

Theme 6

Surgery, Minimal Invasive Interventions, Endoscopy and Image Guided Therapy



Theme Chairs:

Tim Lüth,
Technical University
of Munich, Germany
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Russell Taylor,
Johns Hopkins
University
Baltimore, USA

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University of
Toronto, Canada

ABSTRACT:

Computer-integrated systems and information-based technology is beginning to transform interventional medicine in the same way that they have transformed manufacturing and other sectors of our society. This transformation will enable clinicians to fundamentally improve patient care by:

- Exploiting technology to transcend human limitations in treating patients;
- Improving the safety, consistency, and overall quality of interventions;
- Improving the efficiency and cost-effectiveness of patient care; and
- Promoting more effective use of information at all levels, both in treating individual patients and in improving treatment processes.

The tracks within this theme address fundamental technical and systems issues that must be considered in order for these advantages to be achieved. Track 1 deals with image guided interventions based on models derived from preoperative and intra-operative medical imaging modalities, such as x-ray fluoroscopy, CT, MRI, and ultrasound. Track 2 covers new registration and navigation concepts associated with deforming anatomical structures such as liver, kidney, breast, lung, and associated blood vessels. Track 3 focuses on advances in video endoscopy, such as 3D imaging, multi-spectral imaging, high resolution and miniaturized sensors, and pill cams. Track 4 covers novel robotic devices, systems, and control concepts. Track 5 addresses specialized robots, tools, and applications emerging for minimally invasive surgery applications such as NOTES. Track 6 covers the important emerging technologies in lasers and interventional ultrasound.

TRACKS:

Image Guided Interventions

Track Chairs:

Kieran Murphy,
University of Toronto,
Canada

Walter Kucharczyk,
University of Toronto,
Canada

Soft Tissue and Vessel Based Navigation

Track Chairs:

Hans-Peter Meinzer,
DKFZ German Cancer
Research Center,
Heidelberg, Germany

Hans-Peter Bruch,
University of
Lübeck, Germany

Endoscopy and Endoscopic Interventions

Track Chairs:

Klaus-Martin Irion,
Karl Storz GmbH & Co. KG
Tuttlingen, Germany

Gero Strauss,
Clinical Center of the Uni-
versity of Leipzig, Germany

Robots and Manipulators in Therapy

Track Chairs:

Tim Lüth,
Technical University of
Munich, Germany

Brian Davies,
Imperial College
London, UK

Minimal Invasive Surgery and Instruments

Track Chairs:

Guang-Zhong Yang,
Imperial College
London, UK

Hubertus Feußner,
MITI, Technical University
of Munich, Germany

Laser and Ultrasound Interventions

Track Chairs:

Thomas Lenarz,
Medical University of
Hannover, Germany

Jörg Schipper,
University of Düsseldorf,
Germany

Catheter Interventions

Track Chairs:

Stefan Weber,
University of
Bern, Switzerland

Bernhard Zrenner,
Medical Hospital,
Landshut-Achdorf,
Germany