

Theme 11

Biomedical Engineering for Audiology, Ophthalmology, Emergency and Dental Medicine



Theme Chairs:

Birger Kollmeier,
University of
Oldenburg,
Germany

Alfredo Ruggeri,
University of
Padova, Italy

ABSTRACT:

The wide thematic richness of medical physics and biomedical engineering with respect to neurosensory systems (i.e., hearing and vision) and other medical problems related to the human head (i.e., dental medicine, emergency medicine) is highlighted in the current theme. Even though neurosensory stimulators have brought about a revolution in audiology (i.e., recent cochlear implants that can restore basic auditory functions in bilaterally deaf patients) and a substantial progress in ophthalmology is foreseeable (i.e., retina implants on the edge of being used in patients), a large number of problems still exist in diagnostics, fitting and rehabilitation techniques in these areas. Also, our lack of knowledge on how these physiological and pathophysiological systems actually work requires the intensive collaboration between physicists, engineers and physicians. The truly interdisciplinary work in this area along with tracks on emergency and dental medicine will therefore be highlighted in 10 tracks with internationally well-known experts in these respective areas.

TRACKS:

Audiology I:
Cochlear Function & Dysfunction and its Consequences for Diagnostics and Rehabilitation

Audiology II:
Central Auditory (Dys)Functions as Revealed by the Auditory Profile and Auditory Models

Track Chairs:

Pim van Dijk,
University of Groningen, Netherlands

Thomas Janssen,
Technical University of Munich, Germany

Audiology III:
Cochlear Implants

Track Chairs:

Thomas Lenarz,
Medical University of
Hannover, Germany

Norbert Dillier,
University Hospital
Zurich, Switzerland

Ophthalmology I:
Artificial Vision and
Neural Prosthesis in
Ophthalmology*

Track Chairs:

Eberhart Zrenner,
University of
Tübingen, Germany

Botond Roska,
Friedrich Miescher Institute
for Biomedical Research,
Basel, Switzerland

Joseph F. Rizzo III,
Harvard Medical School,
Boston, USA

Ophthalmology II:
Advancement
in Ophthalmic
Instrumentation

Track Chairs:

Gisbert Richard,
University of
Hamburg, Germany

Marie-José Tassignon,
University of
Antwerp, Belgium

Ophthalmology III:
Advancement
in Ophthalmic
Diagnostics

Track Chairs:

Michael Abramoff,
University of Iowa,
Iowa City, USA

Aljoscha S. Neubauer,
LMU Munich, Germany

Ophthalmology IV:
Physics and Electro-
physiology for
Ophthalmology

Track Chairs:

Jong-Mo Seo,
Seoul National University,
Korea

Robert Wilke,
University of
Tübingen, Germany

Ophthalmology V:
Retinal Image
Analysis

Track Chairs:

Alfredo Ruggeri,
University of
Padova, Italy

Xiaoyi Jiang,
University of
Münster, Germany

Dental Medicine

Track Chairs:

Volker Rasche,
University of
Ulm, Germany

Erich Hell,
Sirona Dental
Systems GmbH,
Bensheim, Germany

Joachim Zöller
University Hospital of
Cologne, Germany

Emergency

Track Chairs:

Armin Bolz,
University of
Karlsruhe (TH), Germany

Anton Amann,
Medical University of
Innsbruck, Austria