

Programme Annual SSBE Meeting 2017



Physics Building TP 406

Laboratory Building TL 201

08.30 – 09.00 Welcome Coffee and Registration TP Entrance/Foyer

09.00 – 09.15 **Welcome and Opening**

09.15 – 10.15 **Key Note Talks**

10.15 – 10.42 Session A (Plenary Session): **Medical Systems & Medical Data**

10.45 – 11.00 Coffee Break/Poster Viewing

11.00 – 12.20 Session B (Plenary Session): **Imaging & Image Guided Therapies**

12.20 – 13.30 Lunch (Mensa TB)

13.30 – 14.00 **SSBE General Assembly**

14.00 – 14.10 Short break/leg stretch

14.10 – 15.10 Session C (Parallel Session): **Sensors & Signals**

Session D (Parallel Session): **Biomechanics**

15.10 – 15.40 Poster Session/Break/Refreshing
(TP Foyer)

15.40 – 16.50 Session E (Plenary Session): **Biomaterials, Micro- &
Nano-Technology, Tissue Engineering**

16.50 – 17.50 **SSBE Awards**

17.50 – 20.00 Apéro/Dinner (TB Building), separated registration

09.15 – 09.55: Key Note Talks (Chairpersons: R.M. Füchslin, S. Scheidegger)

09.15: Technology Management in a Clinical Environment (G. Lutters)

09.45: Big Data – Machine learning to identify shape biomarker in intracranial aneurism (S. Hirsch)

10.15 – 10.42: Session A: Medical Systems & Medical Data (Chairpersons: R. M. Füchslin, S. Scheidegger)

10.15: Patient Big Data – An analysis integrating medical images, molecular profiles and physical activity levels (N. Ohs)

10.25: A relaxing virtual reality setup to stimulate patients in the intensive care unit: a proof-of-concept (S. Gerber)

10.35: Patient specific interventions based on long-term ambient and wearable sensor data (N. Schutz)

10.39: Open-source low-cost wearable physical activity tracker (J. Dragas)

10.45 – 11.00: Coffee Break (TP Foyer)

11.00 – 12.18: Session B: Imaging & Image Guided Therapies (Chairpersons: D. Wilhelm, T. Järman)

11.00: Comparing single- and double-grating hard X-ray phase tomography for soft tissue visualization (P. Thalmann)

11.10: Tomographic imaging and computational analysis of brain structures in subcellular detail (S. E. Hieber)

11.20: Cell lacunar imaging dependence on μ CT beam energy (E. Goff)

11.30: Comparison between intraoperative and chronic deep brain stimulation (D. Vogel)

11.40: Thermal cameras enhance ROI detection in photoplethysmographic imaging (G. Scebba)

11.50: Automatic segmentation of the knee joint in MRI data (A. Ringenbach)

11.54: Lumen determination in plaque-containing vessels (M. Buscema)

11.58: Laboratory micro computed tomography for the visualization of the mouse brain (C. Bikis)

12.02: Imaging cellular structure of human brain tissue using micro computed tomography (A. Khimchenko)

12.06: Phase tomography using laboratory sources to visualise cartilage of human knee (G. Schulz)

12.10: Precision measurements of oral scanners (C. Vögtlin)

12.14: Multi-center abdominal CT protocols: A phantom study on image quality and radiation dose levels (D. Racine)

12.20 – 13.30 Lunch (TB Building Mensa)

13.30 – 14.00 SSBE General Assembly

14.00 – 14.10 Short break/leg stretch

14.10 – 15.10 Parallel Session C: Sensors & Signals (Chairpersons: O. Hoenecke, J. Krauss)

14.10: Multi-modality sensory feedback system for upper limb amputees (H. Huang)

14.20: A wearable system for multichannel bioimpedance ECG monitoring (J. Wacker)

14.30: Manipulation of single neurons and defined neural circuits with force-controlled nanopipette (I. Lüchtfeld)

14.40: Fluid FM: A platform for 3D additive manufacturing of metal structures at the micron scale (C. A. J. van Nesselroy)

14.50: Sideway-fabricated SU-8 hollow cantilevers and applications (H. Han)

14.54: Real-time measurement of glucose concentration in 3D culture of human intervertebral disc cells (D. A. Frauchiger)

14.58: Three-dimensional magnetic camera for biomedical applications (J. Pascal)

15.02: A wireless sensor for measurement of soft tissue strains in vivo (Q. Zhang)

15.06: Incubator temperature calibration and monitoring for hyperthermia in-vitro experiments (M. Weyland)

14.10 – 15.10 Parallel Session D: Biomechanics (Chairpersons: D. Baumgartner, A. Butscher)

14.10: Multiscale 3D data visualization for the exploration of bone mechanomics (A. C. Scheuren)

14.20: Investigating local mechanical regulation of bone healing in an in vivo mouse femoral defect model (D. C. Betts)

14.30: Walking comparison between partial and total knee arthroplasty using a moving fluoroscope (T. Zumbunn)

14.34: Kinematics analysis of partial knee implants: in vivo comparison of different activities (A. Roth)

14.38: Kinetics of medial unicompartmental knee arthroplasty: comparison to contralateral leg (L. Suter)

14.42: Validation of videofluoroscopy technique for kinematic analysis of partial knee implants (L. Kiener)

14.48: Finite element modeling of a trochleodysplastic knee: stress distribution in the patellofemoral joint (T. Götschi)

14.52: Identifying the role of focal adhesions and the nucleus in cellular tensile stiffness: A finite element approach (A. Horvath)

14.56: Stimulation of primary human osteoblasts with the BMP antagonists noggin, gremlin1/2 and chordin (R. D. May)

15.00: Minimising external fixator stiffness variation via computational analysis (G. R. Paul)

15.04: Computational fluid dynamics modelling of stented coronary arteries (P. Bischof)

15.10 – 15.40 Poster Session/Break/Refreshing (Physics Building TP Foyer)

15.40 – 16.50 Session E: Biomaterials, Micro- & Nano-Technology, Tissue Engineering (Chairpersons: M. Bonmarin, S. Ferguson)

15.40: Soft and nano-structured metal electrodes for flexible electronics (B. Osmani)

15.50: Artificial muscles to treat severe incontinence (B. Müller)

16.00: A novel biomimetic in vitro model to study osteocyte mechanobiology using micro-3D printing (F. R. Flohr)

16.10: Mechanical and biological characterization of 3D printed polymer lattices for bone tissue engineering (P. F. Egan)

16.14: Optimization of 3D printed hydrogels with primary anterior cruciate ligament cells for tissue engineering (E. Bakirci)

16.18: Finite element simulation for 3D printed scaffolds (X. Wang)

16.22: Adverse immune effects to artificial, shear-responsive liposomes (S. Matviyukiv)

16.26: Characterization of shear-responsive liposomes using microfluidics and small-angle x-ray scattering (T. Pfohl)

16.30: Template stripping based nanotransfer printing of plasmonic gold structures for biosensing applications (R. F. Tiefenauer)

16.34: Fabrication of nano-structured dielectric elastomer transducers for medical implants (T. Töpfer)

16.38: Lung microvasculature-on-chip: in vitro microfluidic platform for drug testing (S. Zeinali)

16.42: Development of a lung alveoli array-on-chip with a collagen-elastin membrane (P. G. V. Zamprogno)

16.46: An integrated electrospray generator for gene delivery (C. Minonzio)

16.50 – 17.50 SSBE Awards (TP 406)