



Combined Annual Meeting of the Finnish Society for Medical Physics and Medical Engineering and BIOMEPE doctoral programme 8-9.2.2018

Tahko Golden Resort (Tahko, Finland)

Thursday 8.2.2018

08:30 Registration and coffee (Sponsored by Bittium)

09:00 Opening of the day: Tapio Seppänen, Chairman of Finnish Society for Medical Physics and Medical Engineering

09:05 UEF greetings: Jukka Jurvelin, Dean of the Faculty of Science and Forestry, University of Eastern Finland, Kuopio, Finland

09:15 Practical issues: Teemu Myllylä (Secretary of Finnish Society for Medical Physics and Medical Engineering) and Siru Kaartinen (coordinator of BIOMEPE doctoral programme)

09:20 Presentations (industry, hospital, academic)

Chair: Rami Korhonen

9:20-9:45 Bittium

9:45-10:10 Petro Julkunen, Professor and Assistant Chief Physicist, University of Eastern Finland and Kuopio University Hospital: *"Human neuromodulation"*

10:10-10:35 Pasi Karjalainen, Professor & Lauri Stenroth, PhD, University of Eastern Finland: *"Robotics and motion analysis in open innovation laboratory"*

10 minutes break

Chair: Petri Tanska

10:45-11:10 Juha Töyräs, Professor and Chief Physicist, University of Eastern Finland: *"Medical technology in osteoarthritis diagnostics"*

11:10-11:35 Ville Kolehmäinen, Professor, University of Eastern Finland: *"Inverse problems in medical imaging"*

11:35-12:00 Mika Tarvainen, PhD, University of Eastern Finland: *"Physiological monitoring – from research to business"*

12:00 Lunch and poster exhibition

12:45 Spotlight session, BioMEPE teaser

Chair: Petro Julkunen

12:45-13:15 Keynote: Cosimo Del Gratta, Professor, University of Chieti-Pescara: *"Analysis of fMRI data using machine learning"*

13:15-13:43 Student presentations (5+2 minutes each)

Simo Näkki: *"PH-responsive magnetic porous silicon nanoparticles for cancer therapy"*

Heidi Halonen: *"A vibration stimulator designed and tailored for mechanotransduction research with live cell microscopy"*

Simo Ojanen: *"ACLT alters PG content, tissue modulus and cell deformation of articular cartilage of rabbits two weeks post-surgery"*

Mari Lehti-Polojärvi: *"Rotational electrical impedance tomography with limited electrode coverage"*

13:45 Coffee (Sponsored by TEK) and LFTY poster competition (3 minute presentations + questions)

15:15 Results of the LFTY poster competition: award ceremony

Free time (for ideas check <https://www.tahko.com/en/> → Activities)

15:30 Annual general meeting of LFTY

17:00 General meeting of the BioMEPE doctoral programme (steering committee and supervisors)

18:00 Student get-together

19:00 Dinner at Tahko Golden Resort restaurant sponsored by TEK (dress code: smart casual)

22:00 (or earlier) Student party



Friday 9.2.2018

8:25 Opening of the day: Rami Korhonen, Director of BioMEP doctoral programme, Department of Applied Physics, University of Eastern Finland

8:30 Presentations

Chair: Rami Korhonen, Amir Esrafilian

8:30-9:00 Keynote: Associate Professor Hanna Isaksson: *"Musculoskeletal biomechanics"*

9:00-9:10 Joeri Kok: *"Fracture strength of the proximal femur after injection with a resorbable CaS/HA bone substitute, a finite element study"*

9:10-9:20 Gustavo Orozco: *"A mechanobiological model to predict proteoglycan loss in injured cartilage under normal dynamic loading: numerical analysis integrated with experimental results"*

9:20-9:30 Thomas Notermans: *"The mechanobiological response of healthy rat achilles tendon can be captured with a fibre-reinforced poro-visco-hyper-elastic constitutive model"*

10 minutes break

Chair: Jari Viik, Thomas Notermans

9:40-10:10 Keynote: Associate Professor Raquel Bailon: *"Signal processing guided by physiology: application to cardio-respiratory data"*

10:10-10:20 Vahid Farrahi: *"Moving towards large-scale learning for intensity classification of daily activities"*

10:20-10:30 Amir Esrafilian: *"Knee joint fibril reinforced poroviscoelastic finite element model: EMG-driven approach"*

10 minutes break

Chair: Risto Ilmoniemä, Nataliia Martyniuk

10:40-11:10 Keynote: Assistant Professor Laura Marzetti: *"Large scale network synchronization in ongoing brain activity by MEG/EEG"*

11:10-11:20 Ruhunur Özdemir: *"Structural and functional connectivity of anterior nuclei of thalamus for epileptic patients in deep brain surgery"*

11:20-11:30 Barbara Genocchi: *"Response of an astrocyte-neural network model to different stimuli simulating epileptic seizures"*

11:30-11:40 Jaakko Syrjälä: *"Brain oscillations and functional connectivity in working memory"*

11:40-11:50 Golestan Karami: *"Characterizing brain tissue using diffusion tensor imaging and neurite orientation dispersion and density imaging in brain tumor patients"*

11:50 Lunch

12:50 Presentations

Chair: Simo Saarakkala, Golestan Karami

12:50-13:20 Keynote: Assistant Professor, Oommen P. Oommen, *"Extracellular matrix polymers: The building blocks for engineering nanoparticles for drug delivery and imaging"*

13:20-13:30 Nataliia Martyniuk: *"Establishing multi-electrode patch clamp recordings in the mouse retina"*

13:30-13:40 Lingwei Huang: *"Subchondral bone and calcified cartilage thickness in New Zealand White rabbit knee –A novel micro-computed tomography method"*

13:40-13:50 Shuvashis Das Gupta: *"Identification of Tidemark and Calcified Cartilage with Raman Micro-spectroscopy"*

13:50 Coffee break (Sponsored by TEK)

14:20 Presentations

Chair: Oommen P. Oommen, Ruhunur Özdemir

14:20-14:50 Keynote: Assistant Professor Anton Kuzyk: *"DNA nanotechnology and DNA based devices and their potential application in diagnostics and therapy"*

14:50-15:00 Yike Huang: *"DNA origami-based nanostructures for circular dichroism sensing"*

15:00-15:10 Sumanta Samanta: *"Engineering extracellular matrix mimetic conductive scaffold for cardiac tissue regeneration"*

15:30 BioMEP student awards

15:40 End of event - Closing words