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World Congress on Medical
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7–12 September 2009

Munich, Germany

Radiation Oncology



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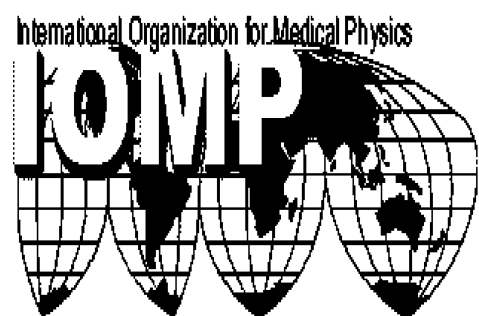
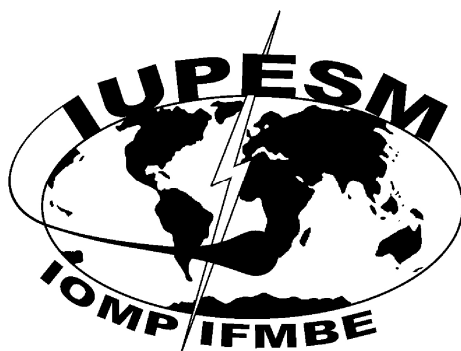
**MEDICAL
PHYSICS AND
BIOMEDICAL
ENGINEERING**

**WORLD
CONGRESS
2009**



For the benefit
of the Patient.

Sept 7–12, 2009
Munich, Germany



The International Federation for Medical and Biological Engineering, IFMBE, is a federation of national and transnational organizations representing internationally the interests of medical and biological engineering and sciences. The IFMBE is a non-profit organization fostering the creation, dissemination and application of medical and biological engineering knowledge and the management of technology for improved health and quality of life. Its activities include participation in the formulation of public policy and the dissemination of information through publications and forums. Within the field of medical, clinical, and biological engineering, IFMBE's aims are to encourage research and the application of knowledge, and to disseminate information and promote collaboration. The objectives of the IFMBE are scientific, technological, literary, and educational.

The IFMBE is a WHO accredited NGO covering the full range of biomedical and clinical engineering, healthcare, healthcare technology and management. It is representing through its 58 member societies some 120.000 professionals involved in the various issues of improved health and health care delivery.

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Olaf Dössel · Wolfgang C. Schlegel (Eds.)

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Preface

Present Your Research to the World!

The World Congress 2009 on Medical Physics and Biomedical Engineering – the triennial scientific meeting of the IUPESM - is the world's leading forum for presenting the results of current scientific work in health-related physics and technologies to an international audience. With more than 2,800 presentations it will be the biggest conference in the fields of Medical Physics and Biomedical Engineering in 2009!

Medical physics, biomedical engineering and bioengineering have been driving forces of innovation and progress in medicine and healthcare over the past two decades. As new key technologies arise with significant potential to open new options in diagnostics and therapeutics, it is a multidisciplinary task to evaluate their benefit for medicine and healthcare with respect to the quality of performance and therapeutic output.

Covering key aspects such as information and communication technologies, micro- and nanosystems, optics and biotechnology, the congress will serve as an inter- and multidisciplinary platform that brings together people from basic research, R&D, industry and medical application to discuss these issues.

As a major event for science, medicine and technology the congress provides a comprehensive overview and in-depth, first-hand information on new developments, advanced technologies and current and future applications.

With this Final Program we would like to give you an overview of the dimension of the congress and invite you to join us in Munich!

Olaf Dössel
Congress President

Wolfgang C. Schlegel
Congress President

Preface

Welcome to World Congress 2009!

Since the first World Congress on Medical Physics and Biomedical Engineering convened in 1982, medically and biologically oriented engineers and physicists from all continents have gathered every three years to discuss how physics and engineering can advance medicine, health and health care and to assess the clinical, scientific, technical and professional progress in their fields. In the tradition and the mission of our professions, which are the only ones involved in the whole loop of health and health care from basic research to the development, assessment, production, management and application of medical technologies, the theme of WC 2009 is "For the Benefit of the Patient". Thus, in addition to scientific aspects, the Congress will focus on all aspects of safe and efficient health technology in both industrialized and developing countries, including economic issues, the perspectives that advanced technologies and innovations in medicine and healthcare offer for the patients and the development of societies, the progress of MBE and MP, including health policy and educational issues as well as the need for the regulation and classification as health professionals of those biomedical/clinical engineers and medical physicists who are working in the health care systems.

The World Congress as the most important meeting of our professions, bringing together physicists, engineers and physicians from all over the world, including the delegates of the 138 constituent organizations of the IUPESM representing some 140,000 individual members, is the best place to discuss these issues, thereby contributing to the advancement of the physical and engineering sciences, our professions and thus to global health.

It gives me great pleasure to welcome you to this important event. I wish you a rewarding and enjoyable congress and a most pleasant time in Munich, the 'metropolis with heart' that has so much to offer.

Joachim H. Nagel
President of the IUPESM

Preface

Let's talk!

Is our level of communication between Medical Physics, Biomedical Engineering, Clinical Engineering, Medical Informatics, Tissue Engineering, etc. and Medicine good enough? We would like to answer: yes, we are quite good, but not good enough! There is a lot of room for improvement. Let' start right on the spot - on the World Congress on Medical Physics and Biomedical Engineering 2009. And please remember: communication is 50% talking and 50% listening.

Let's work together!

Do we have a perfect level of collaboration in our field? OK, we are quite good, but we can do better. Just to give an example: there should be no funded project in Medical Physics or Biomedical Engineering where there is no medical partner. And vice versa: medical doctors should join their forces with physicists and engineers if they are aiming at improvements on medical devices or healthcare systems. Let's start right here in Munich, September 2009, with innovative projects and innovative ways of cooperation.

Let's get to know each other!

It's known for more than thousand years: people who know each other personally and from face to face can talk with better mutual understanding, collaborate with less friction losses, are much more successful and have much more fun. Plenty of chances to make new friends and to refresh old relations on World Congress on Medical Physics and Biomedical Engineering 2009!

And here are the numbers:

More than 3000 scientists working in the field of Medical Physics and Biomedical Engineering meet in September 2009 in Munich. They come from more than 100 nations. They submitted about 2800 contributions. 10 plenary talks and 46 keynote lectures bring us to the top level of science in our field. 75 companies show their latest achievements in the industrial exhibition. It's definitely the largest market place of ideas and innovations in Medical Physics and Biomedical Engineering of the year 2009.

August 2009

Olaf Dössel

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