

# Theme 1

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## Radiation Oncology



### Theme Chairs:

**Thomas Bortfeld**,  
Massachusetts  
General Hospital  
Boston, USA

**Uwe Oelfke**,  
DKFZ German  
Cancer Research  
Center  
Heidelberg,  
Germany

### ABSTRACT:

Over the last decade, modern radiation oncology has made great advances through various new technical developments. Beginning in the mid-nineties with the clinical introduction of intensity modulated radiotherapy, the field of radiation oncology currently focuses on the integration of diagnostic imaging with traditional or new concepts of dose delivery devices. These developments have triggered new treatment strategies like image-guided and adaptive radiation therapy and will be extended by the inclusion of biological and functional images into the optimization of radiotherapy treatments. Another exciting development in radiation oncology in the last 5-10 years is the application of proton and heavy-ion beams for cancer treatment.

The establishment of these new technologies in radiation oncology has had a widespread influence on almost all aspects of medical physics. Traditional areas like treatment planning, patient immobilization, dosimetry, quality assurance and treatment verification have dramatically advanced to ensure the efficient, safe and reliable clinical application of novel hardware components. These dynamic changes in medical physics have also stimulated further innovative research in the field of brachytherapy, the application of biological models and patient outcome analysis.

All these exciting new developments will be covered by the 11 tracks of the theme Radiation Oncology at the World Congress 2009, which will pursue two major aims. First, it will provide a complete "state of the art" overview of the rapidly evolving field of medical physics and its application in current radiotherapy practice for all involved health care professionals. In addition, a series of keynote talks and invited speakers will identify and discuss the innovative new areas of research and development that likely will shape the more distant future of radiation oncology. We cordially invite the entire community of professionals involved in radiation oncology services to join these efforts at the WC2009 in Germany.

### TRACKS:

#### Immobilisation, Positioning, Stereotaxy

##### Track Chairs:

**Günther H. Hartmann**,  
DKFZ German Cancer  
Research Center,  
Heidelberg, Germany

**James M. Balter**,  
University of Michigan,  
Ann Arbor, USA

#### Therapy Planning

##### Track Chairs:

**Benedick A. Fraass**,  
University of Michigan,  
Ann Arbor, USA

**Simeon Nill**,  
DKFZ German Cancer  
Research Center,  
Heidelberg, Germany

#### Optimization in Treatment Planning

##### Track Chairs:

**Lei Xing**,  
Stanford University School  
of Medicine, USA

**Anders Brahme**,  
Karolinska Institutet,  
Stockholm, Sweden

#### IGRT\*/Adaptive Radiotherapy

##### Track Chairs:

**Marcel van Herk**,  
The Netherlands  
Cancer Institute,  
Amsterdam, Netherlands

**Daniel A. Low**,  
Washington University,  
Saint Louis, USA

#### Dose Calculation Algorithms/ Monte-Carlo

##### Track Chairs:

**Iwan Kawrakow**,  
INMS National Research  
Council of Canada,  
Ottawa, Canada

**Jeffrey V. Siebers**,  
Virginia Commonwealth  
University,  
Richmond, USA

#### Advanced Beam Delivery

##### Track Chairs:

**Steve Webb**,  
Royal Marsden NHS  
Foundation Trust,  
Sutton, UK

**Paul J. Keall**,  
Stanford University Cancer  
Center, USA

#### Hadron Therapy

##### Track Chairs:

**Tony Lomax**,  
Paul Scherrer Institut,  
Villigen, Switzerland

**Radhe Mohan**,  
University of Texas,  
Houston, USA

#### Dosimetry and Q/A\*\*, Patient Safety

##### Track Chairs:

**Ben J. Mijnheer**,  
The Netherlands  
Cancer Institute,  
Amsterdam, Netherlands

**Frank Verhaegen**,  
McGill University  
Montreal, Canada

#### Brachytherapy

##### Track Chairs:

**Christian Kirisits**,  
Medical University of  
Vienna, Austria

**Dimos Baltas**,  
Klinikum Offenbach,  
Germany

**Jeffrey F. Williamson**,  
Virginia Commonwealth  
University Richmond, USA

#### Biological Models in Radiation Therapy

##### Track Chairs:

**Sabine Levegrün**,  
University of Duisburg-  
Essen, Germany

**N.N.**

#### Biological/Functional Imaging in Radiation Therapy

##### Track Chairs:

**Markus Alber**,  
University of  
Tübingen, Germany

**Robert Jeraj**,  
University of Wisconsin  
Madison, USA

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\*Image Guided Radiotherapy  
\*\*Quality Assurance