

WCB 
2020

2-4 April 2020
Vienna, Austria

World Congress of Brachytherapy

Scientific
Programme



Thursday
2 April
2020



World Congress of Brachytherapy

Plenary Session: Welcome and introduction

08:00 - 08:15

Room C8

08:00 **Welcome and introduction**

Chair: B. Pieters (The Netherlands)

World Congress of Brachytherapy

Teaching Lecture: Transrectal ultrasound for gynaecological cancer brachytherapy

08:15 - 08:55

Room C8

Chair: L. Beaulieu (Canada)

08:15 **Transrectal ultrasound for gynaecological cancer brachytherapy**

SP-001

M. Schmid (Austria)

World Congress of Brachytherapy

Debate: This house believes that combination therapy for intermediate and high-risk prostate cancer represents best standard of care

09:00 - 10:15

Room C8

Chair: Y. Yoshioka (Japan)

Co-chair: P. Hoskin (United Kingdom)

09:00 **For the motion**

SP-002

M. Keyes (Canada)

09:20 **Against the motion: Data, data, data**

SP-003

D. Spratt (USA)

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| 09:40 | For the motion rebuttal
<u>A. Gomez-Iturriaga</u> (Spain) | SP-004 |
| 09:50 | Brachytherapy Boost for Prostate Cancer - A Diminishing Solution
<u>J. Martin</u> (Australia) | SP-005 |

World Congress of Brachytherapy

Symposium: Brachytherapy physics 2030 – Dosimetry for nuclides and radiation

09:00 - 10:15

Room C7

Source strength standardization and dosimetry accuracy are essential for proper brachytherapy dose delivery and clinical trial consistency. This symposium will highlight the latest advances in nuclide dosimetry, clinical calibrations, and brachytherapy treatment planning calculations. The first lecture will feature recent projects in metrology and the ongoing development of a calibration service. The second lecture will review HDR and LDR calibration methods at the clinical level. The timing, resource requirements, tolerance actions, and application of clinical calibrations will be discussed. The final lecture will examine calculations methods that incorporate heterogeneities including model-based systems, artificial intelligence solutions, IMBT, and multiscale dose calculations.

Chair: C. Kirisits (Austria)

Co-chair: C. Deufel (USA)

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| 09:00 | Nuclides and dose delivery devices – An overview and Comparison
<u>D. Baltas</u> (Germany) | SP-006 |
| 09:18 | Traceability of LDR and HDR source calibration
<u>T. Schneider</u> (Germany) | SP-007 |
| 09:36 | Calibration at the clinical level for HDR and LDR brachytherapy sources
<u>M. Rivard</u> (USA) | SP-008 |
| 09:54 | Dosimetry beyond TG43 - Radiobiological models combined with model based and deep convolutional neural network algorithms
<u>S. Enger</u> (Canada) | SP-009 |

World Congress of Brachytherapy

Proffered Papers: Proffered papers 1 - Partial Breast

10:45 - 11:45

Room C8

Chair: *TBC*

Co-chair: K. Lössl (Switzerland)

- 10:45 **APBI vs. very APBI in the elderly: a comparison analysis of oncological outcome and late toxicity** OC-010
J. Hannoun-Levi, L.C.K. Daniel, G. Jocelyn, S. Renaud, G. Mathieu, C. Marie-Eve (France)
- 10:55 **Very Accelerated Partial Breast Irradiation (VAPBI)..HDR brachytherapy phase I-II multicenter trial** OC-011
J. Guinot, V. Gonzalez-Perez, N. Meszaros, T. Major, C. Polgar, D. Najjari, C. Gutierrez-Miguel, M.A. Santos (Spain)
- 11:05 **APBI using multi-catheter interstitial HDR brachytherapy: A 15-year update of a prospective registry** OC-012
P. Gabani, W. Kennedy, M. Thomas, J. Zoberi, L. Ochoa, M. Matesa, I. Zoberi (USA)
- 11:15 **Comparison of Guidelines for Early Stage Breast Cancer Patients Treated with APBI Brachytherapy** OC-013
M. Mills, R. Nanda, J. Wilson, T. Altoos, D. Caldwell, L. Stout, S. Dube, K. Allen, P. Blumencranz, R. Diaz (USA)
- 11:25 **Phase I/II trial of ultra-APBI on early breast cancer (4f-APBI): Initial feasibility results.** OC-014
M. Gimeno Morales, R. Martínez-Monge, F. Martínez-Regeira, N. Rodríguez-Spiteri, B. Olartecoechea, L. Ramos, L. Pina, A. Elizalde, M. Idoate, M. Abengozar, J. Aristu, M. Moreno, L. Arbea, J.M. Aramendía, M. Santisteban, P. Jablonska, A. García-Consuegra, S. Fardique, M. Cambeiro (Spain)
- 11:35 **APBI is associated with equivalent cosmesis to whole breast external beam radiotherapy** OC-015
L. Moses, P. Graham, A. Bece, Y. Chin (Australia)

World Congress of Brachytherapy

Proffered Papers: Proffered papers 2 - Rectum & Skin

10:45 - 11:45

Room C7

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- Chair: T. Vuong (Canada)
Co-chair: D. Wood (Australia)
- 10:45 **Outcomes of CT-guided radioactive 125I seed implantation for locally recurrent rectal cancer** OC-016
L. Wang, H. Wang, Y. Jiang, Z. Ji, F. Guo, P. Jiang, X. Li, Y. Chen, H. Sun, J. Fan, G. Du, J. Wang (China)
- 10:55 **MAASTRO applicator, a novel rectal applicator for contact brachytherapy with 192Ir HDR sources** OC-017
M. Bellezzo, G.P. Fonseca, R. Voncken, A. Verrijssen, C. Van Beveren, E. Roelofs, H. Yoriyaz, B. Reniers, E.J. Van Limbergen, M. Barbée, F. Verhaegen (The Netherlands)
- 11:05 **Interstitial brachytherapy in non-melanoma skin cancer. Results of an expert center.** OC-018
G. Antelo-redondo, J. Gonzalez Vigueras, I. Visus Fernández de Manzanos, D. Najjari Jamal, A. Slocker Escarpa, H. Pérez Montero, I. Linares Galiano, R. Gracia Lucio, F. Guedea Edo, C. Gutiérrez Miguélez (Spain)
- 11:15 **Superficial HDR brachytherapy for skin lesions involving the finger – The Christie experience.** OC-019
A. Rembielak, J.D. Bedford, S. Wilson (United Kingdom)
- 11:25 **Adjuvant superficial 2D HDR brachytherapy for skin BCC after surgical resection.** OC-020
A. Chyrek, W. Burchardt, G. Bielęda, A. Chicheł (Poland)
- 11:35 **Promising Outcomes of Perioperative Interstitial HDR Brachytherapy in adjuvant treatment of keloids** OC-021
A. George, K. Koushik, R. C.Alva (India)

World Congress of Brachytherapy

Poster discussion: Poster discussion 1

10:45 - 11:45

Brachy Village: Poster Discussion Station

Chair: Å. Carlsson Tedgren (Sweden)

Co-chair: R. Bhalavat (India)

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| 10:45 | Eye HDR brachytherapy using Yb-169 | PD-022 |
| | <u>J. Dupere</u> , J. J Munro III, D. C Medich (USA) | |
| 10:50 | Results of 125I Seed Implantation for Recurrent Carcinoma of Head and Neck Assisted by 3D Plate | PD-023 |
| | <u>Y. Jiang</u> (China) | |
| 10:55 | Real-time electromagnetic guidance for GYN interstitial HDR brachytherapy: a proof-of-concept | PD-024 |
| | <u>A. Cantin</u> , M. Lavallée, E. Poulin, W. Foster, L. Beaulieu (Canada) | |
| 11:00 | Assessment of interstitial needles with 3D-TRUS in cervical cancer brachytherapy | PD-025 |
| | <u>J. Knoth</u> , N. Nesvacil, A. Sturdza, G. Kronreif, J. Widder, C. Kirisits, M. Schmid (Austria) | |
| 11:05 | Implant-based CT estimation towards adaptive breast brachytherapy | PD-026 |
| | M. Schulz, K. Kallis, T. Geimer, N. Abu-Hossin, <u>C. Dürrbeck</u> , V. Strnad, A. Maier, R. Fietkau, C. Bert (Germany) | |
| 11:10 | Long term outcomes of Carcinoma Buccal Mucosa treated with High Dose Rate Interstitial Brachytherapy | PD-027 |
| | <u>H.K. Bajwa</u> , R. Singareddy, K.R. Alluri (India) | |
| 11:15 | A Miniature Robotic System For Interstitial Brachytherapy Needle Insertion | PD-028 |
| | <u>I. Buzurovic</u> , H. Pei, Y. Hu (Usa) | |
| 11:20 | Multi-Criteria Optimization Integrating Catheter Number And Position For Prostate Hdr Brachytherapy | PD-029 |
| | <u>P. Chatigny</u> , C. Bélanger, É. Poulin, L. Beaulieu (Canada) | |

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| 11:25 | Characterisation of an inorganic scintillation detector system for time resolved in vivo dosimetry
<u>J. Johansen</u> , E.B. Jørgensen, D. Piché-Meunier, H.M.L. Rosales, D. Tho, K. Tanderup, S. Beddar, L. Beaulieu, G. Kertzschner (Denmark) | PD-030 |
| 11:30 | Establishing a Fingerprinting Method for Fast Catheter Identification in HDR Brachytherapy
<u>D. Tho</u> , E. B. Jørgensen, H. M L Rosales, C. Bélanger, J. G. Johansen, G. Kertzschner, L. Beaulieu (Canada) | PD-031 |
| 11:35 | Influence of tumor shape and location in eye plaque brachytherapy dosimetry
<u>M. Studenski</u> , N.V. Patel, A. Markoe, J.W. Harbour, S.E. Samuels (USA) | PD-032 |
| 11:40 | Introducing a new HDR system into an existing HDR Brachytherapy clinic using TG100 methodology
<u>E. Sullivan</u> , E. Flower, G. Busuttil, S. Zanjani, K. Tran, H. Nguyen, V. Nguyen, J. Beech, D. Thwaites, J. Sykes, J. Chard, A. Salkeld (Australia) | PD-033 |

World Congress of Brachytherapy

Proffered Papers: 3 Best Moderated Abstracts

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| 11:45 - 12:45 | | Room C8 |
| | Chair: D. Petereit (USA) | |
| | Co-chair: S. Chopra (India) | |
| 11:45 | Local failure in cervical cancer patients after MR image-guided adaptive brachytherapy
<u>M. Schmid</u> , C. Kirisits, K. Tanderup, C. Haie-Meder, L. Fokdal, A. Sturdza, P. Hoskin, U. Mahantshetty, B. Segedin, K. Bruheim, F. Huang, B. Rai, R. Cooper, E. Van der Steen-Banasik, E. Van Limbergen, B. Pieters, L.T. Tan, R. Nout, A.A.C. De Leeuw, N. Nesvacil, I. Jürgenliemk-Schulz, J.C. Lindegaard, R. Pötter, E. Collaborative Group (Austria) | OC-034 |
| 12:00 | Moderator: A. Viswanathan (USA) | |
| 12:05 | Partial Or Whole Breast Irradiation After BCS: 20-Year Results Of A Randomized Clinical Trial
<u>C. Polgár</u> , T. Major, Z. Takacsi-Nagy, J. Fodor (Hungary) | OC-035 |
| 12:20 | Moderator: tbc | |

- 12:25 **Intensity Modulated Ir-192 Brachytherapy Using 3D Printed Shielded Applicators** OC-036
L. Skinner, T. Niedermayr, J. Perl, N. Prionas, F. Benjamin, E. Kidd (USA)
- 12:40 Moderator: A. De Leeuw (The Netherlands)

World Congress of Brachytherapy

Symposium: Image guided BT and Outcome for Cervical Cancer: Update from different regions

14:15 - 15:30 Room C8

- Chair: I. Jürgenliemk-Schulz (The Netherlands)
Co-chair: U. Mahantshetty (India)
- 14:15 **EMBRACE experience** SP-037
R. Pötter, O.B.O.T.E.S.A.R.G. On Behalf Of The Embrace Study And Research Group (Austria)
- 14:33 **Image guided Brachytherapy and Outcomes of Cervical Cancer:: Indian Experience** SP-038
N. Lavanya (India)
- 14:51 **Cervical Cancer Brachytherapy at Washington University:1920-2020** SP-039
P. Grigsby (USA)
- 15:09 **Transition from 2D to MRI-based adaptive brachytherapy, Chulalongkorn University experience.** SP-040
N. Amornwicheat, C. Khorprasert, P. Alisanant, K. Shotelersuk (Thailand)

World Congress of Brachytherapy

Symposium: Eye/orbital brachytherapy: from organ sparing to function sparing

14:15 - 15:30

Room C7

Chair: L. Tagliaferri (Italy)

Co-chair: A. Chichel (Poland)

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| 14:15 | Choice of the best approach for eye melanoma
<u>V. Cohen</u> (United Kingdom) | SP-041 |
| 14:40 | The role of interstitial radiotherapy in orbital tumors or extrascleral uveal melanoma
<u>G. Kovács, Prof. Dr. Dr.</u> (Germany) | SP-042 |
| 15:05 | Brachytherapy toxicity: diagnosis, therapies and preventive strategies
<u>M.A. Blasi</u> (Italy) | SP-043 |

World Congress of Brachytherapy

Proffered Papers: Proffered papers 3 - Prostate outcome

16:00 - 17:00

Room C8

Chair: B. Prestidge (USA)

Co-chair: C. Salembier (Belgium)

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| 16:00 | Patterns of recurrence and associated factors after prostate permanent brachytherapy
<u>A. Yorozu</u> , T. Soyano, S. Sutani, Y. Shiraishi, S. Saito, K. Nakamura, T. Nishiyama, Y. Yagi, K. Toya (Japan) | OC-044 |
| 16:10 | HDR brachytherapy vs stereotactic boost in treatment of prostate cancer: comparison of safety profile
<u>S. Novikov</u> , M. Gotovchikova, N. Ilin, R. Novikov, Y. Merezhko, J. Melnik, S. Kanaev (Russian Federation) | OC-045 |

- 16:20 **Dose Escalation Versus Androgen Suppression In Locally Advanced Prostate Cancer. 10 Year Outcomes** OC-046
D. Joseph, J. Denham, A. Steigler, D. Lamb, N. Spry, J. Stanley, T. Shannon, G. Duchesne, C. Atkinson, J. Matthews, S. Turner, L. Kenny, D. Christie, K. Tai, N.K. Gogna, R. Kearvell, J. Murray, M. Ebert, A. Haworth, B. Delahunt, C. Oldmeadow, J. Attia (Australia)
- 16:30 **Toxicity and clinical outcomes of LDR versus HDR brachytherapy boost: propensity-score analysis** OC-047
A. Goni Ramirez, A. Gomez-Iturriaga Piña, M.B. De Paula Carranza, E.M. Saenz de Urturi Albisu, M. Ebiguren Bastida, M. Pagola Divasson, I. Gutierrez Betondo, N. Bultó Boque, D.I. Ortiz de Urbina Ugarte, V. Pastor Sanchis, A. Bartrés Salido, M. Erzilbengoa, J. Rosa Nieto (Spain)
- 16:40 **Comparing GU toxicity of LDR I-125 prostate brachytherapy by robotic and manual loading techniques** OC-048
P. McLaughlin, P.L. Nguyen, I. Buzurovic, D. Cail, J. Adleman, P.F. Orio III, M.T. King (Canada)
- 16:50 **Validation of the bladder neck as a significant OAR at prostate seed brachytherapy based on D2cc** OC-049
N. Wallace, M.F. Jamaluddin, P.J. Kelly (Ireland)

World Congress of Brachytherapy

Proffered Papers: Proffered papers 4 - Nuclides and treatment planning

16:00 - 17:00

Room C7

Chair: F. Siebert (Germany)

Co-chair: M. Rivard (USA)

- 16:00 **Expanding Calibration Service for LDR Brachytherapy Seeds by Photon Fluence Determination** OC-050
T. Schneider, A. Kasper, G. Winterbottom (Germany)

- 16:10 **Brachytherapy TG-43 dosimetry characterization of the INTRABEAM source** OC-051
D.S. Ayala Alvarez, P.G.F. Watson, M. Popovic, J. Seuntjens (Canada)
- 16:20 **Comparison of TG43 and TG186 dose calculations for 100 patients receiving breast brachytherapy** OC-052
A. Howie, J. Poder, R. Brown, K. Schreiber, A. Bece, P. Graham, Y. Chin (Australia)
- 16:30 **Experimental validation of 169Yb source dosimetry using multipoint plastic scintillator detector** OC-053
G. Famulari, H.M. Linares Rosales, J. Dupere, D.C. Medich, L. Beaulieu, S.A. Enger (Canada)
- 16:40 **Deep-learning based Physician's Preference Prediction for HDR Brachytherapy of Cervical Cancer** OC-054
Y. Gonzalez, C. Shen, C. Wang, K. Albuquerque, X. Jia (USA)
- 16:50 **Automated multi-criteria treatment planning for adaptive HDR-BT for locally advanced cervical cancer** OC-055
M. Oud (awardee), I. Kolkman-Deurloo, J. Mens, D. Lathouwers, Z. Perkó, B. Heijmen, S. Breedveld (The Netherlands)



Friday
3 April
2020



World Congress of Brachytherapy

Teaching Lecture: Using health economics to make the case for brachytherapy – HALYS, QALYS and DALYS

08:00 - 08:40

Room C8

Chair: P. Orio (USA)

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| 08:00 | Using health economics to make the case for brachytherapy – HALYS, QALYS and DALYS
<u>M. Milosevic</u> (Canada) | SP-056 |
| 08:00 | Using health economics to make the case for brachytherapy – HALYS, QALYS and DALYS
<u>D. Rodin</u> (Canada) | SP-057 |

World Congress of Brachytherapy

Debate: Partial Breast Irradiation with 1-3 fractions

08:45 - 10:00

Room C8

Four international experts will discuss current results of very accelerated partial breast irradiation (VAPBI) trials using only 1 – 3 fractions in 1-2 days and corresponding perspectives.

Jean-Michel Hannoun-Levi and Robert Kuske will report the entry criteria, techniques and results of VAPBI trials and comparison with contemporary results of Phase 3 APBI-trials. The similarities, differences and challenges will be critical discussed.

Philip Poortmans and Icro Meattini will present critical overview of primary and secondary outcomes of main phase 3 trials using different approaches for APBI. Finally, the cost effectiveness of the different approaches for partial breast irradiation will be evaluated.

Chair: V. Strnad (Germany)

Co-chair: C. Yashar (USA)

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| 08:45 | For the motion
<u>J. Hannoun-Levi</u> (France) | SP-058 |
| 09:05 | Against the Motion
<u>P. Poortmans</u> , <u>I. Meattini</u> (Belgium) | SP-059 |

09:25	For the Motion Rebuttal R. Kuske (Usa)	SP-060
09:35	Against the Motion Rebuttal <u>I. Meattini</u> , P. Poortmans (Italy)	SP-061
09:45	Discussion	

World Congress of Brachytherapy

Symposium: Brachytherapy physics 2030 – Enhanced application and in-vivo treatment verification

08:45 - 10:00

Room C7

The use of complex techniques and in-vivo treatment verification in brachytherapy is expanding. In this symposium, the current status of customized applicator, and treatment plan creation will first be reviewed. Then electromagnetic tracking technology, its limitations and potential benefits, and current clinical use will be discussed. After this, the benefits, current practical challenges, and clinical applications of in-vivo source tracking with point dosimeters will be reviewed. The session will conclude with an overview of in-vivo source tracking with imaging panels and fluoroscopy, a discussion of published literature, results from phantom studies, and the current state of the technology.

Chair: K. Tanderup (Denmark)

Co-chair: K. Martell (Canada)

08:45	Increasing the degrees of freedom with applicators <u>A. Damato</u> (USA)	SP-062
09:03	Electromagnetic tracking in brachytherapy <u>A. Ravi</u> (Canada)	SP-063
09:21	In vivo HDR brachytherapy source tracking with point dosimeters: current status and future directions <u>J. Poder</u> , D. Cutajar, M. Carrara, S. Guatelli, M. Petasecca, M. Lerch, A. Howie, J. Bucci, A. Rosenfeld (Australia)	SP-064

09:39 **In vivo source tracking with imaging panels and fluoroscopy** SP-065
G. Fonseca, C. Van Beveren, R. Voncken, M. Bellezzo, F. Verhaegen (The Netherlands)

World Congress of Brachytherapy

Proffered Papers: Proffered papers 5 - Optimising outcome in cervix BT

10:30 - 11:30 Room C8

Chair: N. Amornwichee (Thailand)

Co-chair: P. Petric (Slovenia)

10:30 **Dose to vaginal wall in cervical cancer brachytherapy and associated morbidity** OC-066
M. Serban, A.A.C. De Leeuw, K. Tanderup, I.M. Jürgenliemk-Schulz (Denmark)

10:40 **Dose-effect relationship between vaginal dose points and vaginal stenosis in cervical cancer** OC-067
H. Westerveld, K. Kirchheiner, R.A. Nout, K. Tanderup, J.C. Lindegaard, S. Spampinato, A. Sturdza, N. Nesvacil, K. Bruheim, T.P. Hellebust, B.R. Pieters, I.M. Jürgenliemk-Schulz, R. Pötter, A. De Leeuw (The Netherlands)

10:50 **Improving needle placement and efficiency with real-time 1.5T MR-tracking of interstitial implants** OC-068
M. Morcos, J. Lee, E.J. Schmidt, A.N. Viswanathan (USA)

11:00 **Optimizing Real-Time MRI-Guided Interstitial Brachytherapy Application for Gynecologic Cancer** OC-069
J. Adleman, R. Cormack, G. Alban, I. Buzurovic, T. Cheng, T. Harris, M. King, J. Tokuda, L. Lee (USA)

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| 11:10 | <p>Dosimetric outcome of single application multi-fractionated HDR Brachytherapy for cervical cancer</p> <p><u>S. Bushra</u>, U. Mahantshetty, L. Gurram, A. Pilar, S. Chopra, Y. Ghadi, D. Aravind, R. Mhatre, U. Upreti, J. Swamidas (India)</p> | OC-070 |
| 11:20 | <p>Use of Ultrasound-Compatible Models for Simulation-Based Gynecological Education</p> <p><u>L. Singer</u>, S. Damast, J. Chino, N. Taunk, L. Lin, L. Lee, P. Mohindra, K. Bradley, C. Fisher, E. Fields, M. Joyner (USA)</p> | OC-071 |

World Congress of Brachytherapy

Proffered Papers: Proffered papers 6 - Verification and optimisation

10:30 - 11:30	Room C7
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| | <p>Chair: R. Cormack (USA)</p> <p>Co-chair: N. Nesvacil (Austria)</p> | |
| 10:30 | <p>First clinical results of integrated EM tracking for treatment verification in prostate BT</p> <p><u>L. Van Heerden</u>, J. Schiphof-Godart, M. Christianen, J. Mens, M. Franckena, M. Maenhout, R. Rijnsdorp, L. Luthart, M. Hoogeman, I. Kolkman-Deurloo (The Netherlands)</p> | OC-072 |
| 10:40 | <p>Catheter Reconstruction Limits of an Afterloader With EMT Capabilities</p> <p><u>D. Tho</u>, L. Beaulieu (Canada)</p> | OC-073 |
| 10:50 | <p>A multi-sensor-based dosimetry platform for real time source tracking in HDR brachytherapy</p> <p><u>H.M. Linares Rosales</u>, J.G. Johansen, G. Kertzscher, K. Tanderup, L. Beaulieu, S. Beddar (Canada)</p> | OC-074 |
| 11:00 | <p>Demonstration of 3D source tracking HDR brachytherapy treatment verification in a phantom</p> <p><u>M. Hanlon</u>, R. Smith, V. Panettieri, J. Millar, R. Franich (Australia)</p> | OC-075 |

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| 11:10 | Automated Plan Verification Software for
Ultrasound-Planned High Dose Rate Prostate
Brachytherapy
<u>T. Harris</u> , C. Molodowitch, E. Sugar, D. O'Farrell, M.
King, I. Buzurovic (USA) | OC-076 |
| 11:20 | Fast Mixed Integer Optimization for High Dose
Rate Brachytherapy
<u>M. Antaki</u> , C.L. Deufel, S. Abbasinejad Enger (Canada) | OC-077 |

World Congress of Brachytherapy

Poster discussion: Poster discussion 2

10:30 - 11:30 Brachy Village: Poster Discussion Station

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| | Chair: D.N. Sharma (India)
Co-chair: A. Gomez-Iturriaga (Spain) | |
| 10:30 | Contact X-Ray Brachytherapy for eyelid
carcinoma: Efficacy and toxicity in 69 patients
<u>S. Sumodhee</u> , K. Benezery, D. Baron, R. Natale, M.
Gautier, C. Dejean, J. Gérard (France) | PD-078 |
| 10:35 | Management of Non-Invasive Breast Cancer with
Accelerated Partial Breast Irradiation
Brachytherapy
<u>M. Mills</u> , R. Diaz, R. Nanda, J. Wilson, T. Altoos, D.
Caldwell, L. Stout, S. Dube, P. Blumencranz, K. Allen
(USA) | PD-079 |
| 10:40 | Spanish Brachytherapy Group Consensus on
Accelerated Partial Breast Irradiation with
interstitial BT
<u>S. Pérez Echagüen</u> , C.J. Sanz Freire, J.L. Guinot
Rodríguez, C. Gutiérrez Miguélez, P. Samper Ots, V.
González Pérez, E. Villafranca Iturre, I. Modolell Farré,
S. Pellejero Pellejero, M. Cambeiro Vázquez, G.
Ossola Lentati (Spain) | PD-080 |

- 10:45 **HDR Monotherapy for Low and Intermediate Risk Prostate Cancer in One or Two Fractions** PD-081
V. Biryukov, O. Lepilina, D. Sanin, A. Obukhov, N. Borysheva, O. Karyakin, S. Ivanov, A. Kaprin (Russian Federation)
- 10:50 **MRI-guided dose escalation to DIL with US-planned HDR prostate brachytherapy: a phase II study** PD-082
J. Ding, S. Tisseverasinghe, F. Bachand, J. Crook (Canada)
- 10:55 **Updated results of focal salvage high-dose-rate brachytherapy for radiorecurrent prostate cancer.** PD-083
M. Van Son, M. Peters, M. Moerland, J. Lagendijk, W. Eppinga, T. Shah, H. Ahmed, J. Van der Voort van Zyp (The Netherlands)
- 11:00 **17 years' experience of EBRT plus HDR brachytherapy boost in high risk prostate cancer patients** PD-084
E. Vigneault, D. Carignan, P. Després, S. Magnan, M. Froment, W. Foster, S. Aubin, M. Lavallée, F. Lacroix, A. Cantin, É. Poulin, A. Martin (Canada)
- 11:05 **Comparative Morbidity: TURP followed by HDR brachytherapy versus HDR brachytherapy alone.** PD-085
B. Odei, H. Hauswald, J.C. Rwigema, J. Wang, E. Ziel (USA)
- 11:10 **Prostatitis after HDR Brachytherapy Monotherapy: Evaluation of patients treated on the BRP 2 Trial** PD-086
M. Jolicoeur, T. Derashodian, T.V. Nguyen-Huyn, E. De Castro Hillmann, R. Heliou, G. Wakil, M. Nachabe, E. Antebi, M. Mondat (Canada)
- 11:15 **Does ADT benefit UIR prostate cancer patients treated with BT boost? A propensity-score analysis** PD-087
L. Mendez, K. Martell, A. Warner, C. Tseng, H. Chung, A. Loblaw, G. Rodrigues, G. Morton (Canada)

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| 11:20 | <p>Low Dose Rate versus High dose rate
Brachytherapy boost in intermediate risk
prostate cancer.</p> <p><u>S. Rodríguez Villalba</u>, P. Monasor Denia, M.J. Pérez-
Calatayud, J. Richart Sancho, J. Pérez-Calatayud, M.
Santos Ortega (Spain)</p> | PD-088 |
| 11:25 | <p>Efficacy of CT-guided 3D template for 125I seed
brachytherapy in pelvic recurrent rectal cancer</p> <p><u>L. Wang</u>, H. Wang, Y. Jiang, Z. Ji, F. Guo, P. Jiang, X. Li,
Y. Chen, H. Sun, J. Fan, W. Li, X. Li, J. Wang (China)</p> | PD-089 |

World Congress of Brachytherapy

**Plenary Session: Training the Next Generation of
Brachytherapists**

11:40 - 11:55 Room C8

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| 11:40 | <p>Chair: B. Pieters (The Netherlands)</p> <p>Training the Next Generation of Brachytherapists</p> <p><u>D. Petereit</u> (USA)</p> | SP-090 |
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World Congress of Brachytherapy

Award Lecture: Marie Curie Medal

12:00 - 12:30 Room C8

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|-------|-------------------------------------------------------------------------------------------------------------------------------------|
| 12:00 | <p>Chair: B. Pieters (The Netherlands)</p> <p>Chair: D. Petereit (USA)</p> <p>Introduction</p> <p>Chair: F. Vicini (USA)</p> |
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12:05 **Will Brachytherapy Survive the Radical Changes Facing Medicine?** SP-091
A. Martinez (USA)

World Congress of Brachytherapy

Symposium: Single dose vs fractionated HDR monotherapy

14:00 - 15:15

Room C8

This session will review the fundamentals of HDR monotherapy for prostate cancer with an emphasis on single vs. fractionated definitive treatment schedules. The expert panel will cover several topics critical to modern practice including the radiobiologic and clinical rationale for different fractionation schedules and a summary of treatment outcomes, patterns of failure and associated toxicity profiles. This will be accompanied by a discussion of the relevant high level supporting evidence, technical aspects including focal dose escalation and consideration of risk group stratification, salvage therapies, and a comparison to LDR monotherapy. Finally, a look forward to future directions in HDR prostate brachytherapy will be provided.

Chair: A. Salgado (Chile)

Co-chair: B. Cox (USA)

14:00 **Single dose HDR brachytherapy is safe for low-risk prostate cancer** SP-092
P. Hoskin (United Kingdom)

14:18 **Single dose HDR prostate brachytherapy and residual disease** SP-093
G. Morton (Canada)

14:36 **HDR prostate brachytherapy and fractionation; does it matter?** SP-094
J. Millar (Australia)

14:54 **LDR prostate brachytherapy is safe for every risk disease** SP-095
B. Davis (USA)

World Congress of Brachytherapy

Symposium: 21st century brachytherapy: is it available, affordable and relevant?

14:00 - 15:15

Room C7

There are several reports of declining use of brachytherapy worldwide despite its well-documented advantages. Brachytherapy is often perceived to be resource-intensive and expensive and its role in the era of increasingly sophisticated external beam radiotherapy techniques has been questioned.

This session discusses some of the issues that influence availability and utilisation of brachytherapy. Topics include current status of cervix cancer brachytherapy availability worldwide and global initiatives to improve access, socio-economic factors impacting brachytherapy treatment trends in the United States, a literature review of time activity based costing studies of brachytherapy, and brachytherapy training and interest amongst European radiation oncology residents.

Chair: L.T. Tan (United Kingdom)

Co-chair: J.A. Polo Rubio (Austria)

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|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 14:00 | Advocating global availability of cervical cancer brachytherapy
<u>S. Chopra</u> (India) | SP-096 |
| 14:18 | Brachytherapy Disparity and Challenges of Reimbursement in the United States
<u>P. Orio</u> (USA) | SP-097 |
| 14:36 | Utilizing time activity based costing to determine the real costs of brachytherapy
<u>M. Kamrava</u> (USA) | SP-098 |
| 14:54 | Motivating the next generation of brachytherapy trainees
<u>A. Sturdza</u> , K. Tanderup, B. Pieters, I. Schulz-Jurgenliemk, L. Tan, R. Pötter, R. Nout, M. Kamrava (Austria) | SP-099 |

World Congress of Brachytherapy

Symposium: Head and Neck recurrences after full course Radiotherapy

15:45 - 17:00

Room C8

There are several options for treatment of local Head and neck recurrences after full course radiotherapy. Prof. Meyer talks about modern organ and function preservation surgery, which allows a volume reduction and mapping of the recurrence. Dr. Bonomo will give an overview about pattern of failure, selection of pts. for irradiation and the evidence for IMRT, SBRT and Protons. Finally Dr. Cambeiro Vazquez reports about the option of Brachytherapy. Limitations and experiences of inoperable recurrences, perioperative BT in combination with surgery and the outcome and toxicity compared to EBRT

Chair: P. Niehoff (Germany)

Co-chair: A. Budrukkar (India)

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| 15:45 | Why surgery?
<u>J. Meyer</u> (Germany) | SP-100 |
| 16:10 | Why EBRT?
<u>P. Bonomo</u> (Italy) | SP-101 |
| 16:35 | Why Brachytherapy?
<u>M. Cambeiro</u> (Spain) | SP-102 |

World Congress of Brachytherapy

Symposium: Accelerated partial breast irradiation - Phase 3 trial results

15:45 - 17:00

Room C7

Chair: J. Hannoun-Levi (France)

Co-chair: J. Tang (Singapore)

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| 15:45 | Results of brachytherapy trials
<u>V. Strnad</u> (Germany) | SP-103 |
| 16:03 | Results of external beam radiotherapy trials
<u>C. Coles</u> (United Kingdom) | SP-104 |

- 16:21 **Results of IORT (Intra-Operative Radiation Therapy) trials** SP-105
R. Orecchia (Italy)
- 16:39 **Ongoing clinical trials and future trends of APBI** SP-106
D. Wazer (USA)



Saturday
4 April
2020



World Congress of Brachytherapy

Teaching Lecture: How to implement and execute an incident learning system

08:00 - 08:40

Room C8

Chair: J. Swamidas (India)

08:00 **How to implement and execute an incident learning system** SP-107

L. Fong de los Santos (USA)

World Congress of Brachytherapy

Symposium: Guidelines and recommendations in gynaecological cancers

08:45 - 10:00

Room C8

Chair: A. Klopp (USA)

Co-chair: T. Tamaki (Japan)

08:45 **IBS/GEC-ESTRO recommendations for CT based treatment of cervical cancer** SP-108

U. Mahantshetty (India)

09:03 **JASTRO recommendations for CT based brachytherapy for cervical cancer** SP-109

T. Ohno (Japan)

09:21 **GEC-ESTRO/IBS/ABS recommendations for treatment planning** SP-110

K. Tanderup, N. Nesvacil, U. Mahantshetty, M. Serban, J. Swamidas, A. De Leeuw, S. Beriwal, C. Yashar, M. Harkenrider, C. Kirisits, P. Petric, I. Jürgenliemk-Schulz, N. Lavanya, A. Dheera, R. Pötter (Denmark)

09:39 **GEC-ESTRO/ABS/CARO recommendations on target definition in vaginal recurrences** SP-111

R. Nout (The Netherlands)

World Congress of Brachytherapy

Debate: Optimal treatment for periorificial high risk non-melanoma skin cancer

08:45 - 10:00

Room C7

Non-melanoma skin cancer incidence is rapidly rising worldwide. When surgery is not feasible (e.g. poor performance patient, significant co-morbidities), or could result in unacceptable functional and / or cosmesis morbidity, radiotherapy can offer an excellent and versatile non-surgical option. Radiotherapy can be delivered as external beam or brachytherapy. In this debate expert speakers from surgical and radiation specialities will provide arguments for the surgery and radiotherapy in the management of NMSC, with emphasis on the need of multidisciplinary cooperation. The debate will be focused on two highly cosmetically sensitive facial locations: lip and nose. The debate will be supported by published results and guidelines in the field.

Chair: P. Devlin (USA)

Co-chair: A. Rembielak (United Kingdom)

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| 08:45 | This house believes that surgery should be considered for lip high risk non-melanoma skin cancer
<u>C. Newlands</u> (United Kingdom) | SP-112 |
| 09:03 | This house believes that radiotherapy/brachytherapy should be considered for lip high risk non-melanoma skin cancer
<u>A. Budrukkar</u> (India) | SP-113 |
| 09:21 | This house believes that surgery should be considered for nose high risk non-melanoma skin cancer
<u>F. Bussu</u> (Italy) | SP-114 |
| 09:39 | Brachytherapy a useful tool for nasal and peri-nasal tumors
<u>B. Johansson</u> , L. Karlsson (Sweden) | SP-115 |

World Congress of Brachytherapy

Proffered Papers: Proffered papers 7 - Prostate outcome and dosimetry

10:30 - 11:30

Room C8

Chair: H. Chung (Canada)

Co-chair: G. Bucci (Australia)

- 10:30 **One fraction HDR vs. LDR brachytherapy in early prostate cancer. A prospective, randomized study.** OC-116
P. Ágoston, T. Major, K. Jorgo, G. Fröhlich, C. Polgár (Hungary)
- 10:40 **The radiosensitivity index predicts benefit from HDR brachytherapy in high-risk prostate cancer** OC-117
N. Thiruthaneeswaran, B.A.S. Bibby, R. Pereira, E. More, H. Denley, A. Henry, J. Wylie, P. Hoskin, R. Bristow, A. Choudhury, C. West (United Kingdom)
- 10:50 **Dosimetry of local failure with single dose 19Gy high-dose-rate brachytherapy for prostate cancer** OC-118
S. Armstrong, Y. Tsang, G. Lowe, H. Tharmalingam, P. Ostler, R. Alonzi, R. Hughes, P. Hoskin (United Kingdom)
- 11:00 **Comparison of SBRT, brachytherapy, and dose-escalated EBRT for localized prostate cancer** OC-119
A. Lee, K. Nguyen, S. Patel, A. Supariwala, P. Venkat, A. Chakravorty, E. Lin, C. Zarate, J. Demanes, A. Chang (USA)
- 11:10 **Can all prostate cancer patients achieve a PSA nadir ≤ 0.2 after brachytherapy-based radiotherapy?** OC-120
T. Soyano, A. Yorozu, S. Sutani, N. Natsume, Y. Shiraishi, K. Toya, S. Saito (Japan)
- 11:20 **Salvage LDR Prostate Brachytherapy: Results of NRG/RTOG-0526 Trial for Local Recurrence after EBRT** OC-121
J. Crook, J. Rodgers, T. Pisansky, E. Trabulsi, M. Amin, W. Bice, G. Morton, N. Pervez, E. Vigneault, C. Catton, J. Michalski, M. Roach, D. Beyer, P. Rossi, E. Horwitz, V. Donavanik, H. Sandler (Canada)

World Congress of Brachytherapy

Proffered Papers: Proffered papers 8 - Imaging physics and dosimetry

10:30 - 11:30

Room C7

Chair: F. Mourtada (USA)

Co-chair: W.Y.V. Lee (Hong Kong (SAR) China)

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| 10:30 | GEC-ESTRO / ACROP recommendations for Quality Assurance of Ultrasound in Brachytherapy
<u>F. Siebert</u> , C. Kirisits, T. Paulsen Hellebust, D. Baltas, F. Verhaegen, S. Camps, B. Pieters, G. Kovács, B. Thomadsen (Germany) | OC-122 |
| 10:40 | Parallel imaging compressed sensing for prostate MRI without an endorectal coil: a prospective study
<u>J. Sanders</u> , S. Frank, A. Venkatesan, T. Bathala, C. Tang, R. Kudchadker, T. Bruno, M. Pagel, J. Ma (USA) | OC-123 |
| 10:50 | Oxygen Sensing HDR-Brachytherapy Catheters with an Intra-Lumen MRI Receive Coil
<u>R. Cormack</u> , G. Ekchian, J. Tokuda, C. Frangieh, L. Lee, M. Cima (USA) | OC-124 |
| 11:00 | Impact of choices in dosimetric calculation method for high dose rate brachytherapy of breast cancer
<u>V. Turgeon</u> , B. Bahoric, M. Morcos, S.A. Enger (Canada) | OC-125 |
| 11:10 | Influence of an US probe on in-vivo source tracking with an imaging panel in HDR brachytherapy.
<u>C. Van Beveren</u> , G.P. Fonseca, M. Bellezzo, F. Verhaegen (The Netherlands) | OC-126 |
| 11:20 | In-vivo film dosimetry indicates a role for model-based algorithms in HDR surface brachytherapy
<u>S. Aldelaijan</u> , D.A. O'Farrell, T.C. Harris, R.A. Cormack, J.P. Seuntjens, S. Devic, P.M. Devlin, I.M. Buzurovic (USA) | OC-127 |

World Congress of Brachytherapy

Poster discussion: Poster discussion 3

10:30 - 11:30

Brachy Village: Poster Discussion Station

Chair: M. Schmid (Austria)

Co-chair: tbc

- 10:30 **Results from the First Spanish National Survey on Epiescleral Brachytherapy for Uveal Melanoma** PD-128
I. Rodriguez, P. Diezhandino Garcia, J. De Frutos Baraja, M.A. Saornil Álvarez, A. Slocker, I. Sancho, J.M. Caminal Mitjana, F. Celada Álvarez, J. Pérez Calatayud, R. Martinez Costa, F.D.A. Carrasco Peña, J.A. Terron Leon, M.I. Relimpio Lopez, A. Gomez Caamaño, J. Mosquera Sueiro, A. Piñeiro, J.L. Guinot Rodriguez, V. De los Dolores Alemany, J. Mataix Boronat, E. Corredoira Silva, M. Asencio Durán, E. Villafranca Iturre (Spain)
- 10:35 **Cost-utility analysis of radiation strategies in the management of intermediate-risk prostate cancer** PD-129
J. Helou, D. Naimark, G. Morton, N. Sanmamed, C. Catton, J. Raphael, A. Loblaw (Canada)
- 10:40 **Salvage HDR-Endobronchial Brachytherapy for Endobronchial Recurrence of Non-Small Cell Lung Cancer** PD-130
T. Soror, G. Kovács, V. Fürschke, M. Ismail, H. Badakhshi (Germany)
- 10:45 **106Ru eye plaque brachytherapy : the effect of plaque position on OARs absorbed doses** PD-131
F. Itta, R. Liuzzi, A. Farella, A. Breve, G. Cennamo, L. Cella, C. Oliviero, C. Feoli, M. Conson, R. Pacelli, S. Clemente (Italy)
- 10:50 **Title: Adjuvant electronic brachytherapy for patients with endometrial cancer.** PD-132
M. Cerrolaza, A. Campos, A. Méndez, M. Gascón, A. Miranda, S. Flamarique, S. Lozares, R. Ibañez (Spain)
- 10:55 **The state of stage I uterine cancers in the United States: does race impact care or survival?** PD-133
Z. Horne, S. Teterichko, R. Wegner, S. Hasan, S. Crafton, E. Miller, T. Krivak, P. Sukumvanich, S. Beriwal (USA)

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| 11:00 | 3D printed individual template based 192Ir interstitial brachytherapy for central recurrent GYN
<u>P. Jiang</u> , Q. Ang, J. Weijuan, W. Junjie, S. Haitao, Z. Xile, W. Panfeng, D. Junyao, W. Songbo (China) | PD-134 |
| 11:05 | Hybrid Brachytherapy in Locally Advanced Cervical Cancer: Impact of Dose and Tumor Volume Metrics
<u>A. Rivera</u> , M. Wassel, P. Brodin, R. Yaparalvi, C. Velten, R. Kabarriti, M. Garg, S. Kalnicki, K.J. Mehta (USA) | PD-135 |
| 11:10 | Evaluation of an Intelligent Virtual Treatment Planner for Cervical Cancer Brachytherapy
<u>C. Shen</u> , Y. Gonzalez, K. Albuquerque, X. Jia (USA) | PD-136 |
| 11:15 | Sexual Toxicity in Cervix Cancer Survivors Treated with Chemo-Radiation and MR-guided Brachytherapy
J. Conway, L. Conroy, S. Ferguson, A. Zia, A. Liu, J. Weiss, A. Rink, <u>C. Jennifer</u> (Canada) | PD-137 |
| 11:20 | Vaginal dose de-escalation in cervix brachytherapy
<u>L. Hallett</u> , G. Aldred, L. Lane (United Kingdom) | PD-138 |
| 11:25 | Evaluation of hydrogel for dose escalation and as a tissue marker in gynecologic brachytherapy
<u>M. Morcos</u> , R.K. Bhatia, A.N. Viswanathan (USA) | PD-139 |

World Congress of Brachytherapy

Award Lecture: GEC-ESTRO Best Junior Presentation and 5 Best Poster Presentations

11:40 - 12:40

Room C8

Chair: tbc

Co-chair: B. Erickson (USA)

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| 11:40 | Does Dose to the Ureter Predict for Ureteral Stenosis? – Analysis of 3D MRI-Based Brachytherapy
<u>J. Rodríguez-López (awardee)</u> , A. Mojica-Márquez, D. Ling, H. Kim, A. Patel, C. Houser, S. Beriwal (USA) | PD-140 |
| 11:58 | Characterization of intracavitary/interstitial brachytherapy using oblique needles in cervix cancer
<u>M. Serban</u> , L. Fokdal, S. Kynde Nielsen, S. Bjerre Hokland, A. Hansen, H. Spejlborg, S. Rylander, P. Petric, J. Lindegaard, K. Tanderup (Denmark) | PD-141 |

- 12:03 **Machine Learning Analysis of Salvage HDR Prostate Brachytherapy-A Validation Study** PD-142
S. Wu, A. Wong, K. Shinohara, A. Chang, A. Cunha, G. Valdes, T. Solberg, I. Hsu (USA)
- 12:08 **In-vivo Dosimetry for Validation of Real-Time Prostate Brachytherapy: Clinical Trial Outcomes** PD-143
D. Cutajar, J. Poder, A. Howie, R. Brown, K. Enari, K. Schreiber, M. Carrara, A. Rosenfeld, A. Bece, D. Malouf, J. Bucci (Australia)
- 12:13 **Computer aided brachytherapy: assisting the practice of prostate brachytherapy with machine learning** PD-144
J. Sanders, A. Venkatesan, J. Davis, R. Kudchadker, C. Tang, T. Bruno, J. Ma, S. Frank (USA)
- 12:18 **Efficacy and Pattern of Failure - HDR Brachytherapy for Penile Cancer: Single-Institution Experience** PD-145
S. Kellas-sieczka, P. Wojcieszek, M. Szlag, A. Cholewka, M. Wesolowski, M. Sieczka, M. Fijalkowski, A. Andrejczuk, T. Krzysztofiak, P. Lelek, M. Stankiewicz, B. Bialas (Poland)

World Congress of Brachytherapy

Proffered Papers: Proffered papers 9 - From research to practice

11:40 - 12:40

Room C7

Chair: H. Marsiglia (Chile)

Co-chair: B. Johansson (Sweden)

- 11:40 **Comparative study of brachytherapy vs. radical cystectomy for cT1-2 muscle-invasive bladder cancer** OC-146
 C.S. Voskuilen, J. Bosschieter, E. Van Werkhoven, K. Hendricksen, A.N. Vis, F.J. Pos, M. Burger, A. Bex, H.G. Van der Poel, L.M. Moonen, S. Horenblas, J.A. Nieuwenhuijzen, B. Pieters, B.W. Van Rhijn (The Netherlands)
- 11:50 **Dose-volume effect relationships for rectal morbidity after brachytherapy for pediatric cancers.** OC-147
 E. Romano, R. Simon, V. Martin, S. Bolle, M. Andraud, G. Boulle, M. Kissel, T. Kumar, H. Martelli, F. Guerin, E. Deutsch, C. Haie-Meder, C. Chargari (France)

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| 12:00 | Clinical outcomes and Toxicity profile with IMRT or Brachytherapy boost in oropharyngeal malignancy
<u>V. Pareek</u> , R. Bhalavat, M. Chandra, L. Nellore, K. George, D. Borade (India) | OC-148 |
| 12:10 | Correlation between Radiation-induced Foci from 192Ir Brachytherapy and Nuclei Size Distribution
<u>B. Behmand</u> , Y. Kamio, M. D.C. Evans, S. A. Enger (Canada) | OC-149 |
| 12:20 | Genomic markers of response to chemoradiotherapy in cervical cancer
<u>G. Alban</u> , B. Rawal, J. Adleman, M. King, J. Liu, U. Matulonis, J. Pretz, L. Singer, L. Lee (Brazil) | OC-150 |
| 12:30 | Real world interpretation of GEC-ESTRO image-guided brachytherapy recommendations for cervix cancer
<u>P. Diez</u> , J. Bourner, A. Sharp, P.J. Hoskin, M. McCormack (United Kingdom) | OC-151 |

World Congress of Brachytherapy

Symposium: Gastrointestinal brachytherapy

14:15 - 15:30

Room C8

Chair: A. Taggar (Canada)

Co-chair: R. Nout (The Netherlands)

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| 14:15 | Can Imaging technique affect treatment planning in brachytherapy of rectal and anal canal carcinomas?
<u>J. Gérard</u> , c. Dejean, k. Benezery, a. Falk, l. Montagne, m. Gauthier, j. Hannoun levi (france) | SP-152 |
| 14:40 | Gallbladder: status of the art
<u>P. Devlin</u> (USA) | SP-153 |
| 15:05 | Oesophagus: An orphan topic?
<u>A. Rovirosa</u> (Spain) | SP-154 |

World Congress of Brachytherapy

Symposium: Brachytherapy physics 2030 – Adaptive dose delivery and planning

14:15 - 15:30

Room C7

In this session the latest developments and advancements on adaptive dose planning and delivery are discussed. The first presentation will highlight the potential and limitations of image registration in treatment planning, in particular for gynaecological brachytherapy, with special attention for the challenges associated with deformable image registration in contouring and dose accumulation. Next, the role of automation in the treatment planning and delivery process will be handled. Automation is increasingly finding its way into clinical practice in terms of applicator digitization, plan optimization, quality assurance and plan documentation. This will affect the role of physicists in treatment planning as well as the interaction with physicians, coming with a change in practice. Finally, an introduction will be given on artificial intelligence, machine learning and big data, and the potential role it can directly play in brachytherapy applications such as contouring and dosimetric planning.

Chair: M. De Brabandere (Belgium)

Co-chair: A. Haworth (Australia)

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| 14:15 | Image registration, Automated segmentation, and Dose Summation | SP-155 |
| | <u>j. Swamidas</u> , c. Kirisits, m. De brabandere, t. Hellebust, f. Siebert, k. Tanderup (india) | |
| 14:33 | Automation for treatment planning and quality assurance (actual advancements) | SP-156 |
| | <u>C. Deufel</u> (USA) | |
| 14:51 | The role of physics, dosimetry, and physicians in an era of automation: how will our practice change? | SP-157 |
| | <u>J.A.M. Cunha</u> (USA) | |
| 15:09 | What is this thing called AI and how can it help brachytherapy? | SP-158 |
| | <u>P. Bosman</u> (The Netherlands) | |

World Congress of Brachytherapy

Proffered Papers: Proffered papers 10 - Utilisation, training and developments in Gyn BT

16:00 - 17:15

Room C8

Chair: A. Rovirosa (Spain)

Co-chair: T. Ohno (Japan)

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| 16:00 | Do We Need Adjuvant Brachytherapy for Stage IA High Grade Endometrial Cancer? | OC-159 |
| | <u>H. Musunuru</u> , R. Mackenzy, B. Orr, S. Beriwal (USA) | |
| 16:10 | Declining brachytherapy utilization for cervical cancer patients - have we reversed the trend? | OC-160 |
| | <u>S. Beriwal</u> , M. Schad, A. Patel, S. Glaser, G. Balasubramani, T. Showalter, J. Vargo (USA) | |
| 16:20 | Pelvic radiation and boost at separate facilities associated with cervical cancer treatment delays | OC-161 |
| | <u>R. Li</u> , E. Germino, Y. Chen, Z. Horne, J.A. Vargo, S. Glaser (USA) | |
| 16:30 | Cervical cancer brachytherapy training by 3D printing tissue equivalent patient anatomy from DICOMs | OC-162 |
| | <u>J. McGee</u> , M. McGee, T. Ralph, S.M. Pieta (USA) | |
| 16:40 | Reading Between the Voxels: Radiomic Predictors of Progression-Free Survival in Cervical Cancer | OC-163 |
| | <u>R. Zeitlin</u> , H. Saeed, D. Schott, Y. Zhang, N. Morrow, P. Prior, J. Rownd, E. Paulson, X.A. Li, B. Erickson, M. Bedi (USA) | |
| 16:50 | In-vitro determination of radiobiological parameter values used in cervical cancer brachytherapy | OC-164 |
| | <u>B. Chow</u> , K. Nanda, B. Warkentin, F. Huang, A. Gamper, G. Menon (Canada) | |

World Congress of Brachytherapy

Symposium: Brachytherapy : Strategies to improve utilization in various sites and settings

16:00 - 17:15

Room C7

Chair: T. Merino (Chile)

Co-chair: S. Van Dyk (Australia)

- 16:00 **GEC-ESTRO viewpoint in strategies to increase brachytherapy utilization** SP-165
B. Pieters (The Netherlands)
- 16:18 **Brachytherapy: Strategies to improve utilization in various sites and settings (ABS Viewpoint)** SP-166
C. Yashar (USA)
- 16:36 **Brachytherapy: Strategies to improve utilization in various sites and settings: (IBS Viewpoint)** SP-167
D.N. Sharma (India)
- 16:54 **Brachytherapy: Strategies to improve utilization in various sites and settings (ALATRO viewpoint)** SP-168

G.J. Sarria Bardales, D.A. Martinez Perez, R. Del Castillo Pacora (Peru)

World Congress of Brachytherapy

Plenary Session: Closing remarks

17:15 - 17:30

Room C8

17:15 **Closing remarks**

B. Pieters (The Netherlands)



Posters



World Congress of Brachytherapy

Poster: Brachytherapy: Breast

- Contralateral Breast Dose from Whole and Partial Breast Radiation Techniques** PO-169
S. Dutta, E. Aliotta, B. Libby, T. Showalter, S. Showalter, E. Janowski (USA)
- Clinical and cosmesis results of breast cancer intraoperative interstitial brachytherapy** PO-170
B.J. Salazar Zuñiga, M. Colmenero, L. Juan, I. Alda, A. Milanes, R. Prados, J. Perez-Regadera (Spain)
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