, and bladder cancer.

Learning objectives
- To assess the role of induction-, concomitant-, and adjuvant chemotherapy within multimodality treatment approaches
- To understand how the interaction of chemotherapy and radiotherapy improves outcomes of organ preservation attempts
- To identify patient and tumour characteristics as well as imaging features helping to select an organ preservation strategy
- To explain how biomarkers and targeted agents may (or may not) improve treatment stratification and outcomes
- To understand the role of imaging in monitoring treatment response
- To compare and understand limitations of radical surgery versus organ preservation strategies

Who should attend?
Radiation oncologists, senior residents and radiobiologists who are interested in learning and improving their knowledge of optimal use of radiotherapy, chemotherapy, and targeted agents within multidisciplinary organ preservation approaches.

Content
Anal cancer
- What is the optimal radiotherapy technique and dose to treat anal cancer?
- State of the art multimodal treatment of anal cancer: Role of induction-, concomitant, and adjuvant chemotherapy
- Role of biomarkers (HPV, EGFR, etc.) and targeted agents in anal cancer treatment

Rectal cancer
- Organ preservation in rectal cancer
- How can imaging help to identify complete responders?
- How to identify favourable patients by prediction models?

Bladder cancer
- The Boston and RTOG experiences with trimodality bladder sparing approaches
- The European perspective of bladder preservation
- Optimal chemoradiation schedules and the role of radiosensitisers
- Can biomarkers help to stratify patients for organ preservation versus radical cystectomy?
- Treatment outcomes and quality of life of trimodality organ preservation versus radical surgery – the urologist’s view
CONFERENCES

Course Aim
Radiotherapy functions at least in part, by inducing cell death (e.g. apoptosis). The classical view of apoptosis states that apoptotic cells are eliminated by process of phagocytosis without induction of inflammation or tissue scarring. However, in the past few years, the concept of immunogenic apoptosis (IA) has emerged, which underlines the important role of the immune system in the efficacy of cancer therapy. Cells undergoing IA release or expose molecules on their surface that can function as either adjuvant or danger signals for the innate immune system. These signals are called damage-associated molecular patterns (DAMPs). It has been shown that a limited range of anti-cancer treatment regiments (e.g. chemotherapy, such as anthracycline antibiotics; photodynamic therapy and γ-irradiation) can induce IA. These DAMPs activate dendritic cells (DCs) to promote T cell responses to antigens present in cell corpses. Also a growing body of evidence suggests that radiotherapy positively influences tumour-specific immunity. The aim of this course is to provide an overview of the key concepts and elements involved, and discuss progress made in the field of anti-tumour immune response during radiotherapy.

Learning objectives
Upon completion of the course, successful learners will be able to:
- Gain insight into the newest imaging methods of cell death and the immune response during anti-cancer treatment
- Appreciate the importance of the immune system in the anti-cancer treatment and the place of radiotherapy
- Understand the mechanisms of recognition of dead cells by the immune system
- Appreciate the importance of the process of phagocytosis of dying/dead cells
- Understand the mechanisms of recognition of dead cells by the immune system
- Appreciate the importance of the many facets of treatment planning.

Who should attend?
The target group consists of radiation oncologists, senior residents and junior radiologists who are interested in learning and improving their knowledge of (1) interaction of dying cells with the immune system and (2) immunological aspects of anti-tumour immune response induced by radiotherapy. Research or scientific experience is not required, but the course will also be of interest to scientists undertaking radiation related research.

Content
- Immunogenic cell death and anti-cancer therapy
- Phagocytosis of dying cells: mechanisms and immunological consequences
- Recognition of apoptotic and necrotic cells by DCs
- Immunocytokines and radiotherapy: preclinical experience
- Exploiting CTLA-4, PD-1 and PD-L1 to reactivate the host immune response against cancer
- Is hypoxia an immunological niche?
- The role of radiotherapy in the induction of antitumour immune responses
- Radiotherapy supports protective tumour-specific immunity: role of DCs
- Clinical experience of immunotherapy combined with radiotherapy
- In vivo imaging of therapy-induced anti-cancer immune responses in mice and in humans
- Appreciate strengths and weaknesses of alternative approaches in these fields
- Develop realistic expectations about these technologies and their time to practical availability
- Become inspired to seek for solutions for the pressing problems in treatment planning

Who should attend?
Active researchers in the field of treatment planning and optimisation
Physicists with an interest in the application and development of new treatment techniques
Physicians with a pronounced interest in treatment planning and software and who are involved in novel treatment techniques, such as adaptive radiotherapy
Everybody who is dissatisfied with today’s treatment planning solutions

PHYSICS PRE-MEETING COURSE
Current advancements in treatment planning and optimisation
FRIDAY 4 APRIL 2014
COURSE DIRECTORS: M. ALBER (DK) AND B. HEIJMEN (NL)

Course Aim
Several trends in radiotherapy are connected to the development of treatment planning software. These trends include adaptive treatments, organ deformation modelling, optimisation of treatment robustness, multi-criteria optimisation, automatic plan generation as well as knowledge-based planning. The course aims to give an overview over the latest developments in these various fields with an emphasis both on the novel concepts and the difficulties that still have to be overcome. The topics will cover tools available today, e.g. deformable image registration, and also research with a longer perspective, such as functional-image assisted target volume creation. Being a kaleidoscope of various research fields, the course should also bring together an audience of varied backgrounds and inspire exchange around the many facets of treatment planning.

Learning objectives
- Understand the challenges in the fields of adaptive and robust treatment planning, multi-criteria optimisation and knowledge-based treatment planning
- Understand the basic ideas, concepts and mathematical methods of current research approaches in these fields
- Appreciate strengths and weaknesses of alternative approaches in these fields
- Develop realistic expectations about these technologies and their time to practical availability
- Become inspired to seek for solutions for the pressing problems in treatment planning

Who should attend?
Active researchers in the field of treatment planning and optimisation
Physicists with an interest in the application and development of new treatment techniques
Physicians with a pronounced interest in treatment planning and software and who are involved in novel treatment techniques, such as adaptive radiotherapy
Everybody who is dissatisfied with today’s treatment planning solutions
Recent developments in Image Guided Radiation Therapy (IGRT), treatment planning and dose delivery make implementation of Image Guided Adaptive Radiation Therapy (ART) realistic. There is a need for adjustments to adapt anatomy and biology in correlation with response to treatment for the most common cancers; including head and neck, cervix, prostate, bladder and lung. ART heavily relies on imaging, including IGRT of patient setup for correct patient positioning. IGRT is an integral part of ART delivery and has the potential in treatment planning of ART. Successful implementation of ART will be possible under condition of a strong rationale behind the clinical protocols, development of standard strategies, education and training of all groups of staff and a collective effort of all involved parties.

Course Aim
The aim is to endow participants with understanding of principles for advanced IGRT as a concept leading to ART.

Learning objectives
Upon completion of the course, participants will have achieved an understanding of the physical, clinical, radiobiological rationale, principles and limitations of ART. Participants will know how ART is integrated in the workflow and what their role is in this process.

Who should attend?
The course is specially designed for RTTs who have an interest in advanced planning, treatments and research activities in adaptive strategies. Persons from other disciplines may also participate in the course.

Content
- From IGRT to IGART
- Clinical rationale of ART
- Education and training of RTTs in adaptive strategies
- Imaging and ART (CBCT (kV, MV), CT, MRI, functional imaging)
- Deformable image co-registration in ART
- Radiobiology of ART
- How to manage the workflow by implementation of IGART treatment
- Clinical examples and research of ART for bladder cancer
- Clinical examples ART for head and neck cancer - with focus onshrinking OAR
- Clinical examples ART for lung cancer
- Cost effectiveness for adaptive strategies

FALCON (Fellowship in Anatomic delineation and CONtouring) is the multifunctional ESTRO platform for contouring and delineation. Attending a FALCON workshop offers the opportunity for individual professionals to validate their contouring practice during live workshops by comparing them with those from experts and other participants to learn the indications proposed by the experts that coordinate the workshops to discuss with other participants, experts and panelists to communicate and use the delineation guidelines in order to further integrate themselves into daily practice.

FALCON workshops have been organised at ESTRO congresses since 2010 and have been growing steadily in popularity. We have foreseen 4 such workshops at ESTRO 33, repeated twice.

Target audience
The delineation workshops are aimed at junior clinical or radiation oncologists wanting to improve their contouring skills or more senior specialists wanting to refresh and validate their knowledge and skills in this field. The delineation on OAR is specifically recommended for RTT and dosimetrists too.

Structure of the workshops
- Explanation of the contouring software
- Presentation of the clinical case and the delineation exercise
- 30–40 minutes for delineation on site
### SCIENTIFIC PROGRAMME
Saturday 5 April 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
</table>
| 08:00-08:40 | Teaching Lecture  
Teaching Lecture  
Teaching Lecture  
Teaching Lecture |
| 08:45-10:00 | Conference  
Conference  
Conference  
Conference |
| 10:00-10:30 | Conference  
Conference  
Conference  
Conference |
| 10:30-11:30 | Conference  
Conference  
Conference  
Conference |
| 11:45-13:00 | Conference  
Conference  
Conference  
Conference |
| 13:30-15:00 | Conference  
Conference  
Conference  
Conference |
| 15:45-16:00 | Conference  
Conference  
Conference  
Conference |

### KEY DATES
- **08:00-08:40**: Teaching Lecture
- **08:45-10:00**: Conference
- **10:00-10:30**: Conference
- **10:30-11:30**: Conference
- **11:45-13:00**: Conference
- **13:30-15:00**: Conference
- **15:45-16:00**: Conference

### SESSIONS
- **Teaching Lecture**: Focuses on educational topics related to radiation oncology.
- **Conference**: Includes lectures, symposia, and plenary sessions.

### TOPICS
- **Radiobiology**: Discusses the effects of radiation on living tissue.
- **Brachytherapy**: Specializes in the use of radioactive sources implanted directly into or near the tumor.
- **Physics**: Covers the principles and applications of physics in radiation therapy.
- **Young Interdisciplinary with Radiobiology Focus**: Emphasizes interdisciplinary approaches in radiobiology.

---

*Note: The table above is an excerpt from the full program. For comprehensive information, please refer to the official conference program.*
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00 – 08:40</td>
<td>Assessment of new technologies for Radiation Oncology</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>How to de-prove clinical evidence of new radiotracers</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Multi-disciplinary management of acute cancers</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>ICRU guidelines for gynecological brachytherapy</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td>08:45 – 10:00</td>
<td>Emerging new technology for Radiation Oncology</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Target identification and novel therapeutic combinations in combination</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>with radiation</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Austrian Academy - CAVIM - New technology</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Functional genomic approaches and radiotracers</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>MRI-based glioma-targeted radiation</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Emerging molecular imaging and exploring radiation therapy</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td>10:30 – 11:30</td>
<td>BRRT for long range. Too much, too little?</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Peripheral oesopha. Too much don't?</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Intestinal tract. Too much don't?</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td>11:45 – 12:30</td>
<td>Evidence for tumour dose response in brachytherapy</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Evidence for tumour dose response in brachytherapy</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>ICRU guidelines for gynecological brachytherapy</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td>14:30 – 15:45</td>
<td>Dose calculation and dosimetry for small animal irradiation</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>What's new in radiobiology: treatment - competition or added value for external beam radiotherapy</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Imaging: Constraints and complications of EBRT</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Dosimetry: The worlds of radiobiology and external beam radiotherapy</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Established (was better that EBRT)</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>New technology: Brain, head and neck - status of the art and future from here</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Dosimetry in 3D image guided adaptive brachytherapy</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>for intraoperational bone suture resection</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>New technology: Brain, head and neck - status of the art and future from here</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Dosimetry in 3D image guided adaptive brachytherapy</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Bone suture resection</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>New technology: Brain, head and neck - status of the art and future from here</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Dosimetry in 3D image guided adaptive brachytherapy</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Bone suture resection</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td>16:15 - 17:15</td>
<td>New ESMO ESTRO-ESSO guidelines on gastric cancer treatment planning</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Treatment planning</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Technical issues and communicating for clinical experience</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td>17:30 – 18:30</td>
<td>Report from the Young Task Force</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Overview of EU funding options</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Experience of ESTRO fellows / exchange programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Preparing a research proposal for EU funding programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Young ESTRO activities</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Report from the Young Task Force</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Experience of ESTRO fellows / exchange programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Preparing a research proposal for EU funding programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Young ESTRO activities</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Report from the Young Task Force</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Experience of ESTRO fellows / exchange programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Preparing a research proposal for EU funding programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Young ESTRO activities</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Report from the Young Task Force</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Experience of ESTRO fellows / exchange programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Preparing a research proposal for EU funding programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Young ESTRO activities</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Report from the Young Task Force</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Experience of ESTRO fellows / exchange programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Preparing a research proposal for EU funding programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Young ESTRO activities</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Report from the Young Task Force</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Experience of ESTRO fellows / exchange programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Preparing a research proposal for EU funding programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Young ESTRO activities</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Report from the Young Task Force</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Experience of ESTRO fellows / exchange programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Preparing a research proposal for EU funding programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Young ESTRO activities</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Report from the Young Task Force</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Experience of ESTRO fellows / exchange programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Preparing a research proposal for EU funding programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Young ESTRO activities</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Report from the Young Task Force</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Experience of ESTRO fellows / exchange programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Preparing a research proposal for EU funding programmes</td>
<td>Teaching Lecture</td>
</tr>
<tr>
<td></td>
<td>Young ESTRO activities</td>
<td>Teaching Lecture</td>
</tr>
</tbody>
</table>
Monday 7 April 2014

**TEACHING LECTURE**

08:00 – 08:40
The concept of adaptive radiotherapy (ART)

08:45 – 10:00
Adaptive radiotherapy to shrinking tumours I
Defining the need for radiotherapy / planning
Radiotherapy to shrinking tumours II
Risk of missing sub-clinical disease
Challenges in adaptive planning

**SYMPOSIUM**

08:45 – 10:00
Adaptive radiotherapy to shrinking tumours I
Defining the need for radiotherapy / planning
Radiotherapy to shrinking tumours II
Risk of missing sub-clinical disease
Challenges in adaptive planning

10:30 – 11:30
Technical aspects of the treatment of rectal cancer

11:45 – 12:30
Biologically adaptive radiotherapy: HPV-positive head and neck cancer
Translating hypoxia imaging into adaptive radiotherapy
HPV and individualised treatment in head and neck cancer
HPV and individualised treatment in head and neck cancer: The biologist’s point of view

14:30 – 16:00
**SYMPOSIUM**

14:30 – 16:00
Best of ASTRO as ESTRO
Gottfried Schwaerzle symposium: Biologically adaptive radiotherapy
The hypoxia example
Biological rationale of hypoxia imaging
Clinical hypoxic imaging in adaptive radiotherapy
Clinical hypoxic imaging in adaptive radiotherapy

16:00 – 16:30
**SYMPOSIUM**

16:00 – 16:30
Current developments in soft tissue sarcoma treatment
Management of soft tissue sarcoma in 2014
Challenges in the treatment of sarcoma patients: To gate or not to gate?
Challenges in the treatment of sarcoma patients: To gate or not to gate?
Current developments in soft tissue sarcoma treatment
Management of soft tissue sarcoma in 2014
Challenges in the treatment of sarcoma patients: To gate or not to gate?

16:30 – 17:30
**SYMPOSIUM**

16:30 – 17:30
Individualised radiotherapy for HPV-positive head and neck cancer
HPV and radiotherapy: In toto or in part?
The biological profile of HPV-positive head and neck cancer
Challenges in the treatment of HPV-positive head and neck cancer

17:30 – 18:00
**SYMPOSIUM**

17:30 – 18:00
ESTRO delineation guidelines for breast cancer
The breast and the thoracic wall
The breast and the thoracic wall

18:30 – 21:30
**SYMPOSIUM**

18:30 – 21:30
Biologically adaptive radiotherapy: Lung tumours I
Defining the need for radiotherapy / planning
Radiotherapy to shrinking tumours II
Risk of missing sub-clinical disease
Challenges in adaptive planning

**PROFFERED PAPERS**

08:45 – 10:00
Adaptive radiotherapy to shrinking tumours I
Defining the need for radiotherapy / planning
Radiotherapy to shrinking tumours II
Risk of missing sub-clinical disease
Challenges in adaptive planning

10:30 – 11:30
Technical aspects of the treatment of rectal cancer

11:45 – 12:30
Biologically adaptive radiotherapy: HPV-positive head and neck cancer
Translating hypoxia imaging into adaptive radiotherapy
HPV and individualised treatment in head and neck cancer
HPV and individualised treatment in head and neck cancer: The biologist’s point of view

14:30 – 16:00
**SYMPOSIUM**

14:30 – 16:00
Best of ASTRO as ESTRO
Gottfried Schwaerzle symposium: Biologically adaptive radiotherapy
The hypoxia example
Biological rationale of hypoxia imaging
Clinical hypoxic imaging in adaptive radiotherapy
Clinical hypoxic imaging in adaptive radiotherapy

16:00 – 16:30
**SYMPOSIUM**

16:00 – 16:30
Current developments in soft tissue sarcoma treatment
Management of soft tissue sarcoma in 2014
Challenges in the treatment of sarcoma patients: To gate or not to gate?
Challenges in the treatment of sarcoma patients: To gate or not to gate?
Current developments in soft tissue sarcoma treatment
Management of soft tissue sarcoma in 2014
Challenges in the treatment of sarcoma patients: To gate or not to gate?

16:30 – 17:30
**SYMPOSIUM**

16:30 – 17:30
Individualised radiotherapy for HPV-positive head and neck cancer
HPV and radiotherapy: In toto or in part?
The biological profile of HPV-positive head and neck cancer
Challenges in the treatment of HPV-positive head and neck cancer

17:30 – 18:00
**SYMPOSIUM**

17:30 – 18:00
ESTRO delineation guidelines for breast cancer
The breast and the thoracic wall
The breast and the thoracic wall

18:30 – 21:30
**SYMPOSIUM**

18:30 – 21:30
Biologically adaptive radiotherapy: Lung tumours I
Defining the need for radiotherapy / planning
Radiotherapy to shrinking tumours II
Risk of missing sub-clinical disease
Challenges in adaptive planning

Tuesday 8 April 2014

### Teaching Lectures
- 08:30 – 09:00: NTCP modelling: Facts or myths?
  - Review of secondary cancers
- 09:05 – 09:30: Radiation and microRNA
  - Locally advanced NSCLC

### Symposium
- 09:30 – 10:00: Clinical factors influencing radiation-induced toxicity
  - Epidemiology of late effects of radiotherapy at an early age
  - Radiation-related treatment effects across the age spectrum
  - Biology of age-related normal tissue reactions
- 10:00 – 10:30: Dose escalation
  - Methods for achieving dose response in normal tissue reaction models
- 10:30 – 11:00: Epigenetic and microRNA regulation of tumour response to radiotherapy
  - Targeting histone acetylation in combination with radiotherapy
- 11:00 – 11:30: Current developments in the multidisciplinary management of head and neck cancer
  - Targeted agents improve the results of chemotherapy in high-risk HPV-negative head and neck cancer
  - Is there a role for therapeutic HPV vaccination in patients with head and neck cancer?
- 11:30 – 12:00: Migration of normal tumour models in prostate cancer
  - Will personalized medicine approaches increase therapeutic options for previously gland cancer?

### Coffee Break
- 10:30 – 11:00

### Teaching Lectures
- 11:00 – 11:30: Non-target doses
  - Clinical: Dose-effect relationship of secondary effects of breast cancer treatment
  - Biology: Secondary cancer (biological aspects)
- 11:30 – 12:00: Radiation therapy of CNS tumours of childhood
  - Is there a role for immunotherapy?
- 12:00 – 12:30: This house believes that large phase III trials remain the standard in Radiation Oncology

### Symposium
- 11:00 – 12:00: New approaches to model normal tissue reactions
  - Imaging-based scoring of toxicity
  - Quantification of local radiation induced toxicities
  - Generalised TLD models: The limits of organ-based NTCP models
  - Dose distribution into account

### Closing Debate
- 12:00 – 12:30

---

### Teaching Lectures
- 08:30 – 09:00: Health economics in Radiation Oncology
- 09:05 – 09:30: Cost-benefit of further optimisation of VMAT and DRR planning
- 09:30 – 10:00: State of the art of projects on radiation therapy under DRR guidelines
- 10:00 – 10:30: Fundamentals of scientific research
- 10:30 – 11:00: Clinical: Dose effect relationship of second - ary tumours after breast cancer treatment in gynaecology / breast / head and neck / cervix / prostate
- 11:00 – 11:30: Epidemiology of late effects after radiation induced toxicity
- 11:30 – 12:00: Radiation and miRNA
  - Local treatment of metastatic cancer-killing the seed or disturbing the soil?

### Symposium
- 08:30 – 09:00: Physics: Physical aspects of out of field effects: Clinical implications
- 09:00 – 09:30: Review of dose comparison metrics
  - CBCT-based dose calculations

### Teaching Lectures
- 09:00 – 09:30: Radiation therapy costs
  - Lift the veil and facts
- 09:30 – 10:00: The future of medical physics in radiotherapy
  - Dose escalation
  - The role of robotic surgery in radiotherapy under MRI guidance

### Symposium
- 09:00 – 09:30: Radiotherapy in metastatic cancer with the aim to improve survival
  - Local treatment of metastatic cancer: killing the seed or disturbing the soil?

### Teaching Lectures
- 09:30 – 10:00: Review of dose comparison metrics
  - Dose escalation
  - Radiation therapy using a plan library for cervical cancer
  - Statistical analysis models for generating plan libraries
  - Online adaptive radiotherapy for metastatic hormone resistant breast cancer

### Symposium
- 10:00 – 10:30: Radiation therapy in metastatic cancer with the aim to improve survival
  - Local treatment of metastatic cancer: killing the seed or disturbing the soil?

### Teaching Lectures
- 10:00 – 10:30: Adaptive radiotherapy strategies for dose monitoring and re-planning
  - Direct and indirect methods for GATE-based dose calculations
  - Anatomical and functional imaging based adaptive radiotherapy for lung tumours

### Symposium
- 10:30 – 11:00: Train the trainers programme: An update
  - ESTRO/IAEA initiative: How we turned the RTT programme into an effective tool for RTT trainers
AMBASSADOR SOLIDARITY FUND

The “Ambassador Solidarity Fund” is generously financed by part of the membership fee paid by the supporting Ambassador members and enables sponsorship of individual membership and/or registrations to ESTRO 33 to help Radiation Oncology professionals from European economically challenged countries.

20 special registration packages are available including membership for 2014 and registration to ESTRO 33, both at the ‘in training’ rate: 75 € for the membership, 300€ for ESTRO 33.

Criteria for eligibility

- Applicants should be below 35 years old
- Applicants should currently be in training
- Applicants should come from economically challenged European countries (eligible countries: Albania, Cyprus, Czech Republic, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Moldova, Poland, Portugal, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Spain, Turkey) who are unable to register for ESTRO membership and ESTRO 33 without financial support
- Candidates should be active in the field of radiotherapy, radiobiology, radiation physics, or radiation technology

How to apply

Candidates should submit a curriculum vitae and a recommendation letter from their department head stating that they are currently in training and that financial support is essential to register for membership and/or benefit from a subsidised registration to ESTRO 33.

Applications for the solidarity fund are to be addressed to:

ESTRO Office
Rue Martin V, 40
1200 Brussels, Belgium

+32 2 775 93 40
+32 2 779 54 94
grants@estro.org

Deadline to apply: 8 November 2013

POSTER AWARDS

ESTRO sponsors four poster awards of 1000 € each for a clinician, a physicist, radiation therapist (RTT) and a radiobiologist (respectively).

Criteria for selection

- Only abstracts accepted for a poster discussion session or for poster presentation for ESTRO 33 will be considered for the award.
- Posters are evaluated on (in decreasing order of importance): the scientific value of the data; the clarity of the presentation; and, the visual quality of the poster layout.

How to apply

No application is needed. You are automatically considered if your abstract is accepted.

Prizes will be handed out at the Poster Reception on Saturday 5 April 2014.

YOUNG SCIENTISTS POSTER AWARDS

ESTRO sponsors four young scientists poster awards consisting of a complimentary registration to a future ESTRO course for a clinician, physicist, radiation therapist (RTT) and radiobiologist (respectively).

Criteria for selection

- Only abstracts accepted for the Young Moving Poster sessions will be considered for the award.
- Posters are evaluated on (in decreasing order of importance): the scientific value of the data; the clarity of the presentation; and, the visual quality of the poster layout.

How to apply

No application is needed. You are automatically considered if your abstract is accepted.

Prizes will be handed out at Young Scientists Reception on Sunday 6 April 2014.
COMPANY FINANCIAL SUPPORT AND AWARDS

Applications for all company awards are to be addressed to:

ESTRO Office
Rue Martin V 40
1200 Brussels, Belgium
+32 2 775 93 40
+32 2 779 54 94
awards@estro.org

ESTRO - VARIAN AWARD
A prize of 7500 € will be given to a radiotherapy professional for research in the field of radiobiology, radiation physics, clinical radiotherapy or radiation technology.

Criteria for eligibility
- Candidates should be ESTRO members, having completed the submitted work in the previous year.
- Submissions should be brought forward by the candidates or their department heads and may be work done as an individual piece of research or as a thesis completed in the field of biological, physical and clinical research.
- Candidates should be younger than 36. Exceptions will be made for female applicants who had to interrupt their research for pregnancy/maternity reasons; for them the maximum age is fixed at 40.

How to apply
Candidates should submit:
- A curriculum vitae and a list of publications
- A copy of the abstract on the project which should have been submitted for ESTRO 33 (indicate abstract title and submitting author with your application)
- A summary (in English) of their work (max 2 pages)

Candidates should commit themselves to write an original paper in English on (part of) the scientific work carried out. This paper should be based on previously unpublished data and should be written according to the “Instructions to authors” of the Journal “Radiotherapy and Oncology” in which it will be published if accepted.

Deadline to apply: 8 November 2013

ESTRO - ACCURAY AWARD
A prize of 5000 € will be given to a radiotherapy professional for research in the field of “High Precision Radiotherapy”. Awardees may be qualified in the field of clinical radiotherapy, radiation physics, radiation technology or radiobiology.

Criteria for eligibility
- Candidates should be ESTRO members, having completed the submitted work in the previous or current year.
- Submissions should be brought forward by the candidates and may be work done as an individual piece of research or as a thesis completed in the field of biological, physical or clinical research.

How to apply
Candidates should submit:
- A curriculum vitae and a list of publications
- A copy of the abstract on the project which should have been submitted for ESTRO 33 (indicate abstract title and submitting author with your application)
- A summary (in English) of their work (max 2 pages)

Candidates should also commit themselves to write an original paper in English on (part of) the scientific work carried out. This paper should be based on previously unpublished data and should be written according to the “Instructions to authors” of the Journal “Radiotherapy and Oncology” in which it will be published if accepted.

Deadline to apply: 8 November 2013
**ESTRO - JACK FOWLER UNIVERSITY OF WISCONSIN AWARD 2014**

A single prize of 1000 € will be given for the best abstract in the field of radiation physics or radiation technology, submitted for ESTRO 33.

**Criteria for eligibility**
- Candidates should be ESTRO members
- Candidates should be younger than 36. Exceptions will be made for female applicants who had to interrupt their research for pregnancy/maternity reasons; for them the maximum age is fixed at 40

**Candidates should submit**
- A curriculum vitae
- A letter from their department head stating that the work has been done by the applicant
- A copy of the abstract on radiation physics or radiation technology which should have been submitted for ESTRO 33 (indicate abstract title and submitting author with your application)

**Deadline to apply: 8 November 2013**

---

**ESTRO - NUCLETRON BRACHYTHERAPY AWARD**

By submitting a brachytherapy abstract for ESTRO 33, you are automatically being considered for the “ESTRO-Nucletron Brachytherapy Award”. Abstracts accepted for oral presentation for the brachytherapy track of ESTRO 33 will be considered for the award. Since the selection of the winner will be based only on the data provided in the abstract (and not on the presentation) it is advisable that you draft your abstract with extreme care, providing sufficient data for the evaluation by the jury. The award will be given to the most innovative paper submitted for presentation in the brachytherapy track of ESTRO 33. The winning abstract will be selected by the GEC-ESTRO (Brachytherapy) Scientific Advisory Group. The winner will be notified by email and announced in the ESTRO 33 Programme Book and Exhibition Guide. The award amounts to 2000 €.

---

**GEC. ESTRO BEST JUNIOR PRESENTATION SPONSORED BY NUCLETRON**

Applicants should be ‘in training’ members of ESTRO. If you meet this criterion, please send a copy of the abstract submitted for the brachytherapy track of ESTRO 33 and a cover letter from the Department Head stating that the work has been done by the in training member to eralda.azizaj@estro.org. This award amounts to 1500 € and is sponsored by Nucletron. The winning abstract will be selected by the GEC-ESTRO (Brachytherapy) Scientific Advisory Group. The winner will be notified by email and announced in the ESTRO 33 Programme Book and Exhibition Guide.

---

**TRAVEL GRANTS**

‘In training’ ESTRO members who need support to attend the meeting may apply for “Junior Brachytherapy Travel Grants” sponsored by Nucletron. Five grants of 1000 € are available. To apply for a travel grant, please send a motivation letter indicating your interest in brachytherapy and the reasons why you should be considered for this grant to eralda.azizaj@estro.org. Please indicate your full name, age and ESTRO membership type with your letter.
9TH EUROPEAN BREAST CANCER CONFERENCE (EBCC-9)

ESTRO TEACHING COURSE AND WORKSHOP: REGIONAL CONTROL MATTERS IN BREAST CANCER

Wednesday, 19 March 2014, 8:15 - 12:30 | Glasgow, Scotland

Target Group
The workshop is targeted at both young (including trainees) and experienced radiation oncologists, as well as other interested parties, who need an updated overview on two of the most important clinical topics for daily practice of state-of-the-art radiotherapy in breast cancer.

Course aim
To update colleagues on the most recent results of randomised trials testing the benefits of adjuvant radiotherapy to the internal mammary chain and to discuss important technical and morbidity challenges in lymphatic radiotherapy. The course will attempt to arrive at guidelines and agreements, also based on active interaction between the faculty and the audience.

Chairs
Chair: B. Offersen (DK)
Chair: J. Yarnold (UK)

Faculty
E. Donovan (DK)
B. Offersen (DK)
P. Poortmans (NL)
L. Thorsen (DK)
T. Whelan (CA)
J. Yarnold (UK)
The 6th European Multidisciplinary Meeting on Urological Cancers is a unique gathering of professionals from three progressive fields: urology, medical oncology and radiology. This meeting aims to stimulate discussion and cooperation across disciplines in order to formulate optimal treatment strategies for onco-urological patients.

The format of this meeting embraces state-of-the-art lectures, practice-oriented case discussions and exciting debates – generating top-class international multidisciplinary knowledge. At the same time, the meeting remains relatively small-scale and is a perfect opportunity for the delegates to talk to world’s leading experts and build interdisciplinary networks.

More information: www.emuc2014.org
FACULTY

Course director
Rianne de Jong, RTT, Academic Medical Center, Amsterdam (NL)

Teachers
Neil Burnet, Radiation Oncologist, Addenbrooke’s Hospital, Cambridge (UK)
Elizabeth Forde, RTT, St. James’s Hospital, Dublin (IE)
Mirjana Josipovic, Physicist, The Finsen Center – Rigshospitalet, Copenhagen (DK)
Martijn Kamphuis, RTT, Academic Medical Center, Amsterdam (NL)
Peter Remeijer, Physicist, The Netherlands Cancer Institute, Amsterdam (NL)
Sofia Rivera, Radiation Oncologist, Institut de Cancérologie Gustave-Roussy, Villejuif (FR)
Local expert – TBC, Physicist
REGISTRATION INFORMATION

REGISTRATION FEES FOR TEACHING COURSES

<table>
<thead>
<tr>
<th></th>
<th>EARLY RATE</th>
<th>LATE RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>In training members*</td>
<td>450 €</td>
<td>625 €</td>
</tr>
<tr>
<td>Members</td>
<td>600 €</td>
<td>725 €</td>
</tr>
<tr>
<td>Non Members</td>
<td>750 €</td>
<td>850 €</td>
</tr>
</tbody>
</table>

*Members with specialty RTT may register at the In training fee

ACCREDITATION

All the ESTRO courses are appraised and approved by the Accreditation Council in Europe (ACOE). ACOE is a multidisciplinary body of full time specialists practising in oncology and all of them are recognised for their experience in education and expertise in their field. It acknowledges the quality of the scientific programme and its educational value. ACOE accreditation has been endorsed by EACCME, the European Accreditation Council for Continuing Medical Education – an institution of the European Union of Medical Specialists (UEMS). The CME credit points are also recognised as Physician’s Recognition Award (AMA PRA Category 1 Credits) by the American Medical Association.

LANGUAGE

The courses are conducted in English. No simultaneous translations will be provided unless specified otherwise.

EXHIBITION

During ESTRO courses, a commercial exhibition is organised. It includes companies manufacturing radiation therapy equipment, pharmaceutical industry as well as medical publishers. In order to increase the visibility of companies participating in the exhibition, diverse sponsoring and advertising opportunities are available. Some of the courses may require active participation from the companies. Companies and publishers who would like to participate in the exhibition may obtain more detailed information from:

Valérie Cremades  
Events and Industry Relations Manager  
(+32 2 775 93 42 | +32 2 779 54 94  
valerie.cremades@estro.org

MEMBERSHIP

ESTRO, The European Society for Radiology and Oncology, was founded in Milano in September 1980 as a Society of individual members working in the field of radiotherapy and oncology. Its principal objectives are to:

- Foster radiation oncology in all its aspects
- Develop benchmarks and methodologies for the quality assurance of radiation oncology in Europe and stimulate their implementation
- Improve the standards of cancer care by inscribing radiation oncology as a clinical specialty in the Multidisciplinary approach to cancer treatment
- Promote international exchange of scientific information on radiotherapy and oncology and related fields of science such as radiophysics and radiobiology and stimulate research
- Develop guidelines for education and best practice in radiation oncology and associated professions
- Establish relationships and co-operation with international, regional and national societies and bodies in the field of radiation oncology.

If you become a member of ESTRO, you will benefit from preferential rates when attending ESTRO events. Please note that in order to benefit from the members’ rate, you must renew your membership for 2014 before registering to a 2014 teaching course. The membership renewal should be done at least 3 days before the early rate deadline. The membership internal processing and approval might take up to maximum 3 working days.

More information about membership on our website: http://www.estro.org/members

HOW TO REGISTER TO AN ESTRO EVENT?

- You don’t have an ESTRO user name and password?
  - On the homepage of the ESTRO website (www.estro.org) go to the blue box in the bottom right hand corner and click on CREATE AN ACCOUNT. Follow the screens. A login and password will be sent to your email address.
  - To register to an event with your details please jump to point 3.

- You have lost your password but still know your ESTRO user name?
  - On the homepage of the ESTRO website (www.estro.org) go to the blue box in the bottom right hand corner and click on LOST PASSWORD. Fill in your user name. A new password will be sent to your email address within a few minutes.
  - To register to an event with your details please jump to point 3.

- Registration procedure with an ESTRO user name and password.
  - On the homepage of the ESTRO website (www.estro.org) go to the blue box in the bottom right hand corner and login
  - Click on CONTINUE
  - Click on the REGISTER tab on the right side of the page.
  - In the CONGRESSES AND MEETINGS box click on REGISTER HERE FOR A CONFERENCE.
  - Choose the event from the list of NEXT EVENTS on the left side of the page.
  - Click on the orange REGISTER NOW button at the upper right corner of the page.
YOU MUST CLICK IN THE BOX TO AGREE THAT YOU HAVE READ AND UNDERSTOOD THE PARAGRAPH REGARDING RENEWAL OF MEMBERSHIP / BECOMING A MEMBER

- Enter your user name and password again and click on LOGIN.
- Provide the correct invoicing address where you would like to receive your invoice and click "Submit invoice address". If you need a VAT invoice, choose your professional address (VAT registered) and fill in the VAT number.
- Check that your participant details and invoice address are correct. If they are incorrect or you wish to change them, click on the change button under the addresses. PLEASE MAKE SURE YOUR INVOICE DETAILS ARE CORRECT AS REPLACEMENTS WILL NOT BE AVAILABLE
- If your addresses are correct, choose the fee you want to pay. Also check the box should you want your details to be used in promotional/commercial activity. Click on “Next step >>” to continue.
- For ESTRO conferences there are some additional options that you can choose in the following pages before the payment page.
- On the payment page please select the choice of payment; either credit card or bank transfer.
- On the overview page check you details and the products that you have chosen to register to. If they are incorrect, use the "<< Previous step" button to go backwards.
- Tick the box accepting the ESTRO terms and conditions and click on the Submit button.
- If you had selected to pay with a credit card, you will be directed to a secure credit card payment site where you have fill in your credit card details. (www.ogone.be)
- The last page should be the registration acknowledgment page. Additionally you will receive an email confirming that ESTRO has received your registration.
- A confirmation letter for ESTRO conferences will be sent to you about 2 weeks prior to the conference. A confirmation letter for ESTRO courses will be sent when your payment has been received in full.

**Cancellation Policy**

In case of cancellation, a full refund of the registration fee minus 15% for administrative costs may be obtained up to three months before the course and 50% of the fee up to one month preceding the event. No refund will be made if the cancellation request is postmarked less than one month before the start of the event.

**HOW TO REGISTER SOMEBODY ELSE TO AN ESTRO EVENT?**

Follow the steps in "How to register to an ESTRO event?” and on point 3.5 change the participant details to the person who is actually attending the event.

If you have more than one person to register, contact the ESTRO office.

If you encounter any problems please contact ESTRO.

For courses: education@estro.org

For conferences: events@estro.org
ESTRO MEMBERSHIP

For over thirty years, ESTRO has strived to support all Radiation Oncology professionals with the aim of improving their daily practice and strengthening their professional development. Join ESTRO and become an integral part of the Radiation Oncology Community!

INDIVIDUAL MEMBERSHIP

Individual Members can opt to become:

**Full members**
- Supporting Ambassador | 250 €* will benefit from A + B + C + D + E
- Active | 95 €* will benefit from A + B + C + D

**Associate members**
- In Training | 75 €* will benefit from A + B + C
- Affiliate | 55 €* will benefit from A + B
- Corporate Representative | 55 €* will benefit from A

*VAT incl.

These membership categories come with different benefits which are in relation to the level of involvement within the Society. The various categories and their benefits are summarised here below.

Individual membership renewal is only possible online: www.estro.org. For more information, please refer to www.estro.org/members.

If you have any question, please contact membership@estro.org

---

**A**
- Subscription and online access to the Green Journal (electronic)
- Discounted price for ESTRO publications and handbooks
- Online access to the GEC ESTRO Handbook of Brachytherapy and the ESTRO Physics Booklets
- Online access to the ESTRO Newsletter
- Online access to ESTRO Guidelines
- Online access to the ESTRO Annual Reports

**B**
- Eligibility for awards and grants
- Reduced subscription rate to the European Journal of Cancer
- Online access to the Membership Directory
- Special fee for members from less competitive economic background countries attending ESTRO Courses & Conferences

**C**
- Reduced fee for attending ESTRO and Joint Conferences
- Reduced fee for attending ESTRO and Joint Courses
- Eligibility to participate in ESTRO’s governance activities
- Online access to FALCON cases (Members’ cases)
- Online access to ESTRO events webcasts (after 6 months)

**D**
- Subscription to the Green Journal (electronic and paper upon request)
- Eligibility for Fellow
- Eligibility for Working Groups, Task Force Groups, and Faculties
- Eligibility to hold formal positions such as President; member of Board of Directors, Councils, Standing Committees; and, participation in ESTRO’s Governance activities
- Voting rights

**E**
- Online access to available educational material (after the course takes place and upon permission from the teacher)
- Contribution to the ESTRO Ambassador Solidarity fund (acknowledgement in the ESTRO webpage)
- Online access to FALCON cases (Members’ cases and payable cases)
- Online access to ESTRO events webcasts (immediate access)
INSTITUTIONAL MEMBERSHIP
Institutional membership is designed to assist European hospitals, clinics or other institutions that are providing radiotherapy and oncology treatments with the continued development and support of their professionals.

Instead of buying several individual memberships, you benefit from the Institutional Membership which enables European institutions to purchase several memberships as a package deal (minimum 5 individual members and 3 specialties have to be represented). Not only is this a very economical solution for your institute, but you will also be benefiting from several other advantages:

- Each package deal represents a 5% discount in regular membership fees
- Complimentary memberships are included in package deals of 10 or more persons
- A dedicated ‘Institutes Corner’ in the ESTRO Newsletter
- A dedicated institutional webpage on the ESTRO website
- Free online job postings

For more information and to download the institutional application forms, please enter our website: www.estro.org/members/institutional-membership/institutional-membership.

To submit your institutional application and for any question related to this membership type, please contact the ESTRO office by email to: institutional-membership@estro.org

ESTRO membership runs from 1 January to 31 December. (RTT’s belong to all membership categories without distinction of disciplines). When registering for ESTRO events, whatever the membership category they belong to, RTT’s will benefit from the “in training” rate. The membership internal approval and processing might take up to maximum 3 working days.

ESTRO FELLOW

If you want to be distinguished for your competencies in radiation oncology, consider becoming an ESTRO Fellow.

Being appointed as an ESTRO Fellow will prove your dedication to the profession and to ESTRO and will in future be seen as the pinnacle of a radiation oncologist’s career.

Between the first round in London in 2011, in Barcelona in 2012 and in Geneva in 2013, 13 candidates sat the examination having satisfied the entry criteria, all of them satisfied the examiners and have become the first ESTRO Fellows.

Candidates for the ESTRO Fellow can register to participate in a written multiple choice exam during the ESTRO 33 in Vienna in April 2014, provided they are a member of ESTRO, and a board certified specialist in radiation or clinical oncology, with at least 2 years of post training experience.

Candidates also need to have collected a minimum of 50 ESTRO credits in the 5 years preceding their application.

- 70% of these credits (=35) should be obtained through ESTRO related activities
- 30% of these credits (=15) can be obtained through national activities related to radiation/clinical oncology
- A minimum of 40% of these credits (=20) should be obtained through participation in activities that are certified with an exam which the candidate passed
- see www.estro-education.org for further information

THE EXAM

The multiple choice exam will contain a mixture of general basic questions (55%) on radiobiology, radiation physics, imaging, target volume and radiation technologies and site specific questions (45%) on head and neck, breast, prostate, lung, gynae and rectal cancer.

To prepare themselves, candidates can consult the roadmap for preparation of the exam, which is available on the ESTRO website, where the topics to be prepared are summarised and reference articles and books are listed.

www.estro.org/careers-grants/estro-fellow/index

INTEGRATION OF AWARDED FELLOWS IN THE ESTRO SOCIETY

ESTRO has appointed mentors to involve the Fellows in the activities/organisation of the Society and will consider them preferentially as candidates for ESTRO activities such as education, research, information, guidelines, public relations…
Take your chance and apply for the 4th Fellow examination! Successful candidates will be appointed ESTRO Fellow for a period of 5 years, will receive the ESTRO Fellow diploma and their names will be posted on the ESTRO website.

The next ESTRO FELLOW exam will take place on 4 April 2014 during ESTRO 33 in Vienna, deadline to submit applications is 15 February 2014.

More information is available on the ESTRO website on:
www.estro.org/careers-grants/estro-fellow/index

One dominates robotic radiosurgery & SBRT. The other treats the entire spectrum of radiation oncology patients.

Accuray is continually resetting the limits of the smallest treatable tumors as well as the largest, regardless of how many there are, or where they are in the body. And to us, providing you more powerful and more flexible radiation oncology options is the most important thing of all.

For more information, please visit www.accuray.com
The convergence of conventional radiotherapy with advanced stereotactic precision.

www.VersaHD.com

Versa HD is not available for sale or distribution in all markets. Please contact your Elekta representative for details.