

# ICTR-PHE 2012

International Conference on Translational Research in Radiation Oncology | Physics for Health in Europe

International Conference Centre (ICC)  
February 27 - March 2, 2012



Updated: 26<sup>th</sup> February

Monday 27 February	Tuesday 28 February	Wednesday 29 February	
Registration	Registration	Registration	
Room 2	Room 2	Room 2	
Welcome	Prospects in detectors and medical imaging	ESTRO Lecture	
Radiobiology in therapy and space science		Plenary Lectures	
Lunch	Lunch	Lunch	
Radioisotopes in diagnostics and therapy	Novel Technologies in Radiation Therapy	Room 2	Room 3
		Summary Session	Imaging and Treatment Planning (I)
		Status and perspectives of ion therapy in Europe	Imaging and Treatment Planning (II)
	CERN visit Public Talk	Gala Dinner	

Thursday 1 March			Friday 1 March		
Room 2: Plenary: G.H. Fletcher Lecture			Room 2	Room 3	Room 4
Room 2	Room 3	Room 4	Proffered Papers	Proffered Papers	Proffered Papers
Tumor micro-environment	Clinical radiation research	Mitigation/repair of radiation damage	Towards customized treatments: the H&N cancer example	Molecular biology and predictive markers	Hadron therapy
EORTC session	Oral Poster presentations	Proffered Papers Biology (I)	Repair mechanisms	Functional Imaging	Radiosensitivity modulation
Lunch			Lunch		
Room 2: Plenary: G. Adams Lecture			Room 2	Room 3	Room 4
Room 2	Room 3	Room 4	Improving precision in TP and delivery	Tumor hypoxia and tumor metabolism	Finding the target, restoring the vision
Biological and physical optimization of treatment plans	Targeting signalling pathways	Normal tissues	Proffered Papers Physics (II)	Proffered Papers Biology (III)	Proffered Papers Clinics (II)
Proffered Papers Physics (I)	Proffered Papers Biology (II)	Proffered Papers Clinics (I)	Room 2: European School of Oncology Plenary Session		
CERN Visit			E. van der Schueren Award		
			Closing session		

## Monday 27 February

08:00 Registration and Welcome Coffee

### Room 2

#### 09:00 Welcome addresses:

- R. Heuer, CERN Director General
- J. Bernier and M. Dosanjh, conference chairs
- P.F. Unger, Président du Conseil d'État de Genève

09:10 **Keynote speaker:** R. Draghia-Akli Director for Health in DG Research and Innovation of the European Commission

#### Session 1: Radiobiology in therapy and space science (Chair: Marco Durante, Gillies McKenna)

- 09:30 A. Mazal (F) – Status and perspectives in particle therapy
- 10:00 Abstract 10: U. Schneider (CH) - Cancer risk above 1 Gy and the impact for space radiation protection
- 10:15 Abstract 48: G. Dollinger (D) - Low LET radiation focused to sub-micrometer shows enhanced radiobiological effectiveness (RBE)
- 10:30 Abstract 206: S. van der Veen (NL) - ACE-inhibition ameliorates radiation pneumonitis by ameliorating acute cardiac damage

#### 10:45 – 11:15 Coffee

- 11:15 P. O'Neill (UK) - Molecular basis for the relative biological effectiveness of densely ionizing radiation
- 11:45 Abstract 169: G. Russo (I) - The influence of RBE variations for protons in clinical treatments evaluated with a novel Treatment Planning System for radiotherapy
- 12:00 Abstract 200: M. Krämer (D) - Adaptive treatment planning with TRiP98
- 12:15 Abstract 295: A. Lühr (DK) - Strategies to overcome hypoxia – a roadmap to LET optimized treatment planning for ion therapy

- 12:30 Abstract 224: R. Delorme (F) - Modeling and experimental validation of the radiation - heavy elements interactions at a micrometer level in photon activation radiotherapy
- 12:45 Abstract 190: D. Ablter (CERN) - Extending LEIR to provide ion-beams for bio-medical experiments

**13:00 – 14:30 Lunch**

**Session 2: Radioisotopes in diagnostics and therapy (Chair: Jean-François Chatal, Ulli Köster)**

- 14:30 M. Zalutsky (US) - Targeted alpha therapy
- 15:00 Abstract 177: C. Müller (CH) - Theranostics using Terbium-radiolabeled folate conjugates
- 15:15 Abstract 338: M. Jensen (DK) – Experimental verification of Auger emitter radiotoxicity using exotic radioisotopes
- 15:30 Abstract 146: T. Stora (CERN) - Recuperation of dumped CERN protons for the production of medical isotopes
- 15:45 Abstract 285: L. Maciocco (F) Experimental qualification of the Theranean accelerator-driven neutron activator for the production of activated nanoparticles for cancer
- 16:00 Abstract 157: S. Akulinichev (RUS) - Ytterbium sources for brachytherapy

**16:15 – 16:45 Coffee**

- 16:45 M. de Jong (NL) - Preclinical imaging and therapy
- 17:15 Abstract 270: K. Zhernosekov (CH) -  $^{177}\text{Lu}$  quality analysis for an efficient preparation of  $^{177}\text{Lu}$ -labeled compounds
- 17:30 Abstract 339: M. Miederer (D) - Small animal PET-imaging with  $^{44}\text{Sc}$ -DOTATOC
- 17:45 Abstract 317: B. Ponsard (B) -  $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$  supply situation and new projects
- 18:00 Abstract 275/277: F. Haddad (F) - Radio-Isotope production at Arronax
- 18:15 Abstract 64: D. Le Guludec (F) - PET-CT in cardio-vascular diseases
- 18:30 Discussion: Supply of radioisotopes for medicine

**18:45 End**

Tuesday 28 February

Room 2

**Session 3: Prospects in detectors and medical imaging (Chair: Alberto Del Guerra, Wolfgang Enhardt)**

**PART A – Hardware: Detectors**

- 08:30 S. Ziegler (D) - The technology of solid state detectors in Nuclear Medicine
- 09:00 Abstract 182: D. Schaart (NL) - Prospects for achieving  $< 100$  ps FWHM coincidence resolving time in time-of-flight PET
- 09:15 Abstract 272: M.G. Bisogni (I) - An innovative PET Detector concept for TOF-inbeam PET Dosimetry in hadrontherapy
- 09:30 Abstract 73: F. Sauli (I) A compact multi gap RPC detector for TOF-PET
- 09:45 Abstract 168: D. Thers (F) - Toward a new "gamma" medical imaging technique: the XEMIS project
- 10:00 Abstract 249: M. Martisikova (D) -Investigation of the Timepix detector for beam range verification in ion therapy

**10:15-10:45 Coffee**

**PART B – Software and Systems**

- 10:45 O. Ratib (CH) - Hybrid systems in Medical Imaging: from PET/CT to PET/MR
- 11:15 Abstract 47: P. Lecoq (CERN) - Goals and challenges of the EndoTOFPET-US FP7 project
- 11:30 Abstract 155: J. Krimmer (F) - Progress in using prompt gammas for ion range monitoring during hadrontherapy
- 11:45 Abstract 107: K. Laube (D) - Reconstruction of 4D in-beam PET data for quality control of moving target irradiation in ion beam therapy”
- 12:00 Abstract 129: C. Kurz (D) - First Steps towards 4D Offline PET-Based Treatment Verification at the Heidelberg Ion Beam Therapy Center
- 12:15 Abstract 202: N. Amoroso (I) - Structural MRI analysis and hippocampal segmentation in the assessment of Alzheimer's disease

**12:30 – 14:00 Lunch**

**Session 4: Novel Technologies in Radiation Therapy (Chair: Ugo Amaldi, Ken Peach)**

- 14:00 M. Schippers (CH) - Novel techniques in proton therapy
- 14:30 M. Pullia (I) - Gantries for carbon ion therapy
- 15:00 Abstract 164: L. Laschinsky (D) - Toward laser driven proton therapy: results of the basic translational steps
- 15:15 Abstract 166: B. Seitz (UK) -Radiotherapy with very high energy electrons generated by wakefield accelerators
- 15:30 Abstract 208: A. Degiovanni (I) -Feasibility study of a TULIP – a Turning Linac for Protontherapy
- 15:45 Abstract 163: S. Braccini (CH) - An Innovative Beam Monitor Detector for the New Bern Cyclotron Laboratory

**16:00-16:30 Coffee**

- 16:30 C. Bert (D) - Treating moving organs with particle beams
- 17:00 Abstract 175: S. Sellner (D) - Dose and LET painting with charged particles
- 17:15 Abstract 117: V. Patera (I) - Fragmentation measurements of  $^{12}\text{C}$  ion on C and Au target with the FIRST experiment at GSI
- 17:30 Abstract 376: M. Karamitros (F) - The GEANT4-DNA project
- 17.45 Abstract 296: M. Pw Chin (CERN) - Candidate therapeutic ions: a physics account of interactions in and escapes out of the body

**18:00 End**

**18:30 Public talk by S. M. Bentzen - Treating cancer in the 21<sup>st</sup> century: biology, physics and genomics**

**Wednesday 29 February (morning)**

**Room 2**

**ESTRO Lecture**

**Chair: J. Bourhis (F), S. Bodis (CH)**

- 8:15 P. Lambin (NL) - Knowledge Engineering in Radiation Oncology: the start of a paradigm shift?

**Plenary Lectures**

**Chairs: A. Mazal (F), S. Myers (CERN)**

- 8:45 J.P. Gerard (F) - Physics meets clinics
- 9:15 M. van Herk (NL) - Improving precision in imaging and treatment
- 9:45 R.P. Baum (D) - THERANOSTICS - From molecular imaging using PET/CT via individualized dosimetry to personalized therapy

**10:15 - 10:45 Coffee**

- 10:45 D. Packer (US) - Atrial fibrillation: 4/5D treatment planning for a moving target with IMRT and particle beams
- 11:15 E. Malinen (NOR) - Adapting biological feedback in radiotherapy
- 11:45 W. Enghardt (D) - In-room imaging
- 12:15 J.M. Gago (PT) - Bridging the gap between science and policy for improving health research in Europe

**12:45 - 14:15 Lunch**

Wednesday 29 February (afternoon)

Room 2

Room 3

Summary Session

Chair: D. Dauvergne (F), B. Jones (UK)

Imaging and Treatment Planning (I)

Chair: R. Jena (UK), F. Verhaegen (NL)

- 14:15 Marco Durante (D), Gillies McKenna (UK) - Summary Session 1: Radiobiology in therapy and space science
- 14:40 Jean-François Chatal (F), Ulli Köster (F) - Summary Session 2: Radioisotopes in diagnostics and therapy
- 15:05 Alberto Del Guerra (I), Wolfgang Enghardt (D) -Summary Session 3: Prospects in detectors and medical imaging
- 15:30 Ugo Amaldi (I), Ken Peach (UK) – Summary Session 4: Novel Technologies in Radiation Therapy
- 15:55 S. Myers (CERN) – CERN: Three initiatives
- 14:15 Abstract 91: K. Parodi (D) - Experimental characterization, modelling and in-vivo imaging to foster high precision beam therapy at HIT
- 14:30 Abstract 304: T.T. Böhlen (CERN) - Investigating the robustness of ion RT treatment plans to uncertainties in biological treatment parameters
- 14:45 Abstract 279: I. Torres-Espallardo (E) - Comparison of Prompt-gamma and Positron imaging for hadron-therapy monitoring
- 15:00 Abstract 235 F. Roellinghoff (B) - Real time proton beam range monitoring by means of prompt gamma detection with a collimated camera
- 15:15 Abstract 106: S. Helmbrecht (D) - A tool for semiautomatic evaluation of PET data for range verification in ion beam therapy
- 15:30 Abstract 111: G. Schettino (IRE) - Lethal and sub-lethal damage along and around pristine and spread out carbon beams
- 15:45 Abstract 241: E. Testa (F) - Real-time monitoring of the Bragg peak during ion therapy: a feasibility study of interaction vertex imaging
- 16:00 Abstract 248: I. Rinaldi (D) - Investigations on carbon ion radiography and tomography

16:15 Coffee



**Status and perspectives of ion therapy in Europe**  
**Chair: M. Dosanjh (CERN), J.P. Gerard (F)**

**Imaging and Treatment Planning (II)**  
**Chairs: G. Baroni (I), K. Parodi (D)**

- 16:40 E. Malinen (NOR) - Particle therapy - leveraging clinical performance?
- 17:00 J. Debus (D) - Translational approaches in carbon ion radiotherapy
- 17:20 R. Orecchia (I) – CNAO
- 17:40 R. Mayer (A) – MedAustron
- 18:00 J. Balosso (F) - ETOILE-France Hadron
- 16:45 Abstract 381: P. Keall (AUS) - Failure mode and effect analysis-based quality assurance for dynamic MLC tracking systems: Patient safety in the era of real-time radiotherapy
- 17:00 Abstract 322: T. Lomax (CH) - Intensity Modulated 'Grid' Proton Therapy. Trying to exploit 'spatial fractionation' with protons
- 17:15 Abstract 312: K. Haustermans (B) - Multimodality imaging for tumour targeting in prostate cancer
- 17:30 Abstract 219: D. Zips (D) - Bio-IGRT
- 17:45 Abstract 75: L. Cella (I) – An automated atlas-based method for definition of brain structures on segmented MRI in patients with primary brain neoplasms

**18:20 End**

Thursday 1 March

Room 2

Room 3

Room 4

**Plenary: G.H. Fletcher Lecture**  
**Chair: K.K. Ang (USA)**

08:30 M. Baumann (D) Translating biology into high-technology radiotherapy

**Tumor micro-environment**  
**Chair: B. Wouters (CAN), M. Ozsahin (CH)**

**Clinical radiation research**  
**Chair: R. Miralbell (CH), P. Lambin (NL)**

**Mitigation/repair of radiation damage: stem cells, modifiers, interventions**  
**Chair: S. Powell (USA), R. Mirimanoff (CH)**

- 09:00 C. Ruegg (CH) - Tumor microenvironmental reactions influencing response to radiotherapy
- 09:20 J.T. Ertler (UK) - Remodeling and homeostasis of the extracellular matrix: implications for fibrotic diseases and cancer
- 09:40 W.G. McKenna (UK) - The tumour microenvironment in combined modality therapy
- 10:00 P. Borghetti (DK) - Has the quality of vessels a value in the treatment of Glioblastoma Multiforme? A study on the role of GLUT1 in neoangiogenesis

- 09:00 M. Krause (D) - Cancer stem cell-related biomarkers with predictive potential for radiotherapy
- 09:20 I. Vogelius (DK) - Learning from the past – normal tissue toxicity in retrospective studies
- 09:40 J.A. Langendijk (NL) - Open prediction of expected gain from proton therapy in individual patients based on NTCP predictive modeling: final results of ALLEGRO project
- 10:00 R. Miralbell (CH) - Dose-fractionation sensitivity of prostate cancer

- 09:00 S.A. Pringle (NL) - The development of salivary gland stem cell therapy for radiation-induced hyposalivation
- 09:20 S. Short (UK) - An RNAI screen of stem cell proteins identifies HOX genes as targets for radiosensitization in glioma
- 09:40 N. Cordes (D) - Cell adhesion mediated radioresistance: Novel insights into its impact on the repair of radiogenic DNA lesions
- 10:00 M. Hauer-Jensen (USA) - Decreasing the adverse effects of cancer therapy: guidance for clinical development of radiation injury mitigators

**10:20 Coffee Break**

**EORTC session**  
**Chair: V. Gregoire (B)**

**Oral Poster presentations**  
**Chair: J. Bernier (CH)**

**Proffered Papers Biology (I)**  
**Chair: R. Komaki (USA)**

- 10:50 V. Gregoire (B) - Opening of the session
- 11:00 V. Gregoire (B) - Current and future clinical research in radiotherapy
- 11:20 D. Lacombe (B) - Recent developments in imaging and translational research in radiotherapy
- 11:40 D. Weber (CH) - Quality Assurance in radiotherapy: the EORTC experience
- 12:00 A. Fairchild (B) - The EORTC ROG experience. Does quality of radiotherapy predict outcomes of multicenter clinical trials?
- 10:50 Abstract 271: M. Carrara (I) - Predicting rectal bleeding with neural networks: late effects on patients treated for prostate cancer with 3DCRT
- 10:56 Abstract 281: A. Hope (CAN) - Increased acute symptoms of radiation pneumonitis with concurrent chemoradiotherapy vs. radiotherapy alone in a murine model of fractionated sub-total thoracic IGRT
- 11:02 Abstract 286: A. Konski (USA) - Dosimetric modeling of cardiac toxicity in patients with esophageal cancer receiving radiotherapy
- 11:08 Abstract 135: A. Staab (D) - Hyperthermia radiosensitizes hypoxic HCT-116 human colorectal carcinoma cells in vitro
- 11:14 Abstract 137: S. Gräf (D) - Robustness against the interfractional internal target movement in ion beam radiotherapy prostate treatment planning
- 11:20 Abstract 154: A.O. Fontana (CH) - Proton versus photon radiotherapy: differential demands on the biological level
- 11:26 Abstract 189: D. Ablner (CH) - Meta-modelling Markov Model Simulations for cost effectiveness analyses
- 11:32 Abstract 98: S. Ahmed (UK) - A radiation sensitivity and DNA damage responses in glioma stem cells
- 11:38 Abstract 199: L. Brondum (DK) - Predictive and prognostic markers in serum/plasma in head and neck cancer patients
- 11:44 Abstract 58: T. Meijer (NL) - Differences in metabolism between adeno- and squamous cell non-small cell lung carcinomas according to GLUT1 and MCT4 expression
- 11:50 Abstract 28: F. Meyer (CAN) - Genetic sequence variants in relation to acute and late toxicities in patients with head and neck cancer treated with radiation therapy
- 11:56 Abstract 109: L. Koi (D) - Tumour microenvironment and intratumoural distribution of therapeutic antibodies
- 10:50 Abstract 34: P.T. Tran (USA) - Hedgehog pathway inhibition and radiotherapy for non-small cell lung cancer
- 10:59 Abstract 332: E. Ford (USA) - Localized radiation disrupts the migration of neural progenitor cells
- 11:08 Abstract 93: H. Kunogi (JAP) - Prediction of radiosensitivity using phosphorylation of histone H2AX
- 11:17 Abstract 74: M. Krieger (D) - Inhibition of epidermal growth factor receptor enhances radiation-induced permanent G1 arrest solely in tumor cells with intact p53/p21 cell cycle regulation
- 11:26 Abstract 121: G. Niedermann (D) - Delayed cell death associated with mitotic catastrophe in gamma-irradiated stem-like glioma cells
- 11:35 Abstract 141: A. Maeda (CAN) - Photoacoustic imaging for monitoring vascular oxygen saturation in response to ionizing radiation
- 11:44 Abstract 63: C. Toulas (F) - In vivo radiosensitizer effect of the HDAC inhibitor S78454 on orthotopic human glioblastoma.
- 11:53 Abstract 311: U. Raju (USA) - Tumor microenvironment and integrins as effective therapeutic targets to improve radiotherapy outcome
- 12:02 Abstract 209: A. Laprie (F) - MR Spectroscopy imaging (MRSI) for glioblastoma dose painting with intensity modulated radiation therapy comprising simultaneous integrated boost on specific targets

- 12:02 Abstract 152: N. Cordes (D) - Cetuximab is an efficient carrier of radionuclides to target EGFR-expressing tumor cells
- 12:08 Abstract 100: W. Kam (AUS) - The response of messenger RNA to ionizing radiation – mitochondrial genes are more susceptible
- 12:11 Abstract 105 : D. Viertl (CH) - A TAT-RasGAP derived peptide efficiently sensitizes cancer cells to radiotherapy, an in vitro and in vivo study

### 12:20 Lunch

**Plenary: G. Adams Lecture**  
**Chair: W.G. McKenna**

13: 20 I. Stratford (UK) Translating chemical concepts into clinical treatments: Not a quick fix.

**Biological and physical optimization of treatment plans**  
**Chair: S.M. Bentzen (USA), T. Collen (CH)**

**Targeting signalling pathways**  
**Chair: D. Zips (D), E. Deutsch (F)**

**Normal tissues**  
**Chair: J. Overgaard (DK), N. Cordes (D)**

- 14:00 A. Brahme (S) - A systems biology approach to radiation therapy optimization
- 14:20 D.A. Jaffray (CAN) - Automation in beam modelling and quality control
- 14:40 T. Bortfeld (USA) - Better IMRT: First clinical experience with multi-criteria optimization
- 15:00 G. Mageras (USA) Dose correction strategy for the optimization of volumetric modulated arc therapy
- 14:00 K. Harrington (UK) - Modulation of Chk1 signalling during radiation therapy
- 14:20 Z. Fuks (USA) - Epigenetic regulation by HRR by microvascular dysfunction determines tumor cure by SDRT
- 14:40 M. Pruschy (CH) - Regulation of paracrine signaling by microtubule stabilizing agents and ionizing radiation
- 15:00 Peter Rodemann (D) - Mechanisms of EGFR inhibitors.
- 14:00 F.A. Stewart (NL) - Cardiovascular mediated damage after irradiation
- 14:20 M.C. Vozenin (F) - Latest progresses on modulation of heart radiation side effects
- 14:40 S.L. Tucker (USA) - Lung toxicity: where to go from here?
- 15:00 C.N. Coleman (USA) - Scarce resources for nuclear detonation: project overview and challenges

### 15:20 Coffee

**Proffered papers: Physics (I)**  
**Chair: S. Bulling (CH)**

**Proffered papers: Biology (II)**  
**Chair: J. Cox (USA)**

**Proffered papers: Clinics (I)**  
**Chair: J. Bernier (CH)**

- 16:00 Abstract 103: F. Fiedler (D) - Techniques for image based in-vivo dosimetry: from particle therapy PET to in-beam prompt gamma imaging
- 16:00 Abstract 316: K. Mizuno (JAP) - SRXRF analysis on the accumulation of DACHPt-loaded polymeric micelles in tumor before and after irradiation
- 16:00 Abstract 186: V. Carillo (I) - Correlating surrogates for bladder dosimetry with the dose-volume histogram of bladder wall defined on T2W-MRI imaging

- 16:10 Abstract 19: S. Devic (CAN) - FDG-based uptake volume histograms: avenue towards biological target volumes
- 16:20 Abstract 240: E. Rusten (NOR) - Spatial correlations between images derived from dynamic FDG-PET
- 16:30 Abstract 55: J. Wong (USA) - Real time image guided radiotherapy for pancreatic tumors - The Concept of dual modality monitoring using kV-CBCT and robot assisted ultrasound imaging
- 16:40 Abstract 65: J. Wong (USA) - Integrated on-board X-Ray and bioluminescence tomography to guide focal irradiation of soft tissue targets in small animals
- 16:50 Abstract 119: S. Broggi (I) - Quantitative parameters of parotid deformation during IMRT for head-neck cancer correlate with individually assessed clinical and dosimetry information
- 17:00 Abstract 110: F. Lakosi (B) - Comparison of respiration-related surgical clip and chest wall movement between prone and supine position in the adjuvant radiotherapy of breast cancer
- 17:10 Abstract 33: S. Devic (CAN) - Linearization of the radiochromic film dosimetry system dose response
- 17:20 Abstract 232: B. Freniere (USA) – Hyperspectral imaging for detection of acute and chronic oxygenation and perfusion changes in irradiated skin
- 16:10 Abstract 184: M. Lando (NOR) - Loss of chromosome 3P leads to downregulation of RYBP, TMF1, and PSMD6 and poor outcome after chemoradiotherapy of cervical cancer
- 16:20 Abstract 80: T.E. Schmid (D) - Serum Hsp70 - a soluble, tumor-specific marker in xenograft tumor mouse models
- 16:30 Abstract 7: A. Sharma (USA) - Chemotherapeutic activity of s-nitrosoglutathione alone and in combination with cisplatin and radiation in head and neck cancer cells and mouse xenograft model
- 16:40 Abstract 43: M. Toulany (D) - Y-box binding protein-1 phosphorylation induced by ionizing radiation depends on EGFR kinase activity and K-RAS status
- 16:50 Abstract 53: P. Pedicini (I) - Combination of radiation and monoclonal antibody EGFR inhibitors in the Head and Neck tumors
- 17:00 Abstract 61: H. Stegeman (NL) - Effects of EGFR-inhibition and radiotherapy on hypoxia, proliferation and tumor growth delay in human tumor xenografts
- 17:10 Abstract 287: E. Sulman (USA) - Combining Molecular and Clinical Factors to Predict Survival of Patients with Glioblastoma and Validation using RTOG 0525
- 17:20 Abstract 125: J. Doyen (FR) - Prognostic value of chromosomal imbalances and the colon gene expression signatures in rectal cancer
- 16:10 Abstract 264: M. Thor (DK) - Bladder dose accumulation in prostate IMRT based on a biomechanical deformable image registration algorithm
- 16:20 Abstract 242: A. Erlend (NO) - Imaging parameters derived from dynamic contrast enhanced MRI of cervical cancers predict chemoradiotherapy outcome
- 16:30 Abstract 280: Herrera F (CH) - Simultaneous Integrated Boost in Cervix Cancer: Too Much Uncertainty
- 16:40 Abstract 193: K. Snipstad (NO) - repression of membranous moesin leads to evasion of the immune response and chemoradioresistance in cervical cancer
- 16:50 Abstract 267: T. Vuong (CAN) - Impact of timing of chemotherapy in the treatment of patients with operable rectal cancer: Preliminary results from a randomized phase II study
- 17:00 Abstract 178: N. Leroi (B) - Tailoring the timing of surgery based on the neoadjuvant radiotherapy schedule for decreasing tumor dissemination at the time of surgical procedure.
- 17:10 Abstract 145: T. Rancati (I) - Rectal toxicity 6 years after high-dose radiation for prostate cancer: clinical and dosimetric predictors
- 17:20 Abstract 35: M. Nagarajan (IND) - Resource Sparing Short Course Radiation Vs Long Course Radiation to Palliate Esophageal Cancer after Brachytherapy: A Report of Randomized Trial IAEA E33027

## Friday 2 March

### Room 2

### Room 3

### Room 4

#### Proffered papers

**Chair: M. Durante (GSI), P. Lecoq (CERN)**

- 08:30 Poster award Prospects in detectors and medical imaging
- 08:45 Poster award ICTR
- 09:00 Abstract 255: M.T. Rissi (N) - High resolution and high sensitivity PET imaging with COMPET
- 09:15 Abstract 104: T. Kormoll (D) - Imaging of point sources with a Compton camera for in-vivo dose monitoring of ion beam irradiation
- 09:30 Abstract 134: V. Zambrano (A) - A registration algorithm for dose correction in radiation therapy: validation of deformable registration using phantoms

#### Proffered papers

**Chair U. Amaldi (I), K. Peach (GB)**

- 08:30 Poster award Novel Technologies in Radiation Therapy
- 08:45 Abstract 273: G. Baroni (I) - Reliability of the optical tracking system for patient positioning at CNAO
- 09:00 Abstract 222: I. Martinez-Rovira (E) - Preparing the forthcoming MRT clinical trials: development of a MC calculation engine for dose computation.
- 09:15 Abstract 130: F. Taupin (F) – The role of Gadolinium nanoparticles in the tumoral cell's radiosensitization
- 09:30 Abstract 215: A. Costantinescu (D) - Non-invasive treatment of Atrial Fibrillation with a scanned carbon ion beam

#### Proffered papers

**Chair: D. Lewis (CERN), U. Köster (ILL)**

- 08:30 Poster award Radiobiology in therapy and space science
- 08:45 Poster award Radioisotopes in diagnostics and therapy
- 09:00 Abstract 301: F. Davodeau (F) - Bismuth-213 radioimmunotherapy with an anti-mCD138 mAb in a multiple myeloma mouse model
- 09:15 Abstract 294 I. Kelson (IL) - Diffusing Alpha-Emitters Radiation Therapy
- 09:30 Abstract 293: M. Stachura (DK) - Radioisotopes for probing biomolecular functionality in living matter

#### Towards customized treatments: the H&N cancer example

**Chair: M. Baumann (D), J.C. Horiot (CH)**

- 09:45 D. Raben (USA) - New insights in DNA repair targeting and radiotherapy in head and neck cancer
- 10:05 V. Vandecaveye (B) - Diffusion-weighted MRI for early tumour response assessment during treatment
- 10:20 J. Overgaard (DK) - Hypoxic modification of radiotherapy: old challenges, new solutions?
- 10:40 J. Bourhis (F) - Chemoradiation versus induction chemotherapy in locally advanced head-and-neck carcinomas

#### Molecular biology and predictive markers

**Chair: Z. Fuks (USA), D. Aebbersold (CH)**

- 09:45 G. Barnett (UK) - Candidate SNP vs genome-wide association scan of late radiotherapy toxicity: the RAPPER study
- 10:05 W. Dörr (D) - Molecular biology of radiation effects in normal tissues
- 10:20 R. Jeraj (USA) - Molecular imaging as a biomarker
- 10:40 M. Nordmark (DK) - Tumor hypoxia assays – ready for clinical use?

#### Hadron therapy

**Chair: D.R. Olsen (NOR), D. Weber (CH)**

- 09:45 T.F. Delaney (USA) - The imperative to transition from passively scattered to scanned proton beam delivery
- 10:05 P.A.S. Johnstone (USA) Dose falloff in proton craniospinal irradiation: where and why?
- 10:20 R. Mohan (USA) Innovative and efficient dose calculation strategies for intensity modulated and passively scattered proton therapy
- 10:40 J.D. Cox (USA) Toxicity and patterns of failure of adaptive proton therapy

### 11:00 Coffee

#### Repair mechanisms Chair: M. Hauer-Jensen (USA), A. Allal (CH)

- 11:30 R.G. Bristow (CAN) - DNA repair targeting and radiotherapy. A focus on the therapeutic ratio
- 11:50 S.N. Powell (USA) - Enhancing radiotherapy through a greater understanding of homologous recombination
- 12:10 E. Dikomey (D) - Effect of epidermal growth factor receptor on double-strand break repair
- 12:30 E. Hammond (UK) - Targeting hypoxic cells through the DNA damage response

#### Functional Imaging Chair: D. Brizel (USA), J. Bernier (CH)

- 11:30 V. Grégoire (B) - Molecular imaging in planning head-and-neck cancer treatments
- 11:50 D. Brizel (USA) - The role of adaptive and functional imaging modalities
- 12:10 N. Wiedenmann (D) - Tumor hypoxia in head and neck cancer during radiochemotherapy evaluated with serial [18F]-fluoromisonidazole PET
- 12:30 C. Halle (NOR) - Visualizing an aggressive hypoxia phenotype of cervical cancer using DCE-MR imaging

#### Radiosensitivity modulation Chair: M. Verheij (NL), M. Pruschy (CH)

- 11:30 J.M. Brown (USA) - Influence of circulating normal cells on tumor radiosensitivity
- 11:50 T. Rieckmann (D) - HNSCC cell lines positive for HPV and p16 possess an exceptionally high radiosensitivity
- 12:10 R. Meyn (USA) - Impact of epithelial-to-mesenchymal transition on tumor response to radiation and targeted agents
- 12:30 A.J. Chalmers (UK) - Overcoming resistance of glioblastoma to conventional cytotoxic therapies by the addition of PARP inhibitors

### 12:50 Lunch

#### Improving precision in treatment planning and delivery Chair: M. van Herk (NL), L Cozzi (CH)

- 13:30 J.J. Sonke (NL) - Improving the precision of dose delivery in the clinic
- 13:50 C. Grau (DK) - Biology-guided adaptive radiation therapy: present and future
- 14:10 L. Dawson (CAN) - Stereotactic radiation therapy for hepatocellular carcinoma
- 14:30 S. Korreman (DK) - Dose painting using volumetric modulated arc optimization and delivery

#### Tumor hypoxia and tumor metabolism Chair: I. Stratford (UK), C. Vrieling (CH)

- 13:30 B. Wouters (CAN) - Novel mechanisms of gene regulation by hypoxia
- 13:50 T. Robson (IRL) - FKBPL and peptide derivatives for angiogenesis inhibition
- 14:10 M. Horsman (DK) - Constitutive and induced hypoxia in tumours and their role in the interaction between vascular disrupting agents and radiation

#### Finding the target, restoring the vision Chair: J.M. Brown (USA), A. Chalmers (UK)

- 13:30 E. Cohen-Jonathan Moyal (F) - Angiogenic inhibitors and radiotherapy
- 13:50 E. Deutsch (F) - Antiviral approaches to treat HPV-related tumors: the Institute Gustave Roussy experience from preclinical data to clinical trials
- 14:10 M. Verheij (NL) - Apoptosis-modulating strategies to enhance radiation efficacy
- 14:30 M. Koritzinsky (CAN) - Hypoxia inhibits disulfide bond formation and protein folding in the endoplasmic reticulum

<b>Proffered papers: Physics (II)</b> <b>Chair: T. Bortfeld (USA)</b>	<b>Proffered papers: Biology (III)</b> <b>Chair: M. Nordmark (DK)</b>	<b>Proffered papers: Clinics (II)</b> <b>Chair: J.C. Horiot (CH)</b>
<ul style="list-style-type: none"> <li>• 15:00 Abstract 314: Brock K. (USA) - Generation of a multi-modality anatomical atlas of preclinical animal models</li> <li>• 15:09 Abstract 126: B. Reniers (NL) - In-vivo dosimetry for gynaecological brachytherapy using a novel detector system</li> <li>• 15:18 Abstract 225: M. Casiraghi (CH) - A simulation and experimental based comparison of plan robustness for VMAT and IMPT treatments.</li> <li>• 15:27 Abstract 333: I. Madani (B) - Volume changes by exploiting continuous adaptive radiotherapy for head and neck cancer</li> <li>• 15:36 Abstract 36: M. Fix (CH) - Towards proton treatment planning using macro Monte Carlo</li> <li>• 15:45 Abstract 72: M. Holzscheiter (D) - Antiprotons for radiobiology and cancer therapy: the AD-4/ACE experiment</li> <li>• 15:54 Abstract 41: D. Nichiporov (USA) - Potential applications of a gas electron multiplier-based detector to small field dosimetry and imaging in proton therapy</li> <li>• 16:03 Abstract 25: B. Jones (UK) - Physical Dose Distribution and Relative Biological Effect (RBE) Issues in Proton Beam Therapy of Medulloblastoma</li> <li>• 16:12 Abstract 173: A. Rucinski (D) - Target Volume Optimization for Prostate Cancer Treatment in Carbon Ion Radiation Therapy in the Presence of Interfractional Motion</li> </ul>	<ul style="list-style-type: none"> <li>• 15:00 Abstract 77: N. Cordes (D) - Glioma cell migration in 3D is not impaired by ionizing radiation</li> <li>• 15:09 Abstract 76: A. Broggin-Tenzer (CH) - Dynamic changes of the tumor micromilieu under treatment</li> <li>• 15:18 Abstract 326: F. Paris (F) – Specific protection of gastro-intestinal side effect, but not aggressive tumors by injection of exogenous sphingosine 1 phosphate</li> <li>• 15:27 Abstract 233: C. Bayer (D) - The influence of the heat shock protein 90 (Hsp90) inhibitor, NVP-AUY922, and hypoxia on the expression of and HIF-1? and HIF-2? in two head and neck cancer cell lines</li> <li>• 15:36 Abstract 128: K. Toustrup (DK) - Hypoxic modification of radiotherapy with nimorazole in Head and neck squamous cell carcinomas: importance of combined hypoxia and HPV classification when distinguishing responders from non-responders</li> <li>• 15:45 Abstract 44: M. Nijkamp (NL) – Involvement of the epidermal growth factor receptor in laryngeal cancer patients treated with hypoxia modification as an additive to accelerated radiotherapy</li> <li>• 15:54 Abstract 195: H.B. Ragnum (NO) - Androgen deprivation therapy prior to irradiation of prostate cancer: Expression of hypoxia-induced proteins and changes in diffusion weighted MRI parameters</li> <li>• 16:03 Abstract 14: S. Rademakers (NL) – Predictive value of CAIX expression and staining pattern in patients with laryngeal cancer treated in the phase III randomized ARCON trial</li> <li>• 16:12 Abstract 18: S. Masunaga (JP) – Impact of employing 10B- carriers and manipulating intratumor hypoxia on local tumor response and lung metastatic potential in boron neutron capture therapy</li> </ul>	<ul style="list-style-type: none"> <li>• 15:00 Abstract 140: A. Fairchild (B) - Does quality of radiotherapy predict outcomes of multicentre cooperative group trials? A literature review</li> <li>• 15:09 Abstract 49: R. Komaki (USA) - Phase II study erlotinib/RT and CHT/RT followed by consolidation of CHT for patients with stage III Non-small cell lung cancer (NSCLC): analysis of patients specimens for biomarkers</li> <li>• 15:18 Abstract 81: D. Guest (UK) - Mathematical modelling of a radiobiologically optimised fractionation schedule for a heterogeneously differentiated cell model of glioblastoma</li> <li>• 15:27 Abstract 198: A. Deviers (F) - Lactate detection with magnetic resonance spectroscopic imaging (MRSI) in glioblastoma multiforme before radiotherapy (RT): Characterization of hypoxia distribution and its impact on tumor response to RT</li> <li>• 15:36 Abstract 90: J. Zeng (USA) - Combining anti-PD-1 immunotherapy with stereotactic radiosurgery in a mouse orthotopic glioblastoma model</li> <li>• 15:45 Abstract 263: U.V. Elstrom (DK) - A direct comparison of cone-beam CT versus CT based radiotherapy planning in head and neck cancer</li> <li>• 15:54 Abstract 147: K. Roe (NOR) - DCEMRI in assessment of tumor neovascularization after androgen-deprivation in experimental prostate cancer: correlation to quantitative immunohistochemistry</li> <li>• 16:03 Abstract 291: J. Hammer (A) - Breast Cancer: Persisting risks in pre-menopausal women after breast conserving surgery, radiotherapy, +/- systemic therapies</li> <li>• 16:12 Abstract 290: M. Carrara (I) - Predicting late faecal incontinence after high-dose radiotherapy for prostate cancer: application of artificial neural network classification on a longitudinal definition</li> </ul>



<p><b>European School of Oncology Plenary Session</b>  <b>Chair: R. Valdagni (I)</b></p>		
<ul style="list-style-type: none"> <li>• 16:30 S.M. Bentzen (USA) - Hypofractionation in breast cancer irradiation</li> <li>• 16:55 R. Orecchia (I) - Intra-operative radiotherapy of early breast cancer</li> </ul>		
<p><b>E. van der Schueren Award</b>  <b>(MD Anderson Cancer Center, Houston)</b>  <b>Chair: R. Valdagni (I)</b></p>		
<ul style="list-style-type: none"> <li>• 17:20 K.K. Ang (USA) - Biomarkers in head and neck carcinoma</li> </ul>		
<p><b>Closing session</b></p>		
<ul style="list-style-type: none"> <li>• 17:50 J. Bernier and M. Dosanjh, conference chairs</li> </ul>		
<p><b>18:00 End</b></p>		

# Award Recipients

<b>G.E. Adams Lecture</b>	<b>E. van der Schueren Award</b>
<p>Award funded by the CR-UK/MRC Gray Institute for Radiation Oncology &amp; Biology, Oxford University.</p> <p>ICTR-PHE 2012 Recipient: I. Stratford, Manchester</p> <p>Previous G.E. Adams Lecturers:</p> <ul style="list-style-type: none"><li>- ICTR 2000: J.M. Brown, San Francisco</li><li>- ICTR 2003: L.J. Peters, Melbourne</li><li>- ICTR 2006: R.H. Withers, Los Angeles</li><li>- ICTR 2009: A. Begg, Amsterdam</li></ul>	<p>Award funded by the European School of Oncology, Milano</p> <p>ICTR-PHE 2012 Recipient: M.D. Anderson Cancer Center, Houston</p> <p>Previous E. van der Schueren Recipients:</p> <ul style="list-style-type: none"><li>- ICTR 2000: Department of Experimental Clinical Oncology, University of Aarhus</li><li>- ICTR 2003: Gray Laboratory, Northwood</li><li>- ICTR 2006: Institut Gustave Roussy, Villejuif</li><li>- ICTR 2009: Memorial Sloan Kettering Cancer Center, New-York</li></ul>
<b>ESTRO Lecture</b>	<b>G.H. Fletcher Lecture</b>
<p>Lecture funded by the European Society for Therapeutic Radiology and Oncology</p> <p>ICTR-PHE 2012 Recipient: P. Lambin, Maastricht</p> <p>Previous ESTRO Lecturers:</p> <ul style="list-style-type: none"><li>- ICTR 2006: S.M. Bentzen, Madison</li><li>- ICTR 2009: A. van der Kogel, Nijmegen</li></ul>	<p>Lecture funded by the MD Anderson Cancer Center, Houston</p> <p>ICTR-PHE 2012 Recipient: M. Baumann, Dresden</p> <p>Previous G.H. Fletcher Lecturers:</p> <ul style="list-style-type: none"><li>- ICTR 2000: H. Bartelink, Amsterdam</li><li>- ICTR 2006: L. Milas, Houston</li><li>- ICTR 2009: A. Lee, Hong Kong</li></ul>

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- Abstract 11: Geant4 studies of an active scanning system for hadrontherapy treatment of uveal melanomas, Prof. RIMOLDI, Adele; Dr. FONTANA, Andrea; Dr. RICCARDI, Cristina; Mr. PIROLA, Michele, Prospects in Medical Imaging; Novel Technologies in Radiation Therapy
- Abstract 12: Hydrogen: a novel radioprotective agent, Prof. GAO, Fu; Prof. LI, Bailong, Radiobiology in Therapy and Space; Others
- Abstract 13: Antisense STAT3 oligodeoxynucleotide enhances radiosensitivity of B16 melanoma cells, Prof. LI, Bailong; Prof. GAO, Fu, Translational Research in Radiation Oncology
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- Abstract 27: Brachytherapy dosimetry for COMS eye plaque with two various  $^{103}\text{Pd}$  seed models, Dr. SAIDI BIDOKHTI, Pooneh, Others
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- Abstract 30: Measurement of charged and neutral particles production from an 80 MeV/A hadron therapy carbon beam fragmentation, SARTI, Alessio; PATERA, Vincenzo; SCIUBBA, Adalberto; PAOLONI, Alessandro; VOENA, Cecilia; FACCINI, Riccardo; DI DOMENICO, Antonio; FIORE, Salvatore; GAUZZI, Paolo, Prospects in Medical Imaging; Novel Technologies in Radiation Therapy
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- Abstract 32: Measurement of parasitic neutron field in the treatment environment of a Varian Clinac 2100 medical linac using superheated bubble detectors, MUKHERJEE, Bhaskar, Novel Technologies in Radiation Therapy
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- Abstract 82: Submillimeter nuclear medical imaging with a Compton camera using triple coincidences of collinear beta+-annihilation photons and gamma rays, LANG, Christian, Radioisotopes in Diagnostics and Therapy; Prospects in Medical Imaging
- Abstract 83: Single shot high dose cell irradiations with laser-driven protons, HUMBLE, Nicole; ALLINGER, Klaus; Prof. ASSMANN, Walter; BIN, Jianhui; Prof. DOLLINGER, Günther; Dr. DREXLER, Guido A; Prof. FRIEDL, Anna A; HILZ, Peter; KIEFER, Daniel; Dr. MA, Wenjun; MICHALSKI, Dörte; Prof. MOLLS, Michael; REINHARDT, Sabine; Dr. SCHMID, Thomas E; Dr. ZLOBINSKAYA, Olga; Dr. SCHREIBER, Jörg; Prof. WILKENS, Jan J, Novel Technologies in Radiation Therapy
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