18th Acta Oncologica Symposium

BiGART2019

Biology-Guided Adaptive Radiotherapy

Aarhus

Denmark

May 22-24, 2019

Sponsors:

ACTA ONCOLOGICA

Danish Cancer Society

DCCC
Radiotherapy
Danish Comprehensive Cancer Center
Radiotherapy Research Center.
Supported by The Danish Cancer Society

BiGART2019

May 22-24, 2019, Aarhus

Welcome!

It is our great pleasure to welcome you to Aarhus, Denmark for the 2019 Acta Oncologica symposium on Biology-Guided Adaptive Radiotherapy.

Key topics for the BiGART conference will include:

- **Radiobiology** - genomics, biomarkers, functional imaging, personalized medicine
- **Particle therapy** – the European approach to building clinical evidence for particle therapy
- **Normal tissues** – endpoints, modelling, PROM, value-based oncology
- **Treatment planning** - artificial intelligence and automation
- **Image guidance, adaptation and motion management** – incl. MR linac and MRI in protons
- **New concepts**– FLASH, GRID, ImmunoRT
- **Clinical outcomes of radiotherapy**
- Radiotherapy in the era of **value-based health care**

The meeting has attracted 200 participants from Denmark and internationally. With 120 submitted abstracts, we look forward to an active audience in exciting scientific sessions with presentations from leading scientists from several continents. This year, the meeting is organized back-to-back with the opening symposium at Danish Center for Particle Therapy at Aarhus University Hospital, where patient treatment started in January this year.

All participants are invited to attend the social programme. Wednesday evening we have arranged a welcome reception at Hotel Marselis and a guided tour of Memorial Park and Royal Gardens (weather permitting). On Wednesday evening, participants can also use their voucher for free access to the modern art museum AROS, with the spectacular Your Rainbow Panorama. New this year is the BiGART Early Morning Run Thursday morning. Finally, don't miss the traditional conference dinner at the Varna Mansion on Thursday, a beautifully situated restaurant in the forest next to Hotel Marselis.

We hope you will enjoy the meeting and your time here in Aarhus!

BiGART2019

May 22-24, 2019, Aarhus

Faculty

Invited international faculty

- Aswin Hoffmann, Dresden
- Bruce Minsky, Houston
- Damien Weber, Villigen
- Daniel Zips, Tübingen
- Danny Indelicato, Jacksonville
- David Sebag-Montefiori, Leeds
- Dirk de Ruysscher, Maastricht
- Eirik Malinen, Oslo
- Esther Troost, Dresden
- Faisal Mahmood, Odense
- Hans Langendijk, Groningen
- Ivan Vogelius, Copenhagen
- Joseph Deasy, New York
- Karin Haustermans, Leuven
- Katia Parodi, Munich
- Marco Durante, Darmstadt
- Max Dahele, Amsterdam
- Mischa Hoogeman, Rotterdam
- Philip Poortmans, Paris
- Pierre Blanchard, Paris
- Robert Bristow, Manchester
- Tufve Nyholm, Umeaa
- Umberto Ricardi, Torino
- Vincenzo Valentini, Rome
- Yolande Lievens, Ghent

Local faculty and organizers

- Stine Korreman
- Jesper Eriksen
- Jens Overgaard
- Ludvig P. Muren
- Morten Høyer
- Cai Grau
- Jacob Lindegaard
- Jan Alsner
- Kari Tanderup
- Michael. R. Horsman
- Morten Busk
- Birgitte Offersen
- Per R. Poulsen
- Brita Singers Sørensen
- Karen-Lise Spindler
- Ditte Møller
- Lone Hoffmann

Contact

Prof. Cai Grau
Department of Oncology,
Aarhus University Hospital,
Palle Juul-Jensens Boulevard 99,
DK-8200 Aarhus N
Denmark
mail@bigart2019.dk

Scientific programme

Please find the scientific programme including abstracts at the website:

https://events.au.dk/bigart2019/abstracts-and-program.html

Or in the free conference app:

'CM Events' available in App Store and Google Play

Please log in to the app using the e-mail address you registered with for the BiGART2019 conference.

Wednesday May 22, 2019

12:00-12:45 Registration

12:45-13:00 Welcome

Cai Grau, Aarhus (DK)

13:00-14:40 Session 1: Radiobiology: genomics, biomarkers, functional imaging, personalized medicine
Moderators: Heidi Lyng and Jens Overgaard

Invited speakers:

13:00-13:20 Rob Bristow, Manchester (UK): A deep dive into the genomics of hypoxia tumours - implications for precision cancer medicine
13:20-13:40 Daniel Zips, Tübingen (DE): Biologically-individualized real-time MR-guided radiotherapy: concept, prerequisites and first clinical experience
13:40-14:00 Eirik Malinen, Oslo (NO): Dynamic imaging and pharmacokinetic modelling - from biology to physics and back
14:00-14:20 Esther Troost, Dresden (DE): Functional imaging for tumor and normal tissue response prediction

BiGART2019

May 22-24, 2019, Aarhus

Proffered papers:

14:20-14:30 Jacob Lilja-Fischer, Aarhus (DK): Characterization and radiosensitivity of HPV-related oropharyngeal squamous cell carcinoma patient-derived xenografts

14:30-14:40 Christina Sæten Fjeldbo, Oslo (NO): Treatment decision support by imaging- and gene-based hypoxia classification in cervical cancer

15:10-16:40 Session 2: Building clinical evidence for particle therapy – the European approach
Moderators: Dirk De Ruysscher and Morten Høyer

Panelists (10 min. each):

- Damien Weber, Villigen (CH)
- Karin Haustermans, Leuven (BE)
- Esther Troost, Dresden (DE)
- Hans Langendijk, Groningen (NL)
- David Sebag-Montefiori, Leeds (UK)
- Petra Witt, Uppsala (SE)
- Cai Grau, Aarhus (DK)

Panel discussion

16.40-18.40 Poster discussions and –bar

Poster discussion groups 1, 3, 5, and 7.

19:00-21:00 Welcome reception at Hotel Marselis, with optional guided tour of the Memorial Park and Marselisborg Royal Gardens

BiGART2019

May 22-24, 2019, Aarhus

Thursday May 23, 2019

06:45 **The BiGART Early Morning Run**

08:10-10:00 **Session 3: Normal tissue complications and therapeutic ratio in radiotherapy**
Moderators: Hans Langendijk and Ludvig Muren

Invited speakers:

08:10-08:30 Joseph Deasy, New York (US): Determinants of outcomes following thoracic radiotherapy
08:30-08:50 Daniel Indelicato, Jacksonville (US): Do we need a different brainstem dose-effect model for protons?
08:50-09:10 Ivan Vogelius, Copenhagen (DK): Towards registry-based normal tissue complication modelling
09:10-09:30 Yolande Lievens, Ghent (BE): The value of radiotherapy: a multifaceted concept

Proffered papers:

09:30-09:40 Lene Haldbo-Classen, Aarhus (DK): Cognitive function after radiation therapy for brain tumours in adults
09:40-09:50 Christian Rønn Hansen, Odense (DK): NTCP model validation for selection of patients to a randomized controlled trial, DAHANCA35
09:50-10:00 Jesper Pedersen, Aarhus (DK): Normal tissue complication probability models for late rectal morbidity after proton therapy of 1036 prostate cancer patients

10:00-10:30 **Coffee break**

10:30-12:10 **Session 4: Treatment planning, artificial intelligence and automation**
Moderators: Sara Thörnqvist and Stine Korreman

Invited speakers:

10:30-10:50 Max Dahele, Amsterdam (NL): Integrating automated treatment planning and AI-based segmentation: ready for clinical use
10:50-11:10 Tufve Nyholm, Umeå (SE): Deep learning in radiotherapy - thoughts about training, applications and introduction
11:10-11:30 Mischa Hoogeman, Rotterdam (NL): Treatment plan automation for online adaption (in proton therapy)

Proffered papers:

11:30-11:40 Michael Matter, Villigen (CH): IMPT plan generation in under ten seconds
11:40-11:50 Christopher Kurz, Munich (DE): MR-only synthetic CT generation for MRI-guided proton therapy of the prostate using a conditional generative adversarial network
11:50-12:00 Søren Agergaard, Odense (DK): Automatically generated treatment plans for high risk prostate cancer
12:00-12:10 Franziska Knuth, Trondheim (NO): Functional MR-based automatic tumour segmentation of rectal cancer

12:10-12:30 ESTRO vision: Optimal Health for All in 2030 – what will be the role of Radiation Oncology?
Moderator: Cai Grau

12:10-12:30 Umberto Ricardi, Torino (IT)

12:30-13:30 Lunch break

13:30-15:00 Session 5: Clinical radiotherapy -outcomes and new approaches: Breast, lung and GU
Moderators: Vincenzo Valentini and Birgitte Offersen

Invited speakers:

13:30-13:50 Philip Poortmans, Paris (FR): The quest for the right balance in breast cancer radiation therapy
13:50-14:10 Dirk De Ruysscher, Maastricht (NL): Advances in lung cancer radiation oncology

Proffered papers:

14:10-14:20 Marianne Knap, Aarhus (DK): Clinical outcome over a ten-year period of continuously development in radiotherapy for lung cancer patients treated at Aarhus University Hospital
14:20-14:30 Thomas V. Lacoppidan, Copenhagen (DK): Histology remains the strongest predictor of first failure site for locally advanced Non-Small Cell Lung Cancer in a competing risk model after inclusion of volumetric data
14:30-14:40 Patrick Berkovic, Leuven (BE): Stereotactic robotic body radiotherapy for patients with oligorecurrent pulmonary metastases
14:40-14:50 Olfred Hansen, Odense (DK): Outcome after stereotactic radiotherapy in elderly patients with early non-small lung cancer
14:50-15:00 Ghazaleh Ghobadi, Amsterdam (NL): Spatial mapping of Gleason grade using multi-parametric MRI for dose differentiations in radiotherapy for prostate cancer

BiGART2019

May 22-24, 2019, Aarhus

15:00-15:30 Coffee break

15:30-16:30 Session 6: Image-guidance and motion management
Moderators: Christopher Kurz and Kari Tanderup

Invited speakers:

15:30-15:50 Faisal Mahmood, Odense (DK): MR-guided radiotherapy – more than just geometrical precision?
15:50-16:10 Aswin Hoffmann, Dresden (DE): Experimental results from a first hybrid MR-proton therapy research system

Proffered papers:

16:10-16:20 Per Poulsen, Aarhus (DK): Automatic detection of heart irradiation in cine MV images during breast cancer radiotherapy
16:20-16:30 Anni Lundgaard, Copenhagen (DK): The feasibility of deep inspiration breath-hold in children: Results of the TEDDI pilot study

16:30-18:30 Poster discussions and –bar

Poster discussion groups 2, 4, 6, and 8.

19:00-22:30 Dinner at Varna Palæet

BiGART2019

May 22-24, 2019, Aarhus

Friday May 24, 2019

08:30-9:45 Session 7: Emerging concepts and techniques
Moderators: Damien Weber and Niels Bassler

Invited speakers:

08:30-08:50 Katia Parodi, Munich (DE): Towards a novel small animal proton irradiation platform: the SIRMIO project
08:50-09:15 Marco Durante, Darmstadt (DE): Charged particles and immunotherapy: the perfect combination?

Proffered papers:

09:15-09:25 Anne Marit Rykkelid, Oslo (NO): Very high RBE values found at the distal end of the proton Bragg peak
09:25-09:35 Armin Lühr, Dresden (DE): Prediction of MR image changes in glioma patients for evaluation of proton RBE variability
09:35-09:45 Simon Skouboe, Aarhus (DK): First real-time motion-including tumor dose reconstruction during clinical radiotherapy treatments

09:45-10:15 Coffee break

10:15-11:45 Session 8: Clinical radiotherapy - outcomes and new approaches: Brain, head & neck and GI
Moderators: Ivan Vogelius and Jesper Grau Eriksen

Invited speakers:

10:15-10:35 Pierre Blanchard, Paris (FR): Individual patient data meta-analyses in Head & Neck cancers – past, present & future.
10:35-10:55 Vincenzo Valentini, Rome (IT): Emerging trend in the treatment of upper GI cancers
10:55-11:15 Bruce Minsky, Houston (US): Emerging trends in the treatment of rectal cancer

Proffered papers:

11:15-11:25 Anouk Trip, Amsterdam (NL): Biological target volume based on DTI-MRI in postoperative chemoradiotherapy for glioblastoma
11:25-11:35 Jørgen Johansen, Odense (DK): Osteoradionecrosis after radiotherapy of patients with head and neck cancer: Incidence, risk factors, and mandibular dose-volume effects
11:35-11:45 Mette Saksø, Aarhus (DK): The DAHANCA 28 study: Accelerated hyperfractionated radiotherapy with concomitant cisplatin and nimorazole for locally advanced p16 negative HNSCC

11:45-12:00 Poster prizes and closing remarks

12:00 Farewell. Lunch box

Posters

POSTER DISCUSSIONS GROUPS

Wednesday - poster discussion groups 1,3,5,7

Poster discussion group 1: Normal tissue morbidity and models

Moderators: Joseph Deasy and Christian Rønn Hansen

1. Julie Killerup Kaae, Odense (DK): Relation between patient and physician rated Xerostomia and dose to oral cavity and salivary glands for Head and Neck Cancer patients after radiotherapy
2. Katherina Farr, Aarhus (DK): Patient reported symptoms and quality of life analysis before and after definitive chemo-radiotherapy for non-small cell lung cancer: correlation with radiation pneumonitis
3. Christina Maria Lutz, Aarhus (DK): Pulmonary toxicities in a prospectively scored trial for non-small cell lung cancer
4. Tine Bisballe Nyeng, Aarhus (DK): Functional lung volumes obtained from SPECT-CT do not define the same voxels as functional lung volumes obtained from 4D-CT.
5. Jerzy Wydmański, Gliwice (PL): Radiation-induced injury of the exocrine pancreas during chemoradiotherapy for gastric cancer.
6. Oscar Casares-Magaz, Aarhus (DK): A case-control study of the associations between delivered rectal dose and gastro-intestinal toxicity following high-precision radiotherapy for prostate cancer
7. Morten Egeberg Evensen, Oslo (NO): Normal tissue complication probability modelling for plan evaluation in children with brain tumours referred to proton therapy
8. Anders Schwartz Vittrup, Aarhus (DK): Reporting of late morbidity after radiotherapy in large prospective studies: A descriptive review of the current practice.

Poster discussion group 3: Adaptation and response assessment

Moderators: Einar Dale and Lone Hoffmann

9. Faisal Mahmood, Odense (DK): Brain metastases size and internal diffusion during radiotherapy is non-intuitively related to treatment outcome
10. Maja Bendtsen Sharma, Aarhus (DK): Fluid variability in maxillary sinus during radiotherapy for sinonasal carcinoma
11. Zeno Gouw, Amsterdam (NL): Feasibility of serial FDG-PET guided adaptive radiotherapy for head and neck cancer
12. Ditte Sloth Møller, Aarhus (DK): Deep Inspiration Breath Hold for lung and lymphoma cancer patients: How stable is the Breath Hold during treatment?
13. Kathrin Surmann, Maastricht (NL): Anatomical changes and patient selection for dose-guided adaptive radiotherapy in lung cancer patients

14. Harald Spejlborg, Aarhus (DK): Delivered heart doses estimated from CINE acquisitions during tangential breast irradiation under deep inspiratory breath hold – is risk of excess heart dose initially predictable?
15. Gergely Antal, Kaposvar (HU): Evaluation of prostate SABR verification workflow using triggered kV-imaging in combination with pre- and post-RT CBCT focusing on target coverage
16. Kia Busch, Aarhus (DK): On-line dose-guidance to account for inter-fractional motion during proton therapy

Poster discussion group 5: Imaging developments

Moderators: Tufve Nyholm and Morten Busk

17. Mikkel Holm Vendelbo, Aarhus (DK): PET imaging of tumor IGF-1 receptor expression and early treatment response during receptor targeting as a means to personalize treatment
18. Morten Busk, Aarhus (DK): Dual-tracer PET of viable tumor volume and hypoxia for identification of necrosis-containing radio-resistant sub-volumes
19. Severin Langberg, Ås (NO): Establishing a complete radiomics framework for biomarker identification and outcome prediction using PET/CT images of head & neck cancers
20. Bertrand Pouymayou, Zürich (CH): Analysis of lymphatic metastasis and progression patterns for clinical target volume (CTV) definition in head and neck squamous cell carcinoma (HNSCC)
21. Marta Bogowicz, Zurich (CH): Perfusion CT radiomics depicts tumor biology and predicts tumor control in head and neck squamous cell carcinoma
22. Aurora Rosvoll Groendahl, Ås (NO): Automatic tumour delineation of head and neck cancers in PET/CT images using thresholding and machine learning methods
23. Tiril Hillestad, Oslo (NO): Imaging hypoxia levels in cervical cancer by DCE-MRI
24. Malgorzata Stapor-Fudzinska, Gliwice (PL): Use of the 68Ga-DOTATATE PET/CT/MRI imaging for stereotactic radiosurgery treatment planning for patients with meningiomas

Poster discussion group 7: Emerging delivery and verification strategies

Moderators: Eirik Malinen and Ole Nørrevang

25. Steven van de Water, Villigen (CH): Towards FLASH proton therapy: Exploring dose rate distributions for different treatment planning paradigms and PBS machine characteristics
26. Anne Holm, Aarhus (DK): Proof of concept: Shaping the lateral beam penumbra of a proton beam by non-linear beam optics
27. Sebastian Neppl, Munich (DE): Dosimetric evaluation of 2D and 3D Unet-generated pseudoCTs for proton therapy of brain lesions
28. Anders Bertelsen, Odense (DK): First clinical experience with a high field 1.5 T MR linac
29. Mikkel Skaarup, Copenhagen (DK): A dual energy material decomposition algorithm for clinical cone-beam computed tomography
30. Andreas Gravgaard Andersen, Aarhus (DK): Scatter-corrected CBCTs for online water-equivalent path length calculations in proton therapy

31. Julia Bauer, Heidelberg (DE): Improving the modelling of irradiation-induced brain activation for in-vivo PET verification of proton therapy
32. Britta Weber, Aarhus (DK): Hyperpolarized MR as a new potential method for early response monitoring in pancreatic cancer

Thursday - poster discussion groups 2,4,6,8

Poster discussion group 2: Clinical trials and outcomes

Moderators: Pierre Blanchard and Marianne Nordsmark

33. Dirk de Ruysscher, Maastricht (NL): Health-related quality of life (HRQoL) after Prophylactic Cranial Irradiation (PCI) for Stage III NSCLC Patients in the NVALT-11 Randomized Phase III Trial
34. Daniel Indelicato, Jacksonville (US): Outcomes following proton therapy for group III pelvic rhabdomyosarcoma
35. Jens Overgaard, Aarhus (DK): DAHANCA 9 - The best Dahanca study that never was. A incomplete randomized multicenter study to compare accelerated normo-fractionated radiotherapy with accelerated hyperfractionated radiotherapy in patients with HNSCC.
36. Sławomir Blamek, Gliwice (PL): Analysis of dose-volume relationship and clinical factors in relation to local control in patients with brain metastases treated with stereotactic radiosurgery or hypofractionated stereotactic radiotherapy
37. Eric Meline, Odense (DK): The effect of tumor laterality on survival for non-small cell lung cancer patients treated with definitive radiotherapy
38. Azadeh Abravan, Manchester (UK): Radiotherapy-related lymphopenia in patients with advanced non-small cell lung cancer receiving palliative radiotherapy
39. Morten Nielsen, Odense (DK): Initial experiences with hippocampus-sparing whole-brain radiotherapy for lung cancer patients
40. Eva Holtved, Odense (DK): A single institution experience with IMRT-planned definite chemo-radiotherapy to an unselected population of patients with inoperable, unresectable or recurrent esophageal cancer

Poster discussion group 4: Intra-fractional challenges

Moderators: Aswin Hoffmann and Per Poulsen

41. Miriam Krieger, Villigen (CH): Probabilistic ITV definition to account for respiratory motion variability in PBS proton treatments
42. Frank Emert, Villigen (CH): Assessment of two different techniques for respiratory motion mitigation for lung cancer treatment with proton therapy using MRI – a clinical study
43. Toke Printz Ringbæk, Marburg (DE): Calculation of the beam-modulation effect of the lung in raster scanning particle therapy with deterministic pencil beam algorithms

44. Ye Zhang, Villigen (CH): Motion model based PBS proton beam tracking for lung tumour treatments using real time liver ultrasound as online image guidance: proof-of-concept
45. Casper Gammelmark Muurholm, Aarhus (DK): Real-time dose-guided radiation therapy
46. Thomas Ravkilde, Aarhus (DK): Experimental validation of an MLC tracking treatment simulator with dose reconstruction
47. Mirjana Josipovic, Copenhagen (DK): Deep inspiration breath hold in locally advanced lung cancer radiotherapy: validation of intra-fractional geometric uncertainties in the INHALE trial

Poster discussion group 6: Proton RBE studies

Moderators: Tracy Underwood and Brita Sørensen

48. Johannes Müller, Dresden (DE): Development of a novel setup for high precision image-guided proton irradiation of brain sub-volumes in small animals
49. Jan Hofmaier, Munich (DE): Variance-based sensitivity analysis for uncertainties in proton therapy: Effect of simultaneous uncertainties in range, positioning and RBE model predictions on RBE-weighted dose distributions
50. Helge Henjum, Bergen (NO): Implementation and exploration of biological optimization in proton therapy
51. Jakob Ödén, Stockholm (SE): Spatial correlation of linear energy transfer and relative biological effectiveness with treatment related toxicities following proton therapy for intracranial tumours
52. Laura Toussaint, Aarhus (DK): Biological doses with constant and variable relative biological effectiveness in proton arc therapy for pediatric brain radiotherapy
53. Stine Korreman, Aarhus (DK): Proton therapy for esophageal cancer; variable relative biological effect and heart dose
54. Ole Otterlei, Bergen (NO): Variation in biological doses in cognitive structures using different models for the relative biological effectiveness of proton therapy for pediatric brain tumors
55. Apostolos Raptis, Stockholm (SE): The risk of second cancer from proton therapy for breast cancer: the impact of physiological motion and variable relative biological effectiveness (RBE)

Poster discussion group 8: Proton treatment planning and verification

Moderators: Mischa Hoogeman and Ditte Møller

56. Pernille Bræmer-Jensen, Aarhus (DK): Experimental validation of clinical proton stopping power calibration curves based on single energy CT and dual energy CT based monoenergetic images
57. Jesper Folsted Kallehauge, Aarhus (DK): Dose perturbation effect of titanium cranial implants in proton beam therapy.
58. Vicki Taasti, New York (US): Automated proton treatment planning and beam angle selection using Bayesian and hierarchical constrained optimization techniques
59. Lena Nenoff, Villigen (CH): Daily adaptive proton therapy: the key to use more effective field arrangements
60. Camilla Skinnerup Byskov, Aarhus (DK): Treatment plan comparison of proton vs photon therapy for low-grade gliomas

61. Raul Argota Perez, Aarhus (DK): Evaluation of a standard robust optimization method to anatomical variations for proton therapy in H&N patients.
62. Malene Ehrenreich, Copenhagen (DK): A proton treatment planning strategy for breast cancer patients with IMN involvement
63. Maria Fuglsang Jensen, Aarhus (DK): A simulator of proton pencil beam scanning delivery
64. Sytze Brandenburg, Groningen (NL): Novel infrastructure for image guided preclinical research in particle therapy

POSTERS ON GENERAL DISPLAY, to be viewed during coffee breaks and lunch

65. Adam Idasiak, Gliwice (PL): Tumor Regression Grading After Preoperative Hyperfractionated Radiotherapy / Chemoradiotherapy for Locally Advanced Rectal Cancers: Interim Analysis of a Phase III Clinical Study
66. Lone Hoffmann, Aarhus (DK): Optimal beam-angle selection and knowledge-based planning significantly reduces dose to organs at risk for lung cancer patients
67. Sofia Spampinato, Aarhus (DK): Functional sub-structures of the lower urinary tract in gynaecological radiotherapy
68. Diem Vuong, Zurich (CH): Comparison of robust to standardized CT radiomics models to predict OS for NSCLC patients
69. Lars Hjorth Praestegaard, Aarhus (DK): Replacement of EPID-based treatment QA by treatment analysis software
70. Nina Niebuhr, Heidelberg (DE): Biologically consistent dose accumulation and its uncertainties and implications in pelvic patients
71. Moritz Rabe, Munich (DE): Real-time 4D-MRI-based geometrical analysis of interfractional changes of internal target volumes of moving lung tumors
72. Susan Blak Nyrup Biancardo, Herlev (DK): Evaluation of image guidance workflows for precise and efficient delivery of non-coplanar stereotactic radiosurgery of brain metastases using Varians HyperArc technique with and without BrainLabs ExacTrac.
73. Susanne Nørring Bekke, Herlev (DK): Improvement in surface-based setup for breast cancer radiotherapy with surface guided correction of arm posture
74. Jolanta Hansen, Aarhus (DK): Heart and lung dose for free breathing and deep inspiration breath-hold based radiotherapy in the treatment of lymphomas/sarcomas and lung cancer patients.
75. Ruta Zukauskaite, Odense (DK): Accuracy of the deformable image registration software MIM for recurrence mapping in the head and neck region
76. Boguslaw Maciejewski, Gliwice (PL): Impact of Total Nodal Volume (VtN) on local control of primary tumour (VGTV) in radiotherapy (IMRT) for oropharyngeal cancer
77. Gitte Persson, Herlev (DK): Are pancoast tumours robust candidates for proton spot scanning?
78. Line Bjerregaard Stick, Copenhagen (DK): Stereotactic radiotherapy for liver metastases in free breathing vs. breath hold – preliminary results

79. Wiviann Ottosson, Herlev (DK): The dosimetric effect of changing the dose calculation algorithm on heterogeneous FDG-guided dose-escalated treatment plans for locally advanced NSCLC patients enrolled in the NARLAL2 phase III trial
80. Yasmin Lassen, Aarhus (DK): Proton and Photon Salvage Craniospinal Radiotherapy, a comparison of the intracranial part of the two treatment modalities
81. Laura Patricia Kaplan, Aarhus (DK): Evaluation of quantitative metrics to describe a physical dose distribution
82. Kathrin Bartelheimer, Heidelberg (DE): Anthropomorphic chainmail for fast soft-tissue deformation in human anatomies
83. Kenneth Jensen, Aarhus (DK): Re-irradiation using intensity modulated proton therapy (IMPT) for recurrent or new primary head and neck cancer (DAHANCA 37)
84. Ljubica Kravic, Bergen (NO): Tumor classification with PET/MR in cervical cancer using a multivariate logit model calibrated to published imaging associations on pathology and response
85. Kirsten Legård Jakobsen, Næstved (DK): A comparison between IMRT, VMAT and conventional planning of complex mammacases with irradiation of the internal mammary nodes
86. Kinga Jeleń, Krakow (PL): A model for RBE distribution in proton radiotherapy based on α / β ratio and linear energy transfer
87. Marcin Miszczyk, Gliwice (PL): Are Tumour Volume (VGTV) and Total Tumour Volume (VT) superior to the TNM staging as efficacy predictors in radiotherapy for oropharyngeal cancer?
88. Bernt Nordin, Stockholm (SE): Dose escalation in moving targets. Clinical experiences from the first five years of adaptive MR-guided radiotherapy.