Theme 13

Special Topics & Workshops

Theme Chairs:

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ABSTRACT:

Theme 13 addresses research opportunities and challenges across a spectrum of topics in medical physics and biomedical engineering. These topics embrace a number of research frontiers that will impact the clinical applications of medical physics and biomedical engineering in the future.

One major emphasis of Theme 13 includes three intertwined tracks that are important to the worldwide integration of medical physics and biomedical engineering. Cost-effective technologies to improve human health and well-being are very important in developing countries. One limitation to the application of useful technologies is the lack of adequate numbers of properly trained personnel, and international organizations are attempting to address this need in a number of programs. Included in these programs are web-based educational platforms and modules to promote fast and efficient acquisition of knowledge and skills critical to the application of new technologies.

New methods to generate and analyze proton and ion beams are being explored in a number of research laboratories, and these methods will be critically examined in Theme 13. Also, the use of magnetic resonance to furnish 3D-temperature maps in hyperthermia combined with radiation leads to improved heat distributions in the target volumes of radiotherapy patients.

Progress in molecular imaging is yielding deeper insights into the tumor and tissue micro-environment and providing molecular fingerprints at cellular and tissue levels. This progress promises ultimately to provide greatly-improved treatment plans designed for individual patients. Three tracks in Theme 13 are dedicated to the cross-over from molecular biology to medical physics. Along this route small animal experiments become an important tool in translational research. New technologies of high-precision radiotherapy and biological imaging of small animals will be discussed.

TRACKS:

Cost Effective Technologies for Developing Countries

Track Chairs:
Barry Allen,
St. George Hospital,
Melbourne, Australia

Boris Rubinsky,
Hebrew University of
Jerusalem, Israel

IOMP Symposium: Research in Medical Physics

Track Chairs:
Natalka Suchowerska,
Royal Prince Alfred
Hospital, The University of
Sydney, Australia

Colin Orton,
Wayne State University,
Grosse Pointe, USA

Workshop: Writing & Reviewing Scientific Publications

Track Chairs:
Colin Orton,
Wayne State University,
Grosse Pointe, USA

N.N.

Laser Generated Photon & Particle Beams

Track Chairs:
Dietrich Habs,
LMU Munich, Germany

Chang-Ming Charlie Ma,
Fox Chase Cancer Center,
Philadelphia, USA

The Role of the Medical Physicist in Clinical Trials

Track Chairs:
Tomas Kron,
Peter MacCallum
Cancer Institute
Melbourne, Australia

Søren M. Bentzen,
University of Wisconsin
School of Medicine and
Public Health, Madison, USA

Measurement of Tumor & Tissue Micro-Environment

Track Chairs:
Peter Vaupel,
University of
Mainz, Germany

Michael Molls,
Technical University of
Munich, Germany

Hyperthermia

Track Chairs:
Gerard Van Rhoon,
Erasmus Medical Center,
Rotterdam, Netherlands

Peter Wust,
Charité,
Berlin, Germany

Small Animal Irradiation and Imaging Technologies

Track Chairs:
John Wong,
Johns Hopkins University,
Baltimore, USA

Fridtjof Nüsslin,
Technical University of
Munich, Germany

The Art of Scientific Visualization

Track Chairs:
Andrel Linnenbank,
University of
Amsterdam, Netherlands

Rob MacLeod,
University of Utah,
Salt Lake City, USA

IOMP & EFOMP Workshop: Nanoparticles in Cancer Therapy

Track Chairs:
Alberto Torresin,
Azienda Ospedale Niguarda,
Milano, Italy

Yao-Xiong Huang,
Jinan University
Guangzhou, China

Workshop: The Challenge and the Reward of Being an Entrepreneur in Medical Physics and Biomedical Engineering

Track Chairs:
William Hendee,
Medical College of
Wisconsin,
Milwaukee, USA

N.N.

IOMP & EFOMP Symposium: Education & Training in Medical Physics

Track Chairs:
Anchali Krisanachinda,
Chulalongkorn University,
Bangkok, Thailand

Stelios Christofides,
Nicosia General Hospital,
Cyprus

Medical Physics Research Programs and Initiatives in Europe

Track Chairs:
Alberto Del Guerra,
Universita di Pisa, Italy

Caridad Borras,
Washington, USA

Electroporation

Track Chairs:
Damijan Miklavcic,
University of Ljubljana,
Slovenia

Lluis M. Mir,
Institut de Cancérologie
Gustave Roussy
Villejuif, France

Automation in Medicine

Track Chairs:
Olaf Simanski,
University of Rostock,
Germany

N.N.

ESEM Symposium

Track Chair:
Peter Niederer,
ETH Zürich, Switzerland