Wednesday June 14th

8.30 Opening session
Cai Grau, Aarhus
Damien Weber, Villigen
Manjit Dosanjh, CERN

8.50 Session 1. Radiobiology in particle therapy
Invited speakers:
Harald Paganetti, Boston
Bleddyn Jones, Oxford
Radhe Mohan, Houston
Niels Bassler, Stockholm

Proffered papers:
Armin Lühr, Dresden: Approach to predict the relative biological effectiveness in proton therapy for clinically relevant endpoints based on clinically accessible radiation response data.
Eivind Rørvik, Bergen: Variation in biological dose estimates among phenomenological RBE models for proton therapy.

10.30 Coffee

11.00 Session 2. Tumor biology: genomics, biomarkers and functional imaging
Invited speakers:
Eric Deutch, Paris
Daniel Zips, Tübingen
Mechthild Krause, Dresden

Proffered papers:
Michael Horsman, Aarhus: Enhancing the radiation response of tumors but not early or late responding normal tissues using vascular disrupting agents
Lydia Koi, Dresden: RNA-profiling of micromilieu parameters in different experimental hHNSCC mode
Emanuel Bahn, Heidelberg: Non-local repair dynamics required to explain volume effect in intestinal crypt counts

12.30 Lunch

13.30 Session 3. Emerging technologies in radiotherapy incl. ion beam therapy
Invited speakers:
Albert Siegbahn, Stockholm
Leonhard Karsch, Dresden

Proffered papers:
Y Prezado, Orsay: Spatial fractionation of the dose in charge particle therapy
Ikechi Ozoemelam, Groningen: PET imaging of short-lived nuclides during proton beam irradiation
Johannes Müller, Dresden: Development of an experimental setup for the integration of multi-modality imaging and photon/proton irradiation for preclinical cancer research with small animals
Aleksandra K. Biegun, Groningen: Calibration of X-ray CT relative proton stopping power by proton radiography in proton therapy

Nigel Allinson, Lincoln: Chasing the Elusive Proton CT - Recent Results from the PRaVDA Consortium
Martina Fuss, Darmstadt: Gold nanoparticles as radiosensitizers for ion beam therapy

15.10 Coffee

15.40 Session 4. Treatment planning in particle therapy
Invited speakers:
Tony Lomax, Villigen
Christian Richter, Dresden
Mischa Hoogeman, Rotterdam

Proffered papers:
Vicki Taasti, Aarhus: Comparison of projection- and image-based methods for proton stopping power estimation using dual energy CT
Bonny Abal, Bergen: Plan selection in proton therapy for simultaneous treatment of the prostate, seminal vesicles and pelvic lymph nodes
Jonathan Scharff Nielsen, Herlev/Lyngby: Patch-based CT metal artifact reduction using MRI for proton and photon radiation therapy
Per Poulsen, Aarhus: Efficient interplay effect mitigation for proton pencil beam scanning by spot-adapted layered repainting evenly spread over the full breathing cycle
Marta Peroni, Villigen PSI: Shaping proton therapy dose with DTI and DSC MRI data: functional SIB and avoidance proof of concept study
Leszek Grzanka, Krakow: LET-Painting using Multiple Ions

17.40-19.00 Poster session I and drinks

Evening on your own. Free admission at AROS Art Museum and Your Rainbow Panorama

Thursday June 15th

8.30 Session 5. Image-guidance, adaptation and motion management
Invited speakers:
Antje Knopf, Villigen
Katia Parodi, München
Jan-Jakob Sonke Amsterdam

Proffered papers:
Esben Worm, Aarhus: Respiratory gated liver SBRT based on motion monitoring of implanted electromagnetic transponders
Janna van Timmeren, Maastricht: Prognostic value of longitudinal CBCT radiomics for non-small cell lung cancer patients: potential for adaptive radiotherapy
Ditte Møller, Aarhus: Robustness of photon and proton treatment of advanced lung and esophageal cancer against anatomical changes

10.00 Coffee

10.30 Session 6. Normal tissues, side effects incl. radiogenomics, PROM and modelling

Invited speakers:
Joseph Deasy, New York
Kathrin Kirchheiner, Vienna

Proffered papers:
Katherina Farr, Aarhus: Patient reported symptoms and quality of life analysis before and after definitive chemo-radiotherapy for non-small cell lung cancer: correlation with radiation pneumonitis
Christopher Peeler, Houston: Evaluating a model to predict post-treatment imaging changes in patients treated for brain tumors with proton therapy
Nina Niebuhr, Heidelberg: Application of local effect accumulation in contrast to dose accumulation
Line Schack, Aarhus: Published biomarkers of late radiation-induced morbidity tested in prostate cancer patients
Jesper Pedersen, Aarhus C: Biological dose and complication probabilities for the rectum and bladder based on linear energy transfer distributions in spot scanning proton therapy of prostate cancer

12.00 Lunch

13.00 Session 7. Adaptive radiotherapy – clinical implementation and results
Invited speakers:
Karin Haustermans, Leuven

Proffered papers:
Ate Haraldsen, Aarhus: Robustness of high FDG uptake volumes during radiotherapy in Non Small Cell Lung Cancer
Patrick Berkovic, Liège: Adaptive radiotherapy for locally advanced non-small cell lung cancer: Dosimetric gain and treatment outcome prediction.
Anne Vestergaard, Aarhus: Clinical Phase II trial in adaptive radiotherapy for urinary bladder cancer reports low acute and late toxicity rates
Faisal Mahmood, Herlev: Ultra-early ADC footprint successfully detects tumor irradiation and predicts radiotherapy outcome
Christian Hvid, Aarhus: Cone beam CT based parotid sparing adaptive radiation therapy in the head and neck region

14.10 Coffee

14.40 Session 8. Radiotherapy indications, treatment volumes and fractionation (lung, rectum, anal, prostate)
Invited speakers:
Dirk de Ruysscher, Maastricht
Vincenzo Valentini, Rome

Proffered papers:
Maria Kandi, Aarhus: Local failure after radical radiotherapy of non-small cell lung cancer in relation to the planning PET/CT
Emely Lindblom, Stockholm: Non-linear conversion of HX4 uptake for automatic segmentation of hypoxic volumes and dose prescription in NSCLC
Ferenc Lakosi, Kaposvar: HDR brachytherapy boost using MR-only workflow for intermediate- and high-risk prostate cancer patients
Anna Kuisma, Turku: Follow up of biologically guided radiotherapy of prostate cancer

Vilde Skingen, Oslo: A patient-specific tumor control probability model based on total lesion glycolysis of anal cancer
Andrea Lancia, Rome: Oligometastatic cancer: stereotactic ablative radiotherapy for patients affected by isolated body metastasis

16.20-17.50 Poster session II

19.00 Dinner (Varna)

Friday June 16th

8.30 Session 9. Clinical trial design and big data
Invited speakers:
Philippe Lambin, Maastricht
Yolande Lievens, Ghent

Proffered papers:
Stefan Leger, Dresden: CT imaging during treatment improves radiomic predictions for patients with locally advanced head and neck cancer
Marta Bogowicz, Zurich: Comparison of PET and CT radiomics for prediction of local tumor recurrence in head and neck squamous cell carcinoma

9.30 Coffee

10.00 Session 10. Radiotherapy indications, treatment volumes and fractionation (cervix, head and neck)
Invited speakers:
Richard Pötter, Vienna
Vincent Gregoire, Brussels

Proffered papers:
Jacob Christian Lindegaard, Aarhus: Early clinical outcome of coverage probability based treatment planning in locally advanced cervical cancer for simultaneous integrated boost of nodes
Ruta Zukauskaite, Odense: Distribution of loco-regional recurrences after primary IMRT for head and neck squamous cell carcinomas (HNSCC). A study from three Danish head and neck cancer centres
Simon Boeke, Tübingen: Patterns of loco-regional failure (LRF) in patients with hypoxic head and neck cancers (HNSCC)
Gregers B. D. Rasmussen, Copenhagen: Immunohistochemical and molecular imaging biomarker signature for the prediction of failure site after chemoradiation for head and neck squamous cell carcinoma
Ralph Leijenaar, Maastricht: Development and validation of a radiomic signature to predict HPV status from standard CT imaging
Mette Saksø, Aarhus: High risk of treatment failure for patients with p16-negative, FAZA-PET positive HNSCC after primary radiotherapy - update from the DAHANCA 24 trial
Sebastian Sanduleanu, Maastricht: Non-invasive imaging for tumor hypoxia: a novel externally validated CT-based radiomics signature

11.50 Conference wrap-up

12.00 Departure. Box lunch

Poster discussion - session I

Jakob Ödén, Stockholm: Will breathing motion and a variable relative biological effectiveness jeopardize the plan quality in proton radiotherapy of breast cancer?
Steffen Nielsen, Aarhus: Patient-specific Gene Expression Patterns Predictive of Radiation-induced Fibrosis Are Comparable After Proton Pencil Beam Scanning and Cobalt-60 Irradiation
Silke Ulrich, Heidelberg: Impact of respiratory motion on variable relative biological effectiveness in 4D dose distributions for protons
Tordis J. Dahle, Bergen: Sensitivity of the Microdosimetric Kinetic Model to variations in model parameters
Kristian Ytre-Hauge, Bergen: Biological dose to patients receiving cranio-spinal irradiation with protons
Sara Carvalho, Maastricht: FDG-PET-Radiomics of metastatic lymph nodes and primary tumor in NSCLC – a prospective externally validated study
R.T.H.M. Larue, Maastricht: Pre-treatment CT radiomics to predict 3-year overall survival in oesophageal cancer patients
W. van Elmpt, Maastricht: Influence of grey level discretization on radiomic feature stability for different CT scanners, tube currents and slice thicknesses: a phantom study
Jurgen Peerlings, Maastricht: Repeatability of Radiomics features derived from test-retest diffusion-weighted MR images
Thomas Wittenborn, Aarhus C: Preclinical Investigation of Hypoxia-induced Gene Expression in Prostate Cancer Cell Lines and Xenografts
David Grosshans, Houston: Radiation induces age dependent deficits in cortical synaptic plasticity
Pernille Elming, Aarhus: Combination of Vascular Disrupting Agents and Checkpoint Inhibitors: a Method of Increasing Tumour Immunogenicity?
Jacob Lilja-Fischer, Aarhus: Oropharyngeal cancer patient-derived xenografts: Characterization and radiosensitivity.
Morten Busk, Aarhus: Hypoxia PET imaging: combining information on perfusion and tracer retention to improve hypoxia-specificity
Delmon Arous, Oslo: Radiobiological plan evaluation based on two different cell survival models for brachytherapy of locally advanced cervical cancer
Andrea Lancia, Rome: Oligometastatic cancer: stereotactic ablative radiotherapy for patients affected by isolated body metastasis
Lotte Fog, Copenhagen: Early pain relief and toxicity after image guided volumetric modulated radiation therapy for spinal cord compression
Arthur Jochems, Maastricht: A random forest model to predict early death in NSCLC patients receiving chemo(radio)therapy
Jan Alsner, Aarhus: Associations between skin toxicity, survival, and single nucleotide polymorphisms in head and neck cancer patients receiving the EGFr-inhibitor Zalutumumab: Results from the DAHANCA 19 trial
Einar Dale, Oslo: Dose painting for reirradiation of head and neck cancer
Timo Deist, Maastricht: On the selection of classifiers for outcome prediction in radiotherapy
Tinne Laurberg, Aarhus: Intrinsic subtype classification of local recurrences and new contralateral primary tumors in patients with low risk breast cancer. Influence of age and primary surgery.
Oscar Casares-Magaz, Aarhus: The association between genitourinary toxicity and planned vs delivered

bladder dose/volume metrics in radiotherapy for prostate cancer

Jeppe Brage Christensen, Roskilde: On the potential of proton dosimetry using Cerenkov radiation in optical fibers

Charlotte Espensen, Copenhagen: Ruthenium-106 brachytherapy and proton therapy for uveal melanomas: Biologically Effective Dose for tumour and organs at risk from comparative dose planning

Thomas Henry, Stockholm: Proton grid therapy (PGT) with mm-wide beam elements: a Monte-Carlo simulation study

Ellen Marie Høye, Aarhus: Saturation dose and quenching in proton beams in a radiochromic 3D dosimeter

Gracinda Mondlane, Stockholm: Evaluation of TCP and NTCP after radiosurgery of liver metastases with photon- or scanned proton-beams

Aleksandra Wrońska, Kraków: Experimental verification of key cross sections for prompt-gamma imaging in proton therapy

Laura Toussaint, Aarhus: Doses to brain structures associated with cognitive impairment following radiotherapy of paediatric CNS tumours with contemporary photon vs. proton techniques

Camilla Hanquist Stokkevåg, Bergen: Normal tissue sparing in very young children treated with proton therapy

Poster discussion - session II

Mette Marie Fode, Aarhus: Functional treatment planning using 2[18F]fluoro-2-deoxy-D-galactose PET/CT for stereotactic body radiotherapy of liver metastases – a phase I study
Evelyn de Jong, Maastricht: Quality assessment of [18F]FDG PET scans of the NVALT12 imaging sub-study: Recommendations for future multicenter PET trials
Marta Lazzeroni, Stockholm: Evaluation of third treatment week as temporal window for assessing responsiveness on repeated FDG-PET scans in NSCLC patients
Azadeh Abravan, Oslo: PET based evaluation of lung toxicity after radiotherapy- Assessment of two approaches for dose response evaluation
Ingvild Støen, Oslo: Optimal threshold for PET-based autocontouring of boost volume for radiotherapy of anal carcinoma
Espen Rusten, Oslo: The prognostic value of FDG-PET uptake parameters in anal cancer
Tine Bisballe Nyeng, Aarhus: Comparing functional lung volumes obtained by using 2 different methods: Do perfusion SPECT and 4D-CT ventilation maps define the same voxels in lung cancer treatment?
Aniek Even, Maastricht: Predicting hypoxia in non-small cell lung cancer: combining CT, FDG PET and dynamic-constrast enhanced CT parameters
Lone Hoffmann, Aarhus: Anatomical changes in advanced lung cancer patients occurring during RT can be predicted from pre-treatment characteristics.
Karen Zegers, Maastricht: 3D dose evaluation in breast cancer patients to define parameters for adaptive radiotherapy
Akos Gulyban, Liege: Margin of the day with ITV concept during EBRT for locally advanced cervical cancer: Evaluation of 0, 5 and 10 mm safety margins with dose accumulation uncertainty
Karina Lindberg Gottlieb, Odense: A new adaptive position verification protocol for breast cancer with simultaneous boost
Marianne Sanggaard Assenholt, Aarhus: Bladder filling feed back and CBCT monitoring during external beam radiotherapy with tight margins for patients with locally advanced cervical cancer.
Anne Holm, Aarhus: Carotid sparring intensity modulated radiotherapy for early laryngeal glottis cancer; What is clinically achievable?
Annette Schouboe, Aarhus: Full bladder approach sparing bowel in external radiotherapy for cervical cancer patients
Kristina Giske, Heidelberg: In-silico patient models: beyond contour propagation in radiation therapy
Mai Lykkegaard Schmidt, Aarhus: Intrafraction baseline shifts between setup CBCT and treatment delivery of involved mediastinal lymph nodes of lung cancer patients
Susanne Bekke, Herlev: Non-interchangeability of respiratory gating areas using surface scanning in deep inspiration breath-hold radiotherapy
Jenny Bertholet, Aarhus: Validation of a fully automatic real-time liver motion monitoring method on a conventional linac
Patrik Sibolt, Roskilde: Monte Carlo evaluation of dose-escalated lung radiotherapy in free-breathing and deep-inspiration breath-hold
Simon Skouboe, Aarhus: Real-time gamma evaluations of motion induced dose errors as QA of liver SBRT tumour tracking
Camilla Skinnerup Byskov, Aarhus: Intra- vs. inter-fractional target motion in radiotherapy of rectal cancer

evaluated with repeat volumetric imaging

Ander Biguri, Bath: Improving image quality of 4D-CBCT respiratory-correlated and motion-corrected reconstruction using iterative algorithms and GPU acceleration

Marianne Knap, Aarhus: Difference in target volume using three different methods to include respiratory uncertainty in advanced lung cancer

Kinga Bernatowicz, Brussels: Automated and robust dose restoration in IMPT: reaching dose stability under anatomical changes in head and neck cancer patients.

Maria Fuglsang Jensen, Aarhus: Optimizing delivery speed of lung cancer treatments using single and multi field intensity-modulated proton therapy

Toke Printz Ringbæk, Gießen: Evaluation of new 2D ripple filters in scanned proton therapy.

Thomas Berger, Aarhus: Dosimetric impact of air cavities and weight loss with intensity modulated proton therapy in locally advanced cervical cancer patients.

Stine Korreman, Aarhus: Minimum prescription concept for dose painting with protons increases robustness towards geometrical uncertainties

Emma Colvill, Aarhus: Validation of fast motion-including dose reconstruction for proton scanning therapy in the liver

Alina Santiago, Marburg: Beam-specific planning target volumes for scanned particle therapy of lung tumors under tumor fixation conditions

Kia Busch, Aarhus: On-line dose-guided proton therapy to account for inter-fractional motion: a proof of concept

Ane Iversen, Aarhus: Functional imaging of cancer metabolism using hyperpolarized 13C magnetic resonance spectroscopy to monitor the effect of vascular disrupting agents

Morten Bjoern Jensen, Aarhus: Diffusion Tensor Imaging driven growth modelling for target definition in gliomas

Jesper Kallehauge, Aarhus: Comparison of common approaches for DCE-MRI analysis in cervical cancer

René Winter, Tübingen: Simultaneous PET/MRI in radiotherapy treatment position: Diffusion-weighted imaging in head and neck cancer

Kenni Højsgaard Engstrøm, Aarhus: Voxel-wise analysis of diffusion and haemodynamic maps from multi-parametric MRI of prostate cancer

Poster – general display

Erik Pedersen, Aarhus: Real-time magnetic resonance imaging of the simultaneous motion of lung tumors and metastatic mediastinal lymph nodes
Anders Traberg Hansen, Aarhus: Isotoxic treatment planning strategies for stereotactic liver irradiation: The price of dose uniformity
Jasmin M. Mahdavi, Herlev: Critical dose reduction effect of unwanted air gaps under bolus in volumetric modulated arc therapy
Abdulhamid Chaikh, Grenoble: A new patients' selection approach based on tumour and normal tissue radiobiological models
Helena Sandström, Stockholm: Multi-institutional study of the variability in target delineation for six targets commonly treated with radiosurgery
Christian Rønn Hansen, Odense: Automatic treatment planning facilitates fast adaptive re-planning for oesophageal cancer treatments
Chris Monten, Ghent: Prone breast irradiation: Can we improve precision and accuracy of tumor bed delineation?
Cecile Wolfs, Maastricht: Dosimetric consequences of simulated anatomical changes in lung cancer patients
Michela Marafini, Rome: The MONDO Project: Secondary Neutron Measurement in Particle Therapy
Yvonka van Wijk, Maastricht: Development of a virtual spacer for a multifactorial decision support system for prostate cancer radiotherapy: Comparison of dose, toxicity and cost-effectiveness
Iosif Papoutsis, Oslo: From dose prescription to dose delivery - can dose painting by numbers be accurately delivered?
Simon Lønbro, Aarhus: Immediate loss of lean body mass in locally advanced head and neck cancer during (chemo)-radiotherapy.
Alessio Sarti, Roma: The FOOT (Fragmentation of Target) experiment
Ilaria Mattei, Milano: Dose Profiler: a Tracking Device for Online Range Monitoring in Particle Therapy
Paulo Magalhaes Martins, Heidelberg: Fast full-body reconstruction for a functional human RPC-PET imaging system using list-mode simulated data and its applicability to radiation oncology and radiology
Jolanta Hansen, Aarhus: Risk of developing radiation induced secondary malignancies in the thyroid glands after radiotherapy for a pediatric brain tumour.
Jose A Baeza Ortega, Maastricht: Validation and uncertainty analysis of a pretreatment prediction model for EPID dosimetry
Ebbe Lorenzen, Odense: Automatic treatment planning of FFF VMAT for breast cancer: fast planning and fast treatment
Esben Svitzer Yates, AArhus: Total Body Irradiation – patient in vivo dosimetry.
Marie Louise Milo, Aarhus: Pectus excavatum and adjuvant radiotherapy for early breast cancer: is the heart an issue?
Manjit Dosanjh, Geneva: Collaborative strategies for meeting global needs for affordable, high quality radiation therapy (RT) treatment
Virginia Greco, Geneva: ENLIGHT (European Network for Light Ion Hadron Therapy): a network to foster collaboration and train experts in hadrotherapy