EMBEC'17 Tampere NBC'17 Finland

Joint conference of

European Medical and Biological Engineering Conference (EMBEC)

Nordic-Baltic Conference on Biomedical Engineering and Medical Physics (NBC)

11-15 June 2017 in Tampere, Finland

Programme

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The programme is subject to changes

Organized by:

BioMediTech
Institute of Biosciences and Medical Technology

Finnish Society for Medical Physics and Medical Engineering

Endorsed by:

European Alliance for EAMBES Medical and Biological Engineering & Science

EMBEC

Co-Sponsor:

IFMBE

Sunday 11.6.2017	
17:30 -19.00	Registration opens *Tampere Hall, Yliopistonkatu 55, 33100 Tampere*
19:00 -21.30	Get-together *Tampere Hall: Restaurant Fuuga, Yliopistonkatu 55, 33100 Tampere*

Monday 12.6.2017	
8:00	Registration
8:30	Opening & Keynote, *Main Auditorium* Keynote: Nobel Laureate Professor Stefan W. Hell: "Optical Microscopy: the Resolution Revolution" Chair: Prof. Pekka Hänninen Opening: *Chair of EMBEC'17 & NBC'17, past president of EAMBES*, *Professor Jari Hyttinen* *President of IFMBE, Professor James Goh* *President of the EMBEC Society, Professor Helmut Hutten*
9:45	Coffee & Posters, *Park Hall*
10:45	Parallel Sessions *Sonaatti 1* HEALTHCARE INFORMATION SYSTEMS AND HEALTH INFORMATICS - Healthcare Information Systems *Sonaatti 2* BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING – Bioimaging and Bioimage Analysis and Processing *Park Hall Stage* EAMBES Special Session on BME Policy Affairs in EU *Organizers: Professor Jari Hyttinen* *Small Auditorium* Medical Device Cybersecurity Workshop *Duetto 1* TRANSLATIONAL RESEARCH AND COMMERCIALIZATION - Special Session: Translational Biomechanics and Imaging in Musculoskeletal Research *Organizers: Professor Petro Julkunen & Professor Rami Korhonen* *Duetto 2* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Session: EEG-based Brain Function Monitoring in ICU and Clinical Anesthesia *Organizers: Professor Tarmo Lipping & Dr. Jukka Kortelainen* *Riffi* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Session: Advances in Ballistocardiography and Seismocardiography *Organizer: Dr. Jari Viik*

	(parallel sessions continue) *Maestro*BIOPHYSICS AND MEDICAL PHYSICS - Special Track: Electromagnetic Fields in Biology and Medicine: Magnetic Fields *Organizer: Professor Hiie Hinrikus*
12:15	Lunch at Site, *Restaurant Fuuga & Restaurant Duuri* *Included in the Registration Fee* Student Programme: Lunch with Keynote Speakers, Sopraano For students, who have registered to the event
13:15	Parallel Sessions *Sonaatti 1* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Heart Rate Variability *Sonaatti 2* HEALTHCARE INFORMATION SYSTEMS AND HEALTH INFORMATICS - Special Session: Data Based Analytics in Health care: From Sensors to Big Data *Organizers: Professor Ratko Magjarevic & Assistant Professor Paulo de Carvalho* *Small Auditorium* Medical Device Cybersecurity Workshop *Duetto 1* COOPERATION OF ACADEMIA, INDUSTRY AND HEALTHCARE SECTOR - Special Session: Fostering Cooperation of Academia, Industry and Healthcare Sector *Organizer: Professor Piotr Ladyzynski* *Duetto 2* IFMBE-Sponsored Session on Accreditation of Biomedical Engineering Programs. *Organizer: Associate Professor Siew-Lok Toh* *Riffi* VIRTUAL PHYSIOLOGICAL HUMAN - Special Session: Computational Modelling of Human Cardiac Cells *Organizer: Assistant Professor Stefano Severi* *Maestro* BIOPHYSICS AND MEDICAL PHYSICS - Special Track: Electromagnetic Fields in Biology and Medicine: Radiofrequency Radiation *Organizer: Professor Hiie Hinrikus*
14:45	Coffee & Posters, *Park Hall*
15:45 – 17:15	Parallel Sessions *Sonaatti 1* PERSONALIZED MEDICINE - Special Session: The Contribution of Biomedical Engineering to the Understanding and Management of Atrial Fibrillation *Organizer: Associate Professor Cristiana Corsi* *Sonaatti 2* BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING – Magnetic Resonance Imaging *Small Auditorium* Medical Device Cybersecurity Workshop

	(parallel sessions continue) *Duetto 1* BIOMEDICAL OPTICS - Special Session: Biomedical Optics *Organizer: Professor Karin Wårdell* *Duetto 2* CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS - Diagnostic and Therapeutic Systems *Riffi* HEALTHCARE INFORMATION SYSTEMS AND HEALTH INFORMATICS - Special Session: Snapshot of Medical Informatics Research Projects in Japan and Poland *Organizer: Professor Piotr Ladyzynski* *Maestro* BIOPHYSICS AND MEDICAL PHYSICS - Special Track: Electromagnetic Fields in Biology and Medicine: Electric Field and Modelling *Organizer: Professor Hiie Hinrikus*

10:00 – 17:15	Commercial Exhibition *Park Hall*

10:00 – 15.30	Networking Event, *Sopraano* https://www.b2match.eu/embec2017 10:00 - 12:00 Morning Session 13:30 - 15:30 Afternoon Session

18:30 -	Social Programme: Evening at Lake *Viikinsaari, Departure from Laukontori*

Tuesday 13.6.2017	
8:00	Registration
8:15	Plenary, *Main Auditorium* 8:15 Professor Anthony Turner: "Biosensors – Towards Frictionless Management of Health" Chair: Prof. Jukka Lekkala 9:00 Dr. Manuel Bardiés: "Relevance of Multi-scale Dosimetry for Internal Radiotherapy Optimization" Chair: Prof. Hannu Eskola
9:45	Coffee & Posters, *Park Hall*
10:45	Parallel Sessions *Sonaatti 1* BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING - Special Session: Ultra-low-field MRI *Organizer: Professor Risto Ilmoniemi* Sonaatti 2 CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS - Special Session: Clinical Engineering Revisited: Towards a White Paper *Organizer: Dr. Mario Medvedec* *Small Auditorium* HEALTH TECHNOLOGY ASSESSMENT - Special Track: Early Stage Health Technology Assessment (HTA) of Medical Devices *Organizer: Assistant Professor Leandro Pecchia* *Duetto 1* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Physiological Monitoring and Measurements *Duetto 2* SLEEP MONITORING AND QUANTIFICATION - Special Session: Sleep Monitoring and Quantification using Contact and Non-Contact Systems *Organizer: Dr. Patrick Celka* *Riffi* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Session: New Developments on Beat-to-beat Blood Pressure Measurement Technology *Organizer: Dr. Josep Solà* *Maestro* MICRO- AND NANO-BIOENGINEERING - Special Session on Biomedical Robotics and Applications - Part I *Organizers: Professor Dayou Li & Professor Zuobin Wang*

12:15	Lunch at site, *Restaurant Fuuga & Restaurant Duuri* *Included in the registration fee* Student Programme: Meet the Editors, *Sopraano* *Register to the event at the Registration Desk*
13:15	Parallel Sessions *Sonaatti 1* BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING - Special Session: High Field Magnetic Resonance Imaging *Organizer: Professor Miika T. Nieminen* *Sonaatti 2* CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS - Clinical Engineering *Small Auditorium* HEALTH TECHNOLOGY ASSESSMENT - Special Track: Picking the Winner: How HTA of Medical Devices Can Help Identify Routes to a Sustainable Healthcare System *Organizer: Professor Dan Clark* *Duetto 1* BIOMEDICAL OPTICS - Biomedical Optics 2 *Duetto 2* BIOPHYSICS AND MEDICAL PHYSICS - Special Session: New Applications for Detection of Sleep-disordered Breathing - Part I *Organizer: Dr. Mirja Tenhunen* *Riffi* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Session: Recent Advances in Heart Rate Variability Analysis - Part I *Organizer: Dr. Mika Tarvainen* *Maestro* MICRO- AND NANO-BIOENGINEERING - Special Session on Biomedical Robotics and Applications - Part II *Organizers: Professor Dayou Li & Professor Zuobin Wang*
14:45	Coffee & Posters, *Park Hall*
15:45	Plenary, *Main Auditorium* Dr. Sabeth Verpoorte: "Organ-on-a-Chip: Merging Microfluidics with Analytics to Transform In Vitro Technology" Chair: Prof. Pasi Kallio
16:30 – 18:00	Parallel Sessions *Sonaatti 1* BIOMATERIALS - Biomaterials *Sonaatti 2* CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS - Special Session: Advances in Transcranial Magnetic Stimulation *Organizer: Dr. Jaakko Nieminen*

	Small Auditorium HEALTH TECHNOLOGY ASSESSMENT - Special Track: Patient involvement in HTA: methods and experiences *Organizer: Assistant Professor Leandro Pecchia* *Duetto 1* BIOINFORMATICS, COMPUTATIONAL BIOLOGY AND SYSTEMS BIOLOGY - Bioinformatics, Computational Biology and Systems Biology *Duetto 2* BIOPHYSICS AND MEDICAL PHYSICS - Special Session: New Applications for Detection of Sleep-disordered Breathing - Part II *Organizer: Dr. Mirja Tenhunen* *Riffi* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Session: Recent Advances in Heart Rate Variability Analysis - Part II *Organizer: Dr. Mika Tarvainen* *Sopraano* MICRO- AND NANO-BIOENGINEERING - Special Session: BioMEMS for Organ-on-Chip Applications *Organizer: Professor Pasi Kallio*

8:15-18:00	Commercial Exhibition *Park Hall*

10:00 – 15.30	Networking Event, *Sopraano* https://www.b2match.eu/embec2017 10:00 - 12:00 Morning Session 13:30 - 15:30 Afternoon Session

18:30	Student Evening *Villa Härmälänranta, Departure from Tampere-Hall* For students, who have registered to the event

Wednesday 14.6.2017	
8:00	Registration
8:15	Plenary, *Main Auditorium* 8:15 Professor Serge Mordon: "Light Emitting Fabric for Photodynamic Therapy " Chair: Prof. Shankar Krishnan 9:00 Assistant Professor Jukka-Pekka Onnela: ” Smartphone-based Digital Phenotyping” Chair: Dr. Hannu Nieminen
9:45	Coffee & Posters *Pitching Event for Finnish Start-ups* *Student Poster Competition Final*
10:45	Parallel Sessions *Sonaatti 1* BIOINFORMATICS, COMPUTATIONAL BIOLOGY AND SYSTEMS BIOLOGY - Special Session: Artificial Cognition and Learning Theories - Part I *Organizer: Dr. Francois Christophe* *Sonaatti 2* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Session: Novel Electrocardiogram Analysis Methods *Organizer: Dr. Tuomas Kenttä* *Small Auditorium* Student Event: Funding Opportunities for Young Scientists *Duetto 1* CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS - Special Session: Advanced Monitoring at Hospital and at Home for Risk Analysis and Evidence-based Clinical Decision Support *Organizer: Dr. Kari Antila* *Duetto 2* BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING – Computed Tomography *Riffi* BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING - Special Session: Statistical and Bayesian Approaches in EEG/MEG Data Analysis - Part I *Organizer: Assistant Professor Sampsa Pursiainen* *Sopraano* Women in Biomedical Engineering in Europe *Organizers: Professor Eleni Kaldoudi & Professor Birgit Glasmacher* *Maestro* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Track: Impedance Pneumography – Technology and Applications *Organizer: Marcel Młyńczak*

12:15	Lunch at site, Restaurant Fuuga & Restaurant Duuri *Included in the registration fee*
13:15	Parallel Sessions *Sonaatti 1* BIOINFORMATICS, COMPUTATIONAL BIOLOGY AND SYSTEMS BIOLOGY - Special Session: Artificial Cognition and Learning Theories - Part II *Organizer: Dr. Francois Christophe* *Sonaatti 2* BIOINSTRUMENTATION - Bioinstrumentation *Small Auditorium* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Session: Biosignals Interpretation - Part I *Organizer: Dr. Kristjan Pilt* *Duetto 1* HEALTH TECHNOLOGY ASSESSMENT- Hospital Based HTA *Duetto 2* WEARABLE AND IMPLANTABLE SYSTEMS - Special Session: Implantable and Wearable Antennas, Sensors, and Systems for Wireless Medicine and Healthcare – Part I *Organizers: Dr. Toni Björninen & Dr. Johanna Virkki* *Riffi* BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING - Special Session: Statistical and Bayesian Approaches in EEG/MEG Data Analysis - Part II *Organizer: Assistant Professor Sampsa Pursiainen* *Maestro* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Track: Impedance Cardiography – the Method and its Applications *Organizer: Marcel Młyńczak*
14:45	Coffee & Posters, *Park Hall* *Young Investigators Competition Final*
15:45 – 17:15	Parallel Sessions *Sonaatti 1* BIOMATERIALS - Special Session: Biomaterials and Tissue Engineering - Part I *Organizers: Dr. Teresa Calejo & Dr. Jonathan Massera* *Sonaatti 2* BIOMEDICAL ENGINEERING EDUCATION & SOCIETY - Special Session: Advances in Biomedical Engineering Education and Teaching *Organizer: Professor Goran Devedzic* *Small Auditorium* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Session: Biosignals Interpretation - Part II *Organizer: Dr. Kristjan Pilt* *Duetto 1* HEALTH TECHNOLOGY ASSESSMENT - HTA, Medical Device R&D, Manufacturing and Procurement: Compete or Collaborate?

	Duetto 2 WEARABLE AND IMPLANTABLE SYSTEMS - Special Session: Implantable and Wearable Antennas, Sensors, and Systems for Wireless Medicine and Healthcare – Part II *Organizers: Dr. Toni Björninen & Dr. Johanna Virkki* *Sopraano* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING – Electrocardiography *Maestro* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Track: Advances in Bioimpedance Instrumentation and Measurement *Organizers: Marcel Młyńczak*

8:15 – 16:00	Commecial Exhibition *Park Hall*

19:00	Conference Dinner *Hotel Rosendahl, Departure from Tampere-Hall*

Thursday 15.6.2017	
8:00	Registration
8:15	Plenary, Main Auditorium 8:15 Professor Molly Stevens: "Bio-responsive Hybrid Materials for Regenerative Medicine and Biosensing" Chair: Prof. Minna Kellomäki 9:00 Professor Risto Ilmoniemi: "Stimulating and Measuring the Human Brain" Chair: Dr. Jari Viik
9:45	Coffee, *Level 2*
10:15	Parallel Sessions *Sonaatti 1* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING – Electroencephalography *Sonaatti 2* BIOPHYSICS AND MEDICAL PHYSICS - Biophysics and Medical Physics *Small Auditorium* Student Event: Career Planning *Duetto 1* CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS - Special Session: How can Functional Electrical Stimulation Currently Support Movement Rehabilitation: Advanced Technology Meets Physiological Reality *Organizer: Professor Winfried Mayr, Dr. Matthias Krenn & Jose Luis Vargas Luna* *Duetto 2* BIOMATERIALS - Special Session: Biomaterials and Tissue Engineering - Part II *Organizers: Dr. Teresa Calejo & Dr. Jonathan Massera* *Riffi* BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING – Electromyography and Functional Electrical Stimulation *Sopraano* WEARABLE AND IMPLANTABLE SYSTEMS - Wearable and Implantable Systems *Maestro* BIOMEDICAL ENGINEERING IN DEVELOPING COUNTRIES - Special Session: Biomedical Engineering in Africa *Organizers: Professor Timo Jämsä*
11:45	Keynote, *Main Auditorium* Professor Gordon Wallace: "New Materials and Fabrication Tools to Facilitate Neural Communications" Chair: Prof. Jari Hyttinen

12:30	Closing Ceremony, *Main Auditorium* Award Ceremony: Young Investigators Competition & Student Poster Competition *Chairs of the committee: Prof. Tapio Seppänen & Prof. Heinrich Schima* Announcement of Future BME Meetings in Europe Farewell *Chair of the Conference: Prof. Jari Hyttinen*

Oral Sessions

Monday 12 June

12.6.2017 10:45-12:15 Sonaatti 1

HEALTHCARE INFORMATION SYSTEMS AND HEALTH INFORMATICS
Healthcare Information Systems
Chair: *Niina Onnela* Co-Chair: *Gerard Boyle*

10:45 (253) *Bots in messaging platforms, a new paradigm in healthcare delivery: application to custom prescription in dermatology,* Alvaro Alesanco

11:00 (266) *Design and Implementation of a Web Portal for Non-Medical Prescribing,* Gerard Boyle

11:15 (484) *Data Flow and Collection for Remote Patients Monitoring: From Wireless Sensors through a Relational Database to a Web interface in Real Time,* Ivan Tomasic

11:30 (198) *Managing heterogeneous data in the HEALS project,* Luc Cluitmans

11:45 (501) *Automatic Classification of Forum Posts: A Finnish Online Health Discussion Forum Case,* Oguzhan Gencoglu

12:00 (262) *General Data Format Security Extensions for Biomedical Signals,* Saulius Daukantas

12.6.2017 10:45-12:15 Sonaatti 2

BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING
Bioimaging and Bioimage Analysis and Processing
Chair: *Olaf Dössel* Co-Chair: *Michele Ambrosanio*

10:45 (013) *Development of radiofrequency ultrasound based method for elasticity characterization using low frequency endogenous motion: phantom study,* Andrius Sakalauskas

11:00 (296) *Optical Projection Tomography Imaging of Single Cells in 3D Gellan Gum Hydrogel,* Birhanu Belay, YIC Finalist

11:15 (191) *Evaluation of a Deep Convolutional Neural Network method for the segmentation of breast microcalcifications in Mammography Imaging,* Gianmarco Santini

11:30 (150) *Ultrasound despeckling based on Non Local Means,* Michele Ambrosanio

11:45 (343) *Computational model for multifocal imaging in optical projection tomography and numerical analysis of all-in-focus fusion in tomographic image reconstruction,* Olli Koskela

12:00 (265) *Tensor Regularized Total Variation for Third Harmonic Generation Brain Images,* Zhiqing Zhang

12.6.2017 10:45-12:15 Park Hall Stage

EAMBES Special Session on BME Policy Affairs in EU
Chair: *Jari Hyttinen* Co-Chair: *Timo Jämsä*

10:45 *EAMBES overview and its policy activities on BME in EU,* Jari Hyttinen

10:55 *European Economic and Social Committee report on BME,* Edgardo Iozia

11:05 *EAMBES fellows and recognition of excellence on BME,* Karin Wårdell

11:15 *EAMBES and IFMBE Collaboration in Europe on BME,* Timo Jämsä

11:25 *Information on EAMBES - new web site and its services to members,* Eleni Kaldoudi

12:35 *EAMBES activities: European Parliament Interest Group on BME,* Leandro Pecchia

12:45 Discussion

12.6.2017 10:45-12:15 Small Auditorium

MEDICAL DEVICE CYBERSECURITY WORKSHOP
Core Concepts: Medical Device Cyber Security

Chair: *Michael McNeil* Co-Chair: *Aapo Cederberg*

10:45 Foundations

11:45 Experience

(527) *Medical Device Vulnerability Discovery and Information Sharing*

12.6.2017 10:45-12:15 Duetto 1

TRANSLATIONAL RESEARCH AND COMMERCIALIZATION
Translational Biomechanics and Imaging in Musculoskeletal Research
Organised by: Petro Julkunen & Rami Korhonen

Chair: *Petro Julkunen* Co-Chair: *Rami Korhonen*

10:45 (332) *From planar absorptiometry to three-dimensional finite element modeling: A short history of noninvasive assessment of bone strength,* Harri Sievänen, Invited Talk

11:15 (309) *A multiscale approach to bone damage and fracture,* Lorenzo Grassi

11:30 (316) *State-of-art musculoskeletal imaging of osteoarthritis,* Petro Julkunen

11:45 (171) *Development of novel 3D histopathological methods for osteoarthritis,* Simo Saarakkala

12:00 (435) *Prediction of knee osteoarthritis,* Rami Korhonen

12.6.2017 10:45-12:15 Duetto 2

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
EEG-based Brain Function Monitoring in ICU and Clinical Anesthesia
Organised by: Tarmo Lipping & Jukka Kortelainen

Chair: *Tarmo Lipping* Co-Chair: *Jukka Kortelainen*

10:45 (389) *Deep Learning for outcome prediction of postanoxic coma,* Michael Van Putten, Invited Talk

11:15 (320) *Changes in EEG directional connectivity during a slow induction of propofol anaesthesia,* Giulia Lioi

11:30 (422) *EEG Anesthetic Reactivity Test – A novel approach to assess hypoxic brain injury,* Jukka Kortelainen

11:45 (263) *Incorporating spike correlations into an SVM-based neonatal seizure detector,* Karoliina Tapani

12:00 (275) *Connectivity Analysis of Full Montage EEG in Traumatic Brain Injury Patients in the ICU,* Tarmo Lipping

12.6.2017 10:45-12:15 Riffi

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Advances in Ballistocardiography and Seismocardiography
Organised by: Jari Viik

Chair: *Jari Viik* Co-Chair: *Marjorie Skubic*

10:45 (506) *Investigating the Interaction between Ballistocardiogram and Cardiac Age,* Marjorie Skubic, Invited Talk

11:15 (530) *Twelve Years Follow-up of Ballistocardiography*, Jarmo Alametsä

11:30 (551) *Heart kinetic deconditioning after the 60-days ESA-RSL head-down bed-rest assessed by wearable monitoring based on Ballisto- and Seismo-cardiography,* Pierre-François Migeotte

11:45 (278) *Heartbeat Detection Using Multidimensional Cardiac Motion Signals and Dynamic Balancing,* Mikko Paukkunen

12:00 (345) *Detection of Atrial Fibrillation via MEMS accelerometers and gyroscopes,* Tero Koivisto

12.6.2017 10:45-12:15 Maestro

BIOPHYSICS AND MEDICAL PHYSICS
Electromagnetic Fields in Biology and Medicine: Magnetic Fields
Organised by: Hiie Hinrikus

Chair: *Hiie Hinrikus* Co-Chair: *Jonne Naarala*

10:45 (175) *Assessment of Health Risks of Intermediate Frequency Magnetic Fields,* Jonne Naarala

11:00 (214) *Magnetic fields and childhood leukemia; science and policy in the Netherlands,* Gert Kelfkens

11:15 (202) *Magnetic fields in enhancing radiotherapy,* Jonne Naarala

11:30 (539) *An evaluation of the direct electromagnetic influence on the safety of users of wearable insulin pumps caused by low frequency magnetic field,* Jolanta Karpowicz

11:45 (541) *Shielding static magnetic fields from Magnetic Resonance Imaging units by ferromagnetic material,* Tarmo Koppel, YIC Finalist

12.6.2017 13:15-14:45 Sonaatti 1

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Heart Rate Variability

Chair: *Jari Viik* Co-Chair: *Peter Lukas*

13:15 (434) *Predictive Modeling of Exercise Response in CVD Patients under Rehabilitation,* Dimitris Filos

13:30 (138) *Heart Rate Variability Analysis and Performance during a Repeated Mental Workload Task,* Leandro Pecchia

13:45 (534) *The Use of Multichannel Photoplethysmography for the Analysis of Heart Rate Variability,* Lukas Peter

14:00 (306) *Nocturnal Use of Light Compression Garments and Recovery*, Viivi Jokinen

14:15 (470) *Association of Drivers' sleepiness with heart rate variability: A Pilot Study with Drivers on Real Roads,* Farhad Abtahi

12.6.2017 13:15-14:45 Sonaatti 2

HEALTHCARE INFORMATION SYSTEMS AND HEALTH INFORMATICS
Data Based Analytics in Health care: From Sensors to Big Data
Organised by: Ratko Magjarevic & Paulo de Carvalho

Chair: *Ratko Magjarevic* Co-Chair: *Paulo de Carvalho*

13:15 (576) *Predicting very rare events in big EEG datasets: The particular case of epileptic seizure prediction,* Cesar Teixeira

13:30 (102) *Application for pre-processing and visualization of electrodermal activity wearable data,* Jari Jussila

13:45 (232) *Combining Haar wavelets with Karhunen Loève transform for the effective representation and comparison of physiological time series,* Jorge Henriques

14:00 (577) *Long-term analysis of cardiovascular manifestations in epilepsy,* Cesar Teixeira

14:15 (513) *Online assessment and feedback of human motion in rehabilitation and strength exercises,* Dominik Džaja

14:30 Panel Discussion

12.6.2017 13:15-14:45 Small Auditorium

MEDICAL DEVICE CYBERSECURITY WORKSHOP
Medical Device Post-Market Risk Management

Chair: *Dale Nordenberg* Co-Chair: *Erika Suortti-Myyry*

13:15 Vulnerability Management

13:45 Threat Intelligence

14:15 Information Sharing to Reduce Risk

(528) *Medical Device Cyber Surveillance and Threat Intelligence Sharing*

12.6.2017 13:15-14:45 Duetto 1

COOPERATION OF ACADEMIA, INDUSTRY AND HEALTHCARE SECTOR
Fostering Cooperation of Academia, Industry and Healthcare Sector
Organised by: Piotr Ladyzynski

Chair: *Piotr Ladyzynski* Co-Chair: *Shankar Krishnan*

13:15 (546) *Academia Industry Partnerships in the Biomedical Engineering Domain,* Shankar Krishnan

13:30 (425) *Life Science innovation ecosystem in Poland – case study of BioTechMed Mazovia Cluster,* Paweł Nowicki

13:45 (384) *Collaboration in the Triangle: Biomedical Engineering Research - Industry - Hospital,* Olaf Dössel

14:00 (200) *Embedded Sensor Systems for Health – collaboration between industry, academia and healthcare,* Maria Lindén

14:15 (450) *Methodology for Assessing Innovative Aesthetic Devices Based on the Collaboration Among the Government, the Academy and the Industry,* Martha Zequera

12.6.2017 13:15-14:45 Duetto 2

IFMBE-Sponsored Session on Accreditation of Biomedical Engineering Programs.
Organised by: Siew-Lok Toh

Chair: *Siew-Lok Toh* Co-Chair: *Lenka Lhotská*

13:15 (557) *Accreditation of Biomedical Engineering Programs in Hungary,* Ákos Jobbágy

13:27 (558) *The Value and Process of Accrediting Undergraduate Clinical Engineering Programs,* Herbert Voigt

13:39 (559) *Training Contents of Continued Education for Accredited Clinical/Biomedical Engineering in Taiwan,* Kang-Ping Lin

13:51 (560) *Accreditation and Certification in Biomedical Engineering in the Czech Republic,* Lenka Lhotská

14:03 (561) *Accreditation of Biomedical Engineering programs in Singapore and South East Asia,* Siew-Lok Toh

14:15 (562) *The Relevance and Challenges for the Accreditation Process of the Clinical Engineering programs in Latin America,* Martha Zequera

14:27 (563) *Continuous Quality Improvement through Accreditation: Biomedical Engineering Program at The Hong Kong Polytechnic University,* Thomas M. H. Lee

12.6.2017 13:15-14:45 Riffi

VIRTUAL PHYSIOLOGICAL HUMAN
Computational Modelling of Human Cardiac Cells
Organised by: Stefano Severi

Chair: *Stefano Severi* Co-Chair: *Javier Saiz*

13:15 (039) *In silico modeling meets IPS cardiac cells: an overview on computational methods for drug effect assessment,* Michelangelo Paci

13:30 (520) *Propagation of the primary pacemaker activity in the human heart: a computational approach,* Alan Fabbri

13:45 (433) *Refractoriness in human atria: Time and voltage dependence of sodium channel availability,* Jussi Koivumäki

14:00 (252) *Multi-scale Simulation of Spontaneous Calcium Release Events in the Human Atria,* Michael Colman

14:15 (269) *A Novel Model of Human Cardiac Purkinje Action Potential,* Cristian Trovato

14:30 (305) *Multiscale Methods for Definition of Ionic Variables in Electrophysiological Models,* Jesús Carro

12.6.2017 13:15-14:45 Maestro

BIOPHYSICS AND MEDICAL PHYSICS
Electromagnetic Fields in Biology and Medicine: Radiofrequency Radiation
Organised by: Hiie Hinrikus

Chair: *Hiie Hinrikus* Co-Chair: *Jolanta Karpowicz*

13:15 (119) *Mechanism of Low-level Microwave Radiation Effect on Brain: Frequency Limits,* Maie Bachmann

13:30 (027) *Impact of High-Frequency Electromagnetic Fields on Secretion and Structure of Pancreas in Rats,* Smiljana Paraš

13:45 (267) *Assessment of the Effects of Radiofrequency Radiation at Different Frequencies and Exposure Duration on Human Colon Epithelial Cells,* Arin Tomruk

14:00 (103) *Non-Thermal Effects of Electromagnetic Fields in Biology and Medicine,* Wlodzimierz Klonowski

14:15 (321) *Biophysical Evaluation of Microwave Radiation for Functional Research of the Human Brain,* Vasilii Borisov

14:30 (323) *Peculiarities of Spectral and Multifractal Estimates of the Brain Microwave Radiation,* Vasilii Borisov

12.6.2017 15:45-17:15 Sonaatti 1

PERSONALIZED MEDICINE
The Contribution of Biomedical Engineering to the Understanding and Management of Atrial Fibrillation
Organised by: Cristiana Corsi

Chair: *Cristiana Corsi* Co-Chair: *Stefano Severi*

15:45 (497) *Management of patients with atrial fibrillation,* Pekka Raatikainen

16:00 (299) *Signal Processing to Assess Atrial Fibrillation Complexity,* Stef Zeemering

16:15 (391) *Development of a 3D patient-specific model for atrial fibrosis assessment in patients with atrial fibrillation,* Maddalena Valinoti

16:30 (436) *Atrial Fibrillation in a Dish: Understanding Reentrant Mechanisms,* Andreu Climent

16:45 (462) *Can false rotors be recorded by catheters when mapping complex atrial propagation?,* Javier Saiz

17:00 (377) *Atrial Signals – Modeling Meets Biosignal Analysis,* Olaf Dössel

12.6.2017 15:45-17:15 Sonaatti 2

BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING
Magnetic Resonance Imaging

Chair: *Hannu Eskola* Co-Chair: *Martin Visser*

15:45 (339) *Magnetic Resonance Imaging Restoration based on Kolmogorov-Smirnov Non Local Mean,* Antonietta Sorriso, YIC Finalist

16:00 (208) *Semi-automatic hippocampus delineation algorithm using surface fairing,* Fabian Bartel, YIC Finalist

16:15 (369) *Inter-observer variation in segmenting glioma on MRI before and after resection,* Martin Visser

16:30 (555) *MRI imaging texture features in prostate lesion classification,* Piotr Sobecki

12.6.2017 15:45-17:15 Small Auditorium

MEDICAL DEVICE CYBERSECURITY WORKSHOP
Medical Device Risk Management and Assessment Methods

Chair: *Phil Englert* Co-Chair: *Jari Seppälä*

15:45 Foundations

16:30 Experience

(529) *Medical Device Risk Management and Assessment Methods*

12.6.2017 15:45-17:15 Duetto 1

BIOMEDICAL OPTICS
Biomedical Optics
Organised by: Karin Wårdell

Chair: *Karin Wårdell* Co-Chair: *Kerstin Ramser*

15:45 (553) *Optical-fiber based tissue identification for surgical guidance,* Daniel Cote, Invited Talk

16:15 (244) *Optical Guidance for Brain Tumor Stereotactic Biopsy,* Neda Haj-Hosseini

16:30 (549) *Assessment of cerebral perfusion by monitoring of time-resolved diffuse reflectance and fluorescence during optical contrast agent passage,* Adam Liebert

16:45 (532) *Real time imaging of mechanical and biochemical actions of single cells under oxygen deprivation,* Kerstin Ramser

17:00 (178) *Remote optical assessment of in-vivo skin: methods, prototype devices and clinical applications,* Janis Spigulis

12.6.2017 15:45-17:15 Duetto 2

CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS
Diagnostic and Therapeutic Systems

Chair: *Heikki Teriö* Co-Chair:

15:45 (248) *Modeling of ocular and eyelid pulse blood filling in diagnosing using transpalpebral rheoophthalmography,* Dmitry Shamaev

16:00 (086) *Computational modeling of radiofrequency ablation with an internally cooled wet electrode,* Elzbieta Ewertowska

16:15 (357) *Efficient techniques for gait-analysis: comparing marker-less and IMU-based tracking systems for monitoring rehabilitation processes,* Heinz-Josef Eikerling

16:30 (242) *Predicting Blood Glucose Levels for a Type I Diabetes Patient by Combination of Autoregressive with One Compartment Open Model,* Kyriaki Saiti

16:45 (222) *Actively Breathing Mechanical Lung Simulator Development and Preliminary Measurements,* Richard Paště̊ka

17:00 (210) *Determination of Mass-Inertial Characteristics of the Human Body in Basic Body Positions: Computer and Mathematical Modelling*, Vladimir Kotev

12.6.2017 15:45-17:15 Riffi

HEALTHCARE INFORMATION SYSTEMS AND HEALTH INFORMATICS
Snapshot of Medical Informatics Research Projects in Japan and Poland
Organised by: Piotr Ladyzynski

Chair: *Piotr Ladyzynski* Co-Chair: *Masayuki Nambu*

15:45 (096) *Snapshot of Medical Informatics Research in Japan,* Tomohiro Kuroda

16:00 (439) *Insulin Bolus Calculator with Automatic Speech Recognition,* Piotr Foltynski

16:15 (110) *Data warehouse System conjunction with Cohort Data and Clinical Data,* Masayuki Nambu

16:30 (505) *A scales with ECG measurements capability for home cardiac monitoring,* Mariusz Kaczmarek

16:45 (290) *Development of a chair-based cuffless blood pressure monitor for home healthcare systems,* Toshiyo Tamura

17:00 (507) *Capacitively coupled ECG measurements - a CMRR circuit improvement,* Mariusz Kaczmarek

12.6.2017 15:45-17:15 Maestro

BIOPHYSICS AND MEDICAL PHYSICS
Electromagnetic Fields in Biology and Medicine: Electric Field and Modelling
Organised by: Hiie Hinrikus

Chair: *Hiie Hinrikus* Co-Chair: *Maie Bachmann*

15:45 (072) *Electric field of EEG during anesthesia,* Ville Jäntti

16:00 (511) *Intermediate frequency voltage transients in the electrical grid – which mechanisms can explain biological effects?,* Mikko Ahonen

16:15 (474) *Evaluation of SAR induced by a Planar Inverted-F Antenna based on a Realistic Human Model,* Vânia Vieira

16:30 (051) *Switching monopolar mode in radiofrequency assisted hepatic resection: A computational model,* Macarena Trujillo Guillén

16:45 (280) *Fast skull conductivity estimation using the Boundary Element Method,* Jan De Munck

17:00 (347) *Broadband dielectric characterization of zebrafish embryo suspensions using the impedance spectroscopy technique,* Aránzazu Sanchis-Otero

Tuesday 13 June

13.6.2017 10:45-12:15 Sonaatti 1

BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING
Ultra-low-field MRI
Organised by: Risto Ilmoniemi

Chair: *Risto Ilmoniemi* Co-Chair: *Rainer Körber*

10:45 (105) *Ultra-sensitve SQUID intrumentation for MEG and NCI by ULF MRI,* Rainer Körber

11:00 (258) *Integrated superconducting quantum interference device magnetometers with sub-micron Josephson junctions for ultra-low-field magnetic resonance imaging,* Juho Luomahaara

11:15 (152) *Towards combined MEG and MRI,* Risto Ilmoniemi

11:30 (124) *Low-Field NMR Relaxation Times Distributions and Their Magnetic Field Dependence as a Possible Biomarker in Cartilage,* Siegfried Stapf

11:45 (495) *Improving image quality and novel methods in ultra-low-field MRI,* Koos Zevenhoven

13.6.2017 10:45-12:15 Sonaatti 2

CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS
Clinical Engineering Revisited: Towards a White Paper
Organised by: Mario Medvedec

Chair: *Mario Medvedec* Co-Chair: *Ernesto Iadanza*

10:45 (453) *Clinical Engineering Revisited: the Grip of Leadership – Part 1,* Mario Medvedec

11:00 (456) *Clinical Engineering Revisited: the Grip of Leadership – Part 2,* Mario Medvedec

11:15 (480) *IFMBE/Clinical Engineering Division projects for the advancement of the profession of Clinical Engineering,* Ernesto Iadanza

11:30 (019) *Clinical Engineering and the Changing Face of Patient Safety,* Monique Frize

11:45 (195) *Importance of HTA in modern Clinical Engineering,* Guillermo Avendaño

12:00 (288) *'Hospital Design Week': releasing the design potential of clinical staff,* Christopher Soraghan

13.6.2017 10:45-12:15 Small Auditorium

HEALTH TECHNOLOGY ASSESMENT
Early Stage Health Technology Assessment (HTA) of Medical Devices
Organised by: Leandro Pecchia

Chair: *Bernice Dillion* Co-Chair: *Leandro Pecchia*

10:45 (117) *An overview of methods for multi-criteria decision analysis to support new product development in healthcare,* Marjan Hummel

11:00 (300) *Early stage Health Technology Assessment of Electrochemotherapy of skin-directed therapy for skin melanoma and Basal Cell Carcinoma,* Eva Pirc

11:15 (451) *Evidence-gathering across industry and academia on early Health Technology Assessment (HTA) of medical devices: survey design and piloting,* Stefania Manetti

11:30 (129) *Re-engineered regulation of medical devices. What role for in silico trials?,* Carlo Baldassarre Federici

11:45 (114) *Early Health Economic evaluation via MAFEIP tool: the Warwick Experience.,* Leandro Pecchia, Invited Talk

13.6.2017 10:45-12:15 Duetto 1

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Physiological Monitoring and Measurements

Chair: *Ákos Jobbágy* Co-Chair: *Atte Joutsen*

10:45 (292) *The Effect of Occlusion with the Cuff,* Ákos Jobbágy

11:00 (419) *Numerical Model of Cardiovascular Physiology: study of dynamic changes during autonomic reflexes,* Luis Bras-Rosario

11:15 (071) *Day-to-day variation in sleep quality and static balance: results from an exploratory study.,* Luis Montesinos

11:30 (156) *A Preliminary Study in Neonatal Cardiorespiratory Monitoring through Diaphragmatic Electromyography,* Marcela Tobón-Cardona

11:45 (213) *K-Band Doppler Radar is feasible and accurate to record and assess overnight respiratory rate,* Rakesh Vasireddy

12:00 (446) *HMM based cough sound analysis for classifying pneumonia and asthma in pediatric population,* Yusuf Amrulloh

13.6.2017 10:45-12:15 Duetto 2

SLEEP MONITORING AND QUANTIFICATION
Sleep Monitoring and Quantification using Contact and Non-Contact Systems
Organised by: Patrick Celka

Chair: *Patrick Celka* Co-Chair: *Alberto Zaffaroni*

10:45 (297) *Sleep-wake detection and computation of sleep continuity from a wrist unit in children, adolescents and adults,* Patrick Celka

11:00 (335) *Optical wrist-worn device for sleep monitoring,* Fabian Braun

11:15 (361) *Monitoring sleep through smart devices: different scenarios and analysis protocols,* Anna Maria Bianchi

11:30 (367) *Using facial electrodes for sleep-wake classification in home recordings,* Jussi Virkkala

11:45 (159) *Non-Contact Estimation of Sleep Staging,* Alberto Zaffaroni

12:00 (298) *Future prospects of research in non-contact ballistocardiography and sleep analysis,* Timo Aittokoski

13.6.2017 10:45-12:15 Riffi

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
New Developments on Beat-to-Beat Blood Pressure Measurement Technology
Organised by: Josep Solà

Chair: *Josep Solà* Co-Chair: *Rene Coffeng*

10:45 (566) *Requirements to commercialize continuous non-invasive blood pressure technologies,* Rene Coffeng, Invited Talk

11:15 (216) *Cuff-induced changes of pulse arrival time: models and experimental results,* Erik Bresch

11:30 (260) *Performance of Systolic Blood Pressure estimation from radial Pulse Arrival Time (PAT) in anesthetized patients,* Josep Solà

11:45 (307) *A novel system for continuous non-invasive blood pressure monitoring,* Emmanuele Angione

12:00 (311) *The importance of VERIFI ("Vasomotoric Elimination and Reconstructed Identification of the Initial set-point") for the performance of the CNAP technology,* Jürgen Fortin

13.6.2017 10:45-12:15 Maestro

MICRO- AND NANO-BIOENGINEERING
Special Session on Biomedical Robotics and Applications - Part I
Organised by: Dayou Li & Zuobin Wang

Chair: *Zuobin Wang* Co-Chair: *Dayou Li*

10:45 (479) *Biomimetic Stimulation Platforms for Cell Culture Applications,* Joose Kreutzer, Invited Talk

11:15 (055) *Laser Interference Lithography for Applications in Biomedicine,* Zuobin Wang

11:30 (067) *Development and Testing of a XYZ Scanner for Atomic Force Microscope,* Kunhai Cai

13.6.2017 13:15-14:45 Sonaatti 1

BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING
High Field Magnetic Resonance Imaging
Organised by: Miika T Nieminen

Chair: *Miika T. Nieminen* Co-Chair: *Mikko Nissi*

13:15 (353) *High resolution functional magnetic resonance imaging using parallel detection,* Fa-Hsuan Lin

13:33 (063) *Novel tools for longitudinal simultaneous fMRI/EEG studies in small animals,* Olli Gröhn

13:51 (259) *Quantitative high field ex vivo MRI of articular cartilage,* Mikko Nissi

14:09 (165) *Rotating Frame Relaxation Time Mapping for Cardiac Magnetic Resonance Imaging,* Timo Liimatainen

14:27 (196) *Sodium Magnetic Resonance Imaging of Cartilage at 7 Tesla,* Stefan Zbyn

13.6.2017 13:15-14:45 Sonaatti 2

CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS
Clinical Engineering

Chair: *Lenka Lhotská* Co-Chair: *Almir Badnjevic*

13:15 (163) *Testing of infusion pumps in healthcare institutions,* Almir Badnjevic

13:30 (122) *Impact assessment and risk analysis in the redevelopment of a healthcare structure,* Elena Ciagli

13:45 (120) *Analysis and optimization of clinical pathway of a cancer patient in a University Hospital,* Elena Ciagli

14:00 (370) *Evidence-based approach to medical equipment maintenance monitoring,* Ernesto Iadanza

14:15 (354) *Knowledge and Data Driven Approaches Applied to Clinical Assessment,* Simão Paredes

14:30 (164) *Testing of dialysis machines in healthcare institutions,* Almir Badnjevic

13.6.2017 13:15-14:45 Small Auditorium

HEALTH TECHNOLOGY ASSESMENT
Picking the Winner: How HTA of Medical Devices Can Help Identify Routes to a Sustainable Healthcare System
Organised by: Dan Clark

Chair: *Dan Clark* Co-Chair: *Leandro Pecchia*

13:15 (069) *Picking the winner: How HTA of medical devices can help identify routes to a sustainable healthcare system,* Dan Clark

13:30 (227) *Health Technology Assessment of Medical Devices: The Canadian Experience,* Julie Polisena

13:45 (420) *The evaluation of medical devices: are we getting closer to solve the puzzle? A review of recent trends,* Oriana Ciani

14:00 (125) *Decision-oriented HTA for comparing three-dimensional (3D)/two-dimensional (2D) laparoscopic display systems,* Matteo Ritrovato

14:15 (194) *A NICE Approach to Picking Winners,* Bernice Dillon, Invited Talk

13.6.2017 13:15-14:45 Duetto 1

BIOMEDICAL OPTICS
Biomedical Optics 2

Chair: *Olof Lindahl* Co-Chair: *Birhanu Belay*

13:15 (197) *Prostate cancer detection ex vivo combining Raman spectroscopy and tactile resonance technology,* Olof Lindahl

13:30 (329) *Photoacoustic image reconstruction with uncertainty quantification,* Jenni Tick

13:45 (249) *Photoplethysmographic authentication in long-term scenarios: a preliminary assessment,* Jorge Sancho Larraz

14:00 (230) *Simple and convenient remote photoplethysmography system for monitoring regional anesthesia effectiveness,* Marta Lange, YIC Finalist

14:15 (437) *Neurovascular coupling studied by means of functional near infrared spectroscopy and electroencephalography*, Przemyslaw Pulawski

14:30 (303) *Optimized Raman Setting of Objective Lens, Laser Power and Integration Time for High and Low Concentration of Nonstructural Protein 1*, Khuan Y Lee

13.6.2017 13:15-14:45 Duetto 2

BIOPHYSICS AND MEDICAL PHYSICS
New Applications for Detection of Sleep-Disordered Breathing - Part I
Organised by: Mirja Tenhunen

Chair: *Mirja Tenhunen* Co-Chair: *Martin Glos*

13:15 (233) *Measurement of breathing during sleep - advanced solutions,* Martin Glos, Invited Talk

13:45 (076) *Detection and Assessment of Sleep-Disordered Breathing with Emfit Mattress,* Mirja Tenhunen

14:00 (270) *Time characteristics of prolonged partial obstruction periods using an Emfit mattress,* Jose Maria Perez-Macias

14:15 (174) *The Contribution of Tracheal Sound Signals to sleep apnea diagnosis,* AbdelKebir Sabil

13.6.2017 13:15-14:45 Riffi

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Recent Advances in Heart Rate Variability Analysis - Part I
Organised by: Mika Tarvainen

Chair: *Mika Tarvainen* Co-Chair: *Herbert Jelinek*

13:15 (246) *Heart Rate Variability During Cardiorespiratory Exercise Test in Type 1 Diabetes,* Mika Tarvainen

13:30 (254) *Rényi and permutation entropy analysis for assessment of cardiovascular autonomic neuropathy*, Herbert Jelinek

13:45 (277) *Coronary artery disease diagnosis by means of heart rate variability analysis using respiratory information,* David Hernando

14:00 (026) *The Influence of Pharmacological Autonomic Blockades on Multi-Scale Measures of Heart Rate Variability*, Herbert Jelinek

14:15 (504) *Pattern recognition techniques and classification sets supporting behavioural tagging when using a limited number of body sensors,* Wilehlm Daniel Scherz

13.6.2017 13:15-14:45 Maestro

MICRO- AND NANO-BIOENGINEERING
Special Session on Biomedical Robotics and Applications - Part II
Organised by: Dayou Li & Zuobin Wang

Chair: *Dayou Li* Co-Chair: *Zuobin Wang*

13:15 (139) *An Evolution Equation of Blood Flow in a Dilated Artery,* Vladimir Kotev, Invited Talk

13:45 (053) *A Developed Magnetic Force Microscope,* Dayou Li

14:00 (034) *Three-dimensional Magnetic Camera for the Characterization of Magnetic Manipulation Instrumentation Systems for Electrophysiology Procedures,* Joris Pascal

14:15 (405) *Development of an intelligent patrol robot system for home healthcare,* Yong Yue

13.6.2017 16:30-18:00 Sonaatti 1

BIOMATERIALS
Biomaterials

Chair: *Minna Kellomäki* Co-Chair: *Sampo Tuukkanen*

16:30 (294) *Texture-property relations of bioamine crosslinked gellan gum hydrogels,* Janne Koivisto

16:45 (430) *Co-degradation and controlled release of ions from PLA/Bioactive Glass Composite,* Jonathan Massera

17:00 (503) *Improving Mechanical Strength of Bioactive Glass Scaffolds with Stereocomplex Polylactide Coating,* Peter Uppstu

17:15 (049) *Fabrication and characterization of nanocellulose aerogel structures,* Sampo Tuukkanen

17:30 (498) *Estimation of kinematic parameters in a model of artificial aortic valve leaflets,* Mariusz Pawlak

17:45 (399) *Evaluating Different Shapes of Cranial Fixation Mini-plates Using Finite Element Method,* Jakub Chamrad

13.6.2017 16:30-18:00 Sonaatti 2

CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS
Advances in Transcranial Magnetic Stimulation
Organised by: Jaakko Nieminen

Chair: *Jaakko Nieminen* Co-Chair: *Elisa Kallioniemi*

16:30 (556) *Brain-state dependent brain-stimulation with real-time EEG-triggered TMS,* Christoph Zrenner, Invite Talk

17:00 (179) *Transcranial magnetic stimulation device with electronic targeting,* Lari Koponen

17:15 (104) *Motor evoked potentials induced by biphasic paired-pulses,* Elisa Kallioniemi

17:30 (151) *Can we link biophysics and physiology in transcranial brain stimulation?,* Axel Thielscher

17:45 (212) *Advanced preprocessing pipeline for cleaning TMS–EEG data,* Tuomas Mutanen

13.6.2017 16:30-18:00 Small Auditorium

HEALTH TECHNOLOGY ASSESMENT
Patient Involvement in HTA: Methods and Experiences
Organised by: Leandro Pecchia

Chair: *Edgardo Iozia* Co-Chair: *Giuseppe Fico*

16:30 (226) *How to involve citizens and patients in HTA: the experience of Cittadinanzattiva,* Francesca Moccia

16:45 (082) *Integrating human factors and health economics to inform the design of medical device: a conceptual framework,* Simone Borschi

17:00 (085) *Using Bayesian networks to synthesize evidence on human reliability into clinical validity for the assessment of pH strips in nasogastric tube feeding,* Melody Ni

17:15 (466) *Co-creating with consumers and stakeholders to understand the benefit of Internet of Things in Smart Living Environments for Ageing Well: the approach adopted in the Madrid Deployment Site of the ACTIVAGE Large Scale Pilot,* Giuseppe Figo

17:30 (587) *Citizen involvement in health technology assessment: challenges and opportunities.,* Edgardo Iozia, Invited Talk

13.6.2017 16:30-18:00 Duetto 1

BIOINFORMATICS, COMPUTATIONAL BIOLOGY AND SYSTEMS BIOLOGY
Bioinformatics, Computational Biology and Systems Biology

Chair: *Matti Nykter* Co-Chair: *Micaela Morettini*

16:30 (161) *A strategy for dissecting the kinetics of transcription repression mechanisms,* Cristina Palma

16:45 (203) *Predicting Gene Expression Levels from Histone Modification Signals with Convolutional Recurrent Neural Networks,* Lingyu Zhu

17:00 (133) *No Changes in Glucose Effectiveness in Condition of Reduced Insulin Action but Preserved Glucose Tolerance as Assessed by Minimal Model Analysis,* Micaela Morettini

17:15 (445) *Calling Homopolymer Stretches from Raw Nanopore Reads by Analyzing k-mer Dwell Times,* Peter Sarkozy

17:30 (134) *Identifcation of feasible pathway information for c-di-GMP binding proteins in cellulose production,* Syeda Sakira Hassan

17:45 (131) *Crosswalk – a time-ordered metric,* Tomas Koutny

13.6.2017 16:30-18:00 Duetto 2

BIOPHYSICS AND MEDICAL PHYSICS
New Applications for Detection of Sleep-Disordered Breathing - Part II
Organised by: Mirja Tenhunen

Chair: *Mirja Tenhunen* Co-Chair: *Martin Glos*

16:30 (100) *Contactless 3D detection of respiratory effort,* Heinrich Garn, Invited Talk

17:00 (261) *Contactless Respiration Monitoring in Real-Time via a Video Camera,* Fabian Braun, YIC Finalist

17:15 (048) *Severity of individual obstruction events in diagnosis of sleep apnea – adjusted AHI,* Timo Leppänen

17:30 (075) *Gender differences in severity of desaturation events following hypopnea and obstructive apnea events,* Antti Kulkas

13.6.2017 16:30-18:00 Riffi

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Recent Advances in Heart Rate Variability Analysis - Part II
Organised by: Mika Tarvainen

Chair: *Mika Tarvainen* Co-Chair: *Riccardo Barbieri*

16:30 (400) *Assessment of Instantaneous Heartbeat Dynamics in amnestic Mild Cognitive Impairment,* Riccardo Barbieri

16:45 (057) *Nonlinear Dynamics of Heart Rate Variability in Children with Asthmatic Symptoms,* Javier Milagro

17:00 (251) *Cardio-respiratory phase locking in newborn and one month infants as a function of sleep state,* Maria G. Signorini

17:15 (317) *Comparison of linear and non-linear heart rate variability indices between preterm infants at their theoretical term age and full term newborns,* Elina Helander

17:30 (093) *Syncope Prediction using Photoplethysmography,* Paulo Carvalho

13.6.2017 16:30-18:00 Sopraano

MICRO- AND NANO-BIOENGINEERING
BioMEMS for Organ-on-Chip Applications
Organised by: Pasi Kallio

Chair: *Pasi Kallio* Co-Chair: *Maria Tenje*

16:30 (146) *Liver-lobule-on-a-chip microfluidic device for long-term maintenance of human hepatocytes,* Philip Dalsbecker

16:45 (284) *Addressing the biocompatibility of photo-crosslinkable hyaluronic acid hydrogels,* Ana Maria Porras

17:00 (126) *Microfluidic Neurochips for Axonal Studies,* Ville Jokinen

17:15 (523) *Impedance-based characterization of proliferating and differentiating neural stem cells on interdigitated microelectrode arrays,* Arto Heiskanen

17:30 (285) *Microfluidic Multi-compartment Structures for Neuronal Co-culture Studies,* Pasi Kallio

17:45 (552) *Metabolic coupling between the endothelium and neurons in the neurovascular unit revealed using a human organs-on-a-chip system,* Thomas Winkler

Wednesday 14 June

14.6.2017 10:45-12:15 Sonaatti 1

BIOINFORMATICS, COMPUTATIONAL BIOLOGY AND SYSTEMS BIOLOGY
Artificial Cognition and Learning Theories - Part I
Organised by: Francois Christophe

Chair: *Francois Christophe* Co-Chair: *Kerstin Lenk*

10:45 (408) *Integrating neuromorphic chips and in-vitro neuronal cultures for machine learning applications,* Francois Christophe

11:00 (059) *In vitro neuronal networks for closed-loop electrophysiology,* Michela Chiappalone, Invited Talk

11:30 (111) *Inter-regional Dynamics in Hippocampal Sub-Networks Co-cultured on Micro-electrode Arrays and Connected via Micro-Tunnels,* Bruce Wheeler

11:45 (147) *Changes in network activity in a neuro-robotic environment,* Daisuke Ito

12:00 (090) *Effects of intracortical microstimulation on functional connectivity: implications for neurorehabilitation studies,* Alberto Averna

14.6.2017 10:45-12:15 Sonaatti 2

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Novel Electrocardiogram Analysis Methods
Organised by: Tuomas Kenttä

Chair: *Jari Viik* Co-Chair: *Tuomas Kenttä*

10:45 (314) *Repolarization Heterogeneity Measured with T-Wave Area dispersion in Standard 12-Lead Electrocardiogram Predicts Sudden Cardiac Death in General Population,* Tuomas Kenttä

11:00 (366) *Quantification of T-wave Morphological Variability Using Time-warping Methods,* Pablo Laguna

11:15 (162) *High Frequency QRS analysis for detection of Stress-Induced Ischemia,* Noam Omer

11:30 (483) *Evaluation of WAMP protocol in real-time remote ECG monitoring,* Muhammad Awais Aslam

11:45 (243) *Determination of Drug Activity on Pulmonary Arterial Hypertension using Time Domain Parameters of ECG,* Hüseyin Yanık

14.6.2017 10:45-12:15 Small Auditorium

STUDENT EVENT: FUNDING OPPORTUNITIES FOR YOUNG SCIENTISTS

10:45 EU Funding Opportunities

11:30 Foundation Man

14.6.2017 10:45-12:15 Duetto 1

CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS
Advanced Monitoring at Hospital and at Home for Risk Analysis and Evidence-Based Clinical Decision Support
Organised by: Kari Antila

Chair: *Kari Antila* Co-Chair: *Luca Mainardi*

10:45 (398) *Cardiac risk stratification using the V-index,* Luca Mainardi

11:00 (234) *Exploring Arrhythmias after Hospital Discharge in Post-Myocardial Infarction Patients – the MADDEC project*, Jussi Hernesniemi

11:15 (201) *Cohort Description for MADDEC – Mass Data in Detection and Prevention of Serious Adverse Events in Cardiovascular Disease,* Jussi Hernesniemi

11:30 (169) *A Hybrid Machine Learning Method for Detecting Cardiac Ejection Murmurs,* Arash Ghareh Baghi

11:45 (276) *Experiences and benefits of wireless monitoring of significant cardiac events with modern pacemakers,* Sami Pakarinen

12:00 (344) *Modern ECG algorithms for ECG monitoring at the hospital,* Mikko Kaski

14.6.2017 10:45-12:15 Duetto 2

BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING
Computed Tomography

Chair: *Jerome Thevenot* Co-Chair: *Florentino Santos*

10:45 (564) *Unevenness metrics for carotid artery characterization,* Florentino Santos

11:00 (190) *An automatic deep learning approach for coronary artery calcium segmentation,* Gianmarco Santini

11:15 (116) *Volumetric Assessment of Bone Microstructures by a 3D Local Binary Patterns –Based Method: Bone Changes with Osteoarthritis,* Jerome Thevenot

11:30 (417) *Improvement in Quantitative Analysis of RBCs Velocity in Microcirculation Based on Block-match Motion Estimation,* Kang-Ping Lin

11:45 (182) *Portal and Hepatic Vein Segmentation with Leak Restriction: A Pilot Study,* Rahul Kumar

12:00 (015) *Automatic Segmentation of Computed Tomography Images of Liver Using Watershed and Thresholding Algorithms,* Tu**ğ**çe Sena Av**ş**ar

14.6.2017 10:45-12:15 Riffi

BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING
Statistical and Bayesian Approaches in EEG/MEG Data Analysis - Part I
Organised by: Sampsa Pursiainen

Chair: *Sampsa Pursiainen* Co-Chair: *Alberto Sorrentino*

10:45 (393) *Bayesian multi--dipole localization and uncertainty quantification from simultaneous EEG and MEG recordings,* Alberto Sorrentino, Invited Talk

11:15 (091) *Bayesian Modelling of Skull Conductivity Uncertainties in EEG Source Imaging,* Ville Rimpiläinen

11:30 (236) *Functional Brain Connectivity analysis using Coherent Measures,* Santosh Kumar

11:45 (207) *Stochastic Modelling and Optimal Spectral Estimation of EEG signals,* Rachele Anderson, YIC Finalist

14.6.2017 10:45-12:15 Sopraano

WOMEN IN BIOMEDICAL ENGINEERING IN EUROPE
Women in Biomedical Engineering
Organised by: Eleni Kaldoudi & Birgit Glasmacher

Chair: *Eleni Kaldoudi* Co-Chair: *Birgit Glasmacher*

10:45 *Introduction to WiBME*, Birgit Glasmacher, Eleni Kaldoudi

11:00 *Engineering programs in Iceland - atypical gender ratio in biomedical engineering,* Thordur Helgason, Haraldur Audunsson

11:15 *Interdisciplinary Education and Research Attracts More Females,* Lenka Lhotská

11:30 *We Women Engineering – the WWE Initiave*, Rossana Castaldo, Leandro Pecchia

11:45 *Female Researchers at Tampere University – the Finnish View*, Leena Ukkonen

14.6.2017 10:45-12:15 Maestro

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Impedance Pneumography – Technology and Applications
Organised by: Marcel Młyńczak

Chair: *Marcel Młyńczak* Co-Chair: *Juha Nousiainen*

10:45 (186) *Linearity of Simultaneously Recorded Impedance Pneumography and Direct Pneumotachography in Thoracic Surgery Patients,* Milla Jauhiainen

11:00 (465) *Does asthma-like increased breathing load influence impedance pneumography signal?,* Marek **Ż**yli**ń**ski

11:15 (312) *Nonlinear Local Projection Filter for Impedance Pneumography,* Javier Gracia

11:30 (274) *Motion artifact detection in respiratory signals based on Teager energy operator and accelerometer signals,* Marcel M**łyń**czak

11:45 (381) *Developing impedance pneumography towards clinical use in childhood asthma,* Ville-Pekka Seppä

14.6.2017 13:15-14:45 Sonaatti 1

BIOINFORMATICS, COMPUTATIONAL BIOLOGY AND SYSTEMS BIOLOGY
Artificial Cognition and Learning Theories - Part II
Organised by: Francois Christophe

Chair: *Francois Christophe* Co-Chair: *Michela Chiappalone*

13:15 (043) *DataBrain: a web-accessible database for three-dimensional reconstructions and quantitative morphometrics of neurons,* Chiara Magliaro

13:30 (404) *Geometry-based Computational Modeling of Calcium Signaling in an Astrocyte,* Muhammad Uzair Khalid

13:45 (250) *Simulation of Neuron-Astrocyte Network Interactions,* Kerstin Lenk, Invited Talk

14:15 (463) *Artificial Astrocytic Modulation of Neuron's Output,* Lucas Anton Pastur-Romay

14.6.2017 13:15-14:45 Sonaatti 2

BIOINSTRUMENTATION
Bioinstrumentation

Chair: *Kim Dremstrup* Co-Chair: *Tomi Ryynäsen*

13:15 (106) *Low Invasive Technology of Sclera Crosslinking: an Experimental Implementation,* Elena Iomdina

13:30 (168) *Device and method to study physiological-level temperature oscillations on adherent cell cultures,* Lucas Portelli

13:45 (240) *A piezoelectric organic surface to control bacterial adhesion and growth,* Rosalia Moreddu

14:00 (304) *Temperature effect on the baseline noise in MEA measurements,* Tomi Ryynänen

14.6.2017 13:15-14:45 Small Auditorium

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Biosignals Interpretation - Part I
Organised by: Kristjan Pilt

Chair: *Kristjan Pilt* Co-Chair: *Francesco Di Nardo*

13:15 (154) *Gait asymmetry in Winters' group I hemiplegic children,* Francesco Di Nardo

13:33 (326) *Ankle Muscles Co-Activation Patterns During Normal Gait: An Amplitude Evaluation,* Francesco Di Nardo

13:51 (281) *Investigation of photoplethysmographic signal augmentation index estimation differences between fingers,* Kristjan Pilt

14:09 (302) *Removal Estimation of Uremic CVD Marker Phosphate in Dialysis Using Spectrophoto-and Fluorimetrical Signals,* Jana Holmar

14:27 (519) *Determination of the Effect of SiO2 Nanoparticles on Spontaneous Activity of Rat Uterus Smooth Muscles using Wavelet Scalogram Analysis,* Evren De**ğ**irmenci

14.6.2017 13:15-14:45 Duetto 1

HEALTH TECHNOLOGY ASSESMENT
Hospital Based HTA

Chair: *Nicolas Pallikarakis* Co-Chair: *Julia Pietilä*

13:15 (204) *Evaluation of the accuracy and reliability for photoplethysmography based heart rate and beat-to-beat detection during daily activities,* Julia Pietilä

13:30 (144) *Hospital-Wide Equipment Upgrade Implementation – Perspectives from a Canadian Tertiary Pediatric Hospital,* Y. Rachel Zhang

13:45 (418) *Application of photocatalytic nanolayers SmartCoat in health care facility,* Ivana Kubatova

14.6.2017 13:15-14:45 Duetto 2

WEARABLE AND IMPLANTABLE SYSTEMS
Implantable and Wearable Antennas, Sensors, and Systems for Wireless Medicine and Healthcare – Part I
Organised by: Toni Björninen & Johanna Virkki

Chair: *Toni Björninen* Co-Chair: *John Batchelor*

13:15 (029) *Wearable multi-antenna multi-band measurement system for personal radio-frequency exposure assessment,* Patrick Van Torre

13:30 (143) *To What Extent Can We Shorten HRV Analysis in Wearable Sensing? A Case Study on Mental Stress Detection,* Rossana Castaldo, YIC Finalist

13:45 (132) *Wearable RFID perspiration sensor tags for well-being applications – from laboratory to field use,* Kyle Mulholland

14:00 (229) *Electrode Comparison for Textile-Integrated Electrocardiogram and Impedance Pneumography Measurement,* Pekka Iso-Ketola

14:15 (348) *A wearable 12-lead ECG T-shirt with textile electrodes for unobtrusive long-term monitoring – Evaluation of an ongoing clinical trial,* Xinchi Yu

14.6.2017 13:15-14:45 Riffi

BIOIMAGING AND BIOIMAGE ANALYSIS AND PROCESSING
Statistical and Bayesian Approaches in EEG/MEG Data Analysis - Part II
Organised by: Sampsa Pursiainen

Chair: *Alberto Sorrentino* Co-Chair: *Sampsa Pursiainen*

13:15 (215) *Prior Variances and Depth Un-biased Estimators in EEG Focal Source Imaging,* Alexandra Kolouri, Invited Talk

13:45 (337) *Expectation–maximization algorithm with a nonlinear Kalman smoother for MEG/EEG connectivity estimation,* Narayan Puthanmadam Subramaniyam, Invited Talk

14:15 (040) *A Case Study of Focal Bayesian EEG Inversion for Whitney Element Source Spaces: Mesh-Based vs. Cartesian Orientations,* Sampsa Pursiainen

14.6.2017 13:15-14:45 Maestro

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Impedance Cardiography – the Method and its Applications
Organised by: Marcel Mlynczak

Chair: *Marcel Mlynczak* Co-Chair: *Gerard Cybulski*

13:15 (514) *Stroke volume assessment by impedance cardiography: Comparative analysis with transthoracic echocardiography,* Sandra Silluta

13:30 (476) *The Precordial Electrical Impedance Methods Possibilities in the Evaluation of Local Heart Chambers Contractility,* Artem Malakhov

13:45 (444) *The Quality of Automatic Artifact Identification in Ambulatory Impedance Cardiography Monitoring,* Gerard Cybulski

14:00 (440) *Variation of Cardiac and Respiratory Waveform on Human Thorax in the Case of Inductive Coupling,* Margus Metshein

14:15 (273) *Graphene electrodes for long-term impedance pneumography - a feasibility study,* Marcel **Młyń**czak

14.6.2017 14:45-15:45 Park Hall Stage

YOUNG INVESTIGATORS COMPETITION FINAL

14:45 (143) *To What Extent Can We Shorten HRV Analysis in Wearable Sensing? A Case Study on Mental Stress Detection*, Rossana Castaldo

14:50 (207) *Stochastic Modelling and Optimal Spectral Estimation of EEG signals*, Rachele Anderson

14:55 (208) *Semi-automatic hippocampus delineation algorithm using surface fairing*, Fabian Bartel

15:00 (217) *Long-Range Antenna Systems for In-Body Biotelemetry: Design Methodology and Characterization Approach*, Denys Nikolayev

15:05 (230) *Simple and convenient remote photoplethysmography system for monitoring regional anesthesia effectiveness*, Marta Lange

15:10 (261) *Contactless Respiration Monitoring in Real-Time via a Video Camera*, Fabian Braun

15:15 (296) *Optical Projection Tomography Imaging of Single Cells in 3D Gellan Gum Hydrogel*, Birhanu Belay

15:20 (339) *Magnetic Resonance Imaging Restoration based on Kolmogorov-Smirnov Non Local Mean*, Antonietta Sorriso

15:25 (363) *Robust Assistance Control of Left Ventricular Assist Devices*, Daniel Rüschen

15:30 (541) *Shielding static magnetic fields from Magnetic Resonance Imaging units by ferromagnetic material*, Tarmo Koppel

14.6.2017 15:45-17:15 Sonaatti 1

BIOMATERIALS
Biomaterials and Tissue Engineering - Part I
Organised by: Jonathan Massera &Teresa Calejo

Chair: *Jonathan Massera* Co-Chair: *Teresa Calejo*

15:45 (032) *Controlled release of exosomes by a photo-triggerable hydrogel enhances the healing in a diabetic wound animal model,* Lino Ferreira, Invited Talk

16:15 (374) *Development of fabrication methodology for a silicone armpit rehabilitation device for Burns patients,* Pierluigi Ravese

16:30 (492) *Two-Photon Polymerization of Microcylinder-Based Cell Culture Platform,* Sanna Turunen

16:45 (481) *From molecular interactions of pharmaceuticals to living cell studies for tissue engineering and diagnostics using Multi-Parametric Surface Plasmon Resonance,* Johana Kuncova-Kallio

14.6.2017 15:45-17:15 Sonaatti 2

BIOMEDICAL ENGINEERING EDUCATION & SOCIETY
Advances in Biomedical Engineering Education and Teaching
Organised by: Goran Devedzic

Chair: *Goran Devedzic* Co-Chair: *Jos Vander Sloten*

15:45 (537) *Biomedical Engineering Education: Need for Harmonisation,* Nicolas Pallikarakis, Invited Talk

16:15 (550) *Educating a biomedical engineer to become a generalist or a specialist?,* Jos Vander Sloten

16:30 (318) *A Framework for Technology Enhanced Education in Orthopaedics: Knee Surgery Case Study,* Goran Devedzic

16:45 (383) *MEDICIS-Promed: an Innovative Training Network for a new generation of professionals in nuclear medicine,* Thomas Elias Cocolios

17:00 (064) *The Role of Simulation for Preoperative Planning in Patients Requiring Mechanical Circulatory Support,* Claudio De Lazzari

14.6.2017 15:45-17:15 Small Auditorium

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Biosignals Interpretation - Part II
Organised by: Kristjan Pilt

Chair: *Kristjan Pilt* Co-Chair: *Afshin Samani*

15:45 (342) *EEG Spectral Asymmetry Index Detects Differences Between Leaders and Non-leaders,* Toomas Põld

16:00 (427) *Dependence of the EEG Nonlinear Coupling on the Frequency Bands and the Segment Lengths,* Laura Orgo

16:15 (368) *The level of mental load during a functional task is reflected in oculometrics,* Ramtin Zagardi Marandi

16:30 (101) *Functional connectivity of hand-arm muscles during a repetitive dynamic task,* Afshin Samani

16:45 (310) *Evaluation of the effective and functional connectivity estimators for microelectrode array recordings during in vitro neuronal network maturation,* Fikret Emre Kapucu

17:00 (130) *Association between Accelerations and Decelerations of Fetal Heart Rate,* Micaela Morettini

14.6.2017 15:45-17:15 Duetto 1

HEALTH TECHNOLOGY ASSESMENT
HTA, medical device R&D, manifacturing and procurement: compete or collaborate?

Chair: *Ernesto Iadanza* Co-Chair: *Mario Medvedec*

15:45 (070) *Healthcare Technology - Compete or Collaborate?,* Dan Clark

16:00 (464) *Early Stage Health Technology Assessment of eHealth solution for Diabetes. Experience on the usage of the MAFEIP tool: data collection.,* Giuseppe Fico

16:15 (209) *Predictive Health Technology and Policy Assessment of Socioeconomic Impacts,* Tero Jokinen

16:30 (512) *Economical Assessment of Medical Devices for Procurement Decisions,* Ivana Kubatova

14.6.2017 15:45-17:15 Duetto 2

WEARABLE AND IMPLANTABLE SYSTEMS
Implantable and Wearable Antennas, Sensors, and Systems for Wireless Medicine and Healthcare – Part II
Organised by: Toni Björninen & Johanna Virkki

Chair: *Toni Björninen* Co-Chair: *John Batchelor*

15:45 (217) *Long-Range Antenna Systems for In-Body Biotelemetry: Design Methodology and Characterization Approach,* Denys Nikolayev, YIC Finalist

16:00 (167) *Clinical Trial of Wireless Epidermal Temperature Sensors: preliminary results,* Gaetano Marrocco

16:15 (340) *UHF RFID Monitoring of Assistive Technologies Beyond the Clinic,* John Batchelor

16:30 (078) *Split Ring Resonator Inspired Passive UHF RFID Antenna System For Wireless Intra-Abdominal Pressure Sensor,* Shubin Ma

16:45 (247) *High Resolution E-Jet Printed Temperature Sensor on Artificial Skin,* Tiina Vuorinen

14.6.2017 15:45-17:15 Sopraano

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Electrocardiography

Chair: *Andrei Krivoshei* Co-Chair: *Noriyuki Takano*

15:45 (538) *Analysis of Instantaneous Cardiac EBI Signal Variability over the Heart Cycle(s): Non-Linear Time-Scale Approach,* Andrei Krivoshei

16:00 (185) *Optimizing the detection of characteristic waves in ECG based on exploration of processing steps combinations,* Krešimir Friganović

16:15 (518) *Simulation of the Vectorcardiogram using a simple Volume Conductor Model,* Leonie Korn

16:30 (415) *Learned vs. Hand-Designed Features for ECG Beat Classification: A Comprehensive Study,* Morteza Zabihi

16:45 (219) *Electrocardiographic QRS Onset and Offset Time Estimation Using Bandpass Filtered Hilbert Transform: A Simulation Result,* Noriyuki Takano

17:00 (010) *Novel adaptive approach for correcting baseline wander from ECG signals,* Sergey Akulov

14.6.2017 15:45-17:15 Maestro

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Advances in Bioimpedance Instrumentation and Measurement
Organised by: Marcel Mlynczak

Chair: *Marcel Mlynczak* Co-Chair: *Paul Annus*

15:45 (542) *Quantization of the response signal differences for the electrical bioimpedance measurement,* Paul Annus

16:00 (394) *Controllable Limiter of Signal Amplitudes for Bioimpedance Measurements,* Jaan Ojarand

16:15 (364) *The study of needle electrode characteristics for venipuncture electrical impedance controlling system,* Ivan Kudashov

16:30 (543) *The possibilities of electrical impedance definition of damaged intervertebral discs,* Andrew Blinow

16:45 (379) *Interpretation of the pinched point position in human skin memristor measurements,* Oliver Pabst

Thursday, 15 June

15.6.2017 10:15-11:45 Sonaatti 1

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Electroencephalography

Chair: *Jan De Munck* Co-Chair: *Tarmo Lipping*

10:15 (521) *Detection of sleep stages in neonatal EEG records,* Hana Schaabova

10:30 (014) *A Simple approach to detect alcoholics using electroencephalographic signals,* Nahit Gök**ş**en

10:45 (218) *Correlation of Depth of Anesthesia Indexes with MAC in Volatile Anesthesia,* Tarmo Lipping

11:00 (073) *2D-EEG Topography and fMRI Brain Images for Relaxation and Letter Writing,* Wahidah Mansor

11:15 (392) *Research and development of the control methods of anthropomorphic technical devices based on the analysis of processes of human brain activity,* Roman Oleynik

15.6.2017 10:45-12:15 Sonaatti 2

BIOPHYSICS AND MEDICAL PHYSICS
Biophysics and Medical Physics

Chair: *Antti Kulkas* Co-Chair: *Zinan He*

10:15 (449) *Application of digital imaging for quantitative assessment of wheal formation,* Eugeniusz Rokita

10:30 (205) *Optimization of 99mTc-sestamibi/123I subtraction SPECT/CT protocol for parathyroid scintigraphy,* Virpi Tunninen

10:45 (410) *Extents, Locations and Geometrical Configurations of Calcification in Abdominal Aortic Aneurysm,* Zinan He

11:00 (177) *A comparison between the commercially available gamma criteria evolution software and new modified algorithm for field-in-field technique,* Alvis Bernans

11:15 (206) *Physical characteristics of collimators for dual-isotope imaging with 99mTc and 123I,* Virpi Tunninen

15.6.2017 10:45-12:15 Small Auditorium

STUDENT EVENT: CAREER PLANNING

10:45 Jukka-Pekka Onnela, Assistant Professor of Biostatistic, Harvard T.H. Chan School of Public Health, Harvard University, United States

11:30 Teemu Ihalainen, Academy Research Fellow, Faculty of Medicine and Life Sciences, University of Tampere, Finland

15.6.2017 10:15-11:45 Duetto 1

CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS
How Can Functional Electrical Stimulation Currently Support Movement Rehabilitation: Advanced Technology Meets Physiological Reality
Organised by: Winfried Mayr & Matthias Krenn & Jose Luis Vargas Luna

Chair: *Winfried Mayr* Co-Chair: *Ruediger Rupp*

10:15 (588) *Introductory remarks on interaction of FES technology with physiological interface conditions,* Winfried Mayr

10:30 (565) *Implantable microelectrodes - actual and foreseeable limits for refinement of stimulation selectivity,* Max Eickenscheidt

10:45 (589) *Influences of control mode and stimulus shape variation on motor unit recruitment in non-invasive neuromuscular stimulation,* José Luis Vargas Luna

11:00 (590) *MoreGrasp – BCI-controlled sensory and motor grasp neuroprosthesis for individuals with high spinal cord injury,* Ruediger Rupp

11:15 (591) *Assistive and therapeutic effects of non-invasive neuroprostheses for gait correction,* Thierry Keller

11:30 (592) *Spinal cord stimulation, a versatile tool for assessment and monitoring, modification of spasticity and augmentation of movement,* Matthias Krenn

15.6.2017 10:15-11:45 Duetto 2

BIOMATERIALS
Biomaterials and Tissue Engineering - Part II
Organised by: Jonathan Massera & Teresa Calejo

Chair: *Jonathan Massera* Co-Chair: *Amy Nommeots-Nomm*

10:15 (030) *3D Laser printing of biomateirlas and living cells,* Boris Chichkov, Invited Talk

10:45 (193) *Bioactive glass scaffolds: understanding the in vivo effects of morphology,* Amy Nommeots-Nomm

11:00 (421) *Translational Journey of a Novel Bioactive Suture,* Hayley Morris

11:15 (477) *In vitro dissolution of partly crystalline bioactive glass S53P4 scaffolds,* Laura Aalto-Setälä

11:30 (047) *Honeycomb films in retinal tissue engineering,* Teresa Calejo

15.6.2017 10:15-11:45 Riffi

BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING
Electromyography and Functional Electrical Stimulation

Chair: *Jukka Lekkala* Co-Chair: *Takashi Watanabe*

10:15 (148) *Time-frequency analysis of surface EMG signals for maximum energy localization during walking,* Annachiara Strazza

10:30 (211) *Motor control strategies in gastrocnemius muscles are affected differently in younger than in older adults after 14-day bed rest,* Matjaž Divjak

10:45 (094) *Determination of Stimulation Timing Pattern based on EMG Signals for FES Cycling with Pedaling Wheelchair,* Takashi Watanabe

11:00 (341) *Stimulation Waveform Selection to Suppress Functional Electrical Stimulation Artifact from Surface EMG Signals,* Ville Rantanen

15.6.2017 10:15-11:45 Sopraano

WEARABLE AND IMPLANTABLE SYSTEMS
Wearable and Implantable Systems

Chair: *Ilkka Korhonen* Co-Chair: *Heinrich Schima*

10:15 (510) *Dry electrode sizes in recording ECG and heart rate in wearable applications,* Atte Joutsen

10:30 (363) *Robust Assistance Control of Left Ventricular Assist Devices,* Daniel Rüschen, YIC Finalist

10:45 (346) *Investigation of LVAD Sputnik electrical parameters for modified geometry of the rotor,* Dmitry Telyshev

11:00 (502) *Performance Analysis of Novel Flexible Electrodes for Wearable ECG/Heart Rate Monitoring,* Emma Kaappa

11:15 (472) *Outdoor management of patients with Ventricular Assist Devices:,* Heinrich Schima

11:30 (011) *Motion artifacts reduction in wearable respiratory monitoring device,* Sergey Akulov

15.6.2017 10:15-11:45 Maestro

BIOMEDICAL ENGINEERING IN DEVELOPING COUNTRIES
Biomedical Engineering in Africa
Organised by: Timo Jämsä

Chair: *Timo Jämsä* Co-Chair: *Jari Hyttinen*

10:15 (291) *To improve care & safety of rural patients empowering the village doctors,* Mannan Mridha

10:30 (319) *Open source technology in biomedical engineering: fast track towards sustainable development*, Arti Ahluwalia

10:45 (115) *Health Technology Assessment of Medical Devices in Low and Middle Income Countries: study design and preliminary results,* Leandro Pecchia

11:00 (478) *Clinical Engineering Online Courses for Africa,* Ernesto Iadanza

11:15 Panel Discussion

Poster Sessions

Monday 12 June

Panel	ID	Title	Presenter
1	021	Enhanced Patient Queue Management: Development of Slot-Back Model Equation Using University of Maiduguri Medical Centre as Experimental Site	Abdulfattah Aboaba
2	045	Basic research on countermeasures against barium sulfate aggregation using a gastric phantom	Kenyu Yamamoto
3	060	Modelling Ion Channel Blocking Using Multiple Parameter Sets for Ventricle Monophasic Action Potential of Guinea Pigs	Edmund Watson
4	065	Sensitivity Distribution of Electrical Impedance Epithelial Measurement Systems	Aapo Tervonen
5	084	Electrospray - A versatile tool for physical targeted gene- and chemotherapy	David Hradetzky
6	097	A Neural Network Model of Peripersonal Space Representation Around Different Body Parts	Matteo Vissani
7	107	Some Problems and Supports in the Colorectal Cancer Screening Behavior in Japan	Naoko Fujiwara
8	108	Assessing representativeness of a rural Australian clinical database using a spatial modelling approach	Herbert Jelinek
9	109	Automatic identification for surgical instruments using UHF band passive RFID	Ryosuke Hosaka
10	123	Response characteristics of radiochromic film at CT radiation quality	Rumi Gotanda
11	157	Simple Assessment of Insulin Sensitivity in the Zucker Rat	Micaela Morettini

12	158	Effective dose display system for patients undergoing X-ray screenings for gastric cancer	Kenyu Yamamoto
13	166	Nanofibers doped with functionalized nanodiamonds for treatment of non-healing wounds	Eva Neuhöferová
14	170	Methods for grossly identifying a mass of cells at the time of Endoscopic Ultra sound/Fine Needle Aspiration (EUS-FNA)	Misao Yoneda
15	172	Design And Evaluation Of A Mandible Endoprosthesis System	Yuchun Liu
16	181	Entropy-based Axon-to-Axon Mutual Interaction Characterization via Iterative Learning Identification	Qichun Zhang
17	184	MIDAS EU Project– Meaningful Integration of Data Analytics and Services	Juha Pajula
18	188	A Study to find the Optimal Imaging Condition and Evaluation of the Usefulness of the PROPELLER DWI on Pediatric Ear 1.5T MR Examinations	Makoto Shimada
19	192	Dynamic Volume Scan Using an Electrocardiography Synchronization System with 320-Detector-row Computed Tomography for Pediatric Tracheal Bronchus	Shuji Abe
20	235	Assessment of Abdominal Muscles Thickness Symmetry during Movement Performance Testing Using Double Probe Ultrasound Scanner	Darius Jegelevičius
21	238	Markerless Motion Analysis for Early Detection of Infantile Movement Disorders	Nikolas Hesse
22	256	A Computational Study on the Role of N2O3 in Enhancing Nitric Oxide from Deoxyhemoglobin Nitrite Reduction	Yien Liu
23	268	Risk stratification in hypertrophic cardiomyopathy using ECG-based clustering and personalized computer simulations	Aurore Lyon
24	315	New EEG Forward Solution	Botjana Petkovic
25	324	Altered synaptic signaling due to beta-amyloid interference in astrocytes: A modeling study	Riikka Havela
26	350	Read Directivity of Epidermal Tags for Future Medical and Social Care Monitoring Systems	Paul Taylor
27	356	Multi-parameter Sensing Platform in ESS-H and E-care@home	Maria Lindén
28	359	Analytical method for calculating drug outflow in multi-infusion: outlook and future perspectives	Leonard van Schelven
29	365	Robust control of extracorporeal gas exchange	Marian Walter
30	372	Clinical Decision Support Systems for COPD: a general overview	Vlad Antoniu Mudura
31	373	IBM Watson Analytics for Managing Congestive Heart Failure	Vlad Antoniu Mudura
32	376	Ambulatory assistive device for early mobilization of critically ill patients	Pierluigi Ravese
33	386	Online EEG data analysis with MNE-CPP	Lorenz Esch

34	407	The Thermodynamic Cost of Intelligence	Panagiotis Katrakazas
35	409	Augmented virtuality platform for usability evaluation of a novel endoscope concept	Tuukka Karvonen
36	423	PathWalue: Pathways with Value	Pauli Losoi
37	454	Overview of Health Behavior Change Interventions to Promote Physical-activity-related Adherence in Patients with Heart Disease	Kristina Livitckaia
38	455	Short-term stability of combined finger and toe photoplethysmogram analysis	Mikko Peltokangas
39	457	Day-to-day repeatability of the results of the finger-toe-plot analysis	Mikko Peltokangas
40	473	Topics and Trends Analysis in eHealth Literature	George Drosatos
41	475	Conduction velocity effects due to ephaptic interactions between myelinated axons	Francisco Sepulveda
42	491	Designing a mobile system for safety reporting of arthroplasty adverse events	Ankica Babic
43	499	Current trends in Electronic Family Resilience Tools: Implementing a tool for the cancer domain	Eleni Kazantzaki
44	500	A self-reporting tool to reduce the occurrence of postoperative adverse events after total hip arthroplasty	Ankica Babic
45	517	Using quantitative parameters of ocular blood filling with transpalpebral rheoophthalmography	Petr Luzhnov
46	287	Treatment planning of microbrachytherapy with 3D NSGA-II	Manuel Bardiés

Tuesday 13 June

Panel	ID	Title	Presenter
1	035	Biodegradable and self-healing hydrogels with fast gelation as promising biomaterial for tissue engineering application	Musammir Khan
2	041	Multiresolution MAPEM Method for 3D Reconstruction of Symmetrical Particles with Electron Microscopy	Sari Peltonen
3	050	A Bioengineered 3-Dimensional Model of Human Tuberculosis to Dissect Host-Pathogen Interactions	Liku Bekele Tereza
4	054	Double-arm optical manipulator with a microlens array for flexible patterning of microbeads	Yoshio Tanaka
5	056	Development of a pneumo-tactile vibrissae stimulator for freely behaving rodents	Ulrich Hofmann
6	061	A Novel Composite and Suspended Nanofibrous Scaffold for Skin Tissue Engineering	Caihong Zhu
7	068	Experimental and numerical assessment of MRI-induced temperature change and SAR distributions in phantoms	Niall Colgan

8	081	MODELLING OF TIME-VARYING HRV USING LOCALLY STATIONARY PROCESSES	Rachele Anderson
9	087	Rotational electrical impedance tomography of hydrogel phantoms	Mari Lehti-Polojärvi
10	088	Vibration stimulator for imaging mechanotransduction based cell responses	Heidi Halonen
11	089	Quantitative pigment extraction analysis for human pluripotent stem cell de-rived retinal pigment epithelial cells	Kati Juuti-Uusitalo
12	095	Egg Yolk Plasma as a 3D Culturing and 3D Bioprintable Biomaterial	Andre Charbonneau
13	113	Hydrazone crosslinked hyaluronan hydrogels combined with collagen I for the treatment of corneal stromal defects	Jennika Karvinen
14	135	Impacts of laminin and polyethyleneimine surface coatings on morphology of differentiating human SH-SY5Y cells and networks	Heidi Teppola
15	136	Assessment of a simultaneous measurement of cardiomyocyte contraction using video image-based block matching methods and calcium imaging	Antti Ahola
16	149	Enhanced Wiener Filter for Ultrasound image denoising	Fabio Baselice
17	153	Connectomics and ZEISS MultiSEM – the fastest scanning electron microscope in the world enables extreme-scale electron microscopy	Anna Lena Eberle
18	173	Spheroid-based bio-lead with PC12 cells for development of neuronal stimulation electrodes	Sanghun Lee
19	183	Multi days' classification of hand motions: Daily assessment based on surface electromyography (EMG)	Asim Waris
20	221	Multiregional Fuzzy Thresholding Segmentation Completed by Spatial Median Aggregation: Modeling and Segmentation of Early Pathological Findings of Articular Cartilage	Lukas Peter
21	228	The test and simulation of aortic valve leaflets with shape memory alloy fibers	Mariusz Pawlak
22	237	The effect of borosilicate glasses and glass dissolution products on human adipose stem cells	Miina Ojansivu
23	255	Bismuth-Oxo-Clusters for Soft Tissue Staining	Madleen Busse
24	257	Different proliferation and osteogenic potential of human adipose tissue-derived stem cells influenced by fibroblast growth factor 2	Martina Trávníčková
25	279	Automated Pipeline for Brain ROI Analysis with Results Comparable to Previous Freehand Measures in Clinical Settings	Tero Ilvesmäki
26	322	Examination of biopolymer silica nanoparticle composites	Adrienn Kiss
27	328	Towards the introduction of phase contrast breast tomography into clinical practice	Serena Pacilè

28	331	Soft Robotic Sock for Robot-Assisted Ankle Dorsiflexion-Plantarflexion and Eversion-Inversion Rehabilitation Exercises	Chen-Hua Yeow
29	349	Multimodal Imaging of Silver Nanoclusters	Atena Rezaei
30	358	In vivo measurement of ocular microtremor using i-tremor instrument	Mindaugas Norkus
31	378	Reproducible preparation method of hydrogels for cell culture applications – case study with spermidine crosslinked gellan gum	Christine Gering
32	390	Biomedical Engineering Education in Context of New Legislation in the Czech Republic	Lenka Lhotská
33	395	A camera-based multispectral setup for remote vital signs assessment	Michael Paul
34	397	Skin movement tracking with a low-cost optical navigation sensor	Mindaugas Norkus
35	414	Generation of Matrix Elasticity Gradients for Cellular Engineering	Zhengkun Chen
36	416	Design, fabrication and characterization of a high precision MEMS tilt sensor for surgical robot navigation	Daniel Wohlrab
37	431	Prediction of meditation experience using fMRI functional connectivity and multivariate pattern analysis	Cosimo Del Gratta
38	432	Automatic real time derivation of breathing rate from thermal video sequences	Dragos Daniel Taralunga
39	438	Minimum Spanning Tree based Hierarchical Super-pixels	Yll Haxhimusa
40	442	Setup of a white light selective plane microscope to investigate microprobe insertion in a brain model	Ulrich Hofmann
41	443	Multivariate methods for brain functional connectivity from EEG/MEG data	Vittorio Pizzella
42	448	Design and formation of acoustic radiation force field to bend thin catheter using 2-dimensional array transducer	Kohji Masuda
43	467	Line Contrast Figure of Merit for Dual Energy X-ray Image Quality Assessment: Initial Results	Nicolas Pallikarakis
44	471	Method for Automatic 3D Bone Segmentation in CBCT Data	Mantas Vaitiekūnas
45	482	Drug releasing poly (lactide-co-glycolide) – polyvinyl alcohol microparticles	Jenny Parraga
46	509	Different approaches to formulate gelatin - gellan gum hydrogels influence the cell behavior	Jenny Parraga
47	496	Design and Development of a Low-Budget Infrasonic Detector	Panagiotis Katrakazas
48	525	How clinical engineer involve in risk management in health services.	Charilaos Apostolidis
49	533	Modeling of deep brain stimulation	Mikko Hallomaa
50	548	Predicting the Effect of Cell Morphology on Intracellular Strain and Stress	Tamer Abdalrahman

Wednesday 14 June

Panel	Paper ID	Title	Presenter
1	018	Ultraviolet Ray Strength for Pre-irradiation in Gafchromic EBT2	Toshizo Katsuda
2	023	Detection of Amyloid – β 1-42 Peptides from Water and Artificial Saliva on Nanopillared Polymer Films via SERS Technology	Sevde Altuntas
3	028	Preliminary results of the Design and Construction of a low cost Humid chamber and Temperature Controller adapted to a Fluorescent Microscope to study Biological Samples	Daniel Rueda
4	036	Carbon nanofibers based wearable patch for bio potential monitoring	Hachul Jung
5	044	Influence of scattered radiation on Gafchromic EBT3	Tatsuhiro Gotanda
6	062	Biopsy needle with local bioimpedance measurement and real-time tissue classification	Sanna Halonen
7	074	UV Intensity of Pre-irradiation in Gafchromic XR-RV3 and XR-SP2	Tadao Kuwano
8	083	3D visualization of intraoperative stimulation test results in deep brain stimulation	Simone Hemm-Ode
9	127	Separation of Superimposed Electrocardiographic and Electromyographic Signals	Francesco Di Nardo
10	128	Evaluation and determination of the optimized beam spoiler for dose uniformity achievement in abutting normal and oblique electron fields	Faranak Felfeliyan
11	137	Real-time Macro Sleep Stages Estimation using Audio Analysis	Eliran Dafna
12	140	A Novel Measure of Instantaneous Baroreflex Sensitivity	Sasan Yazdani
13	141	A Non-linear Filter to Detect Atrial Activation from Intracardiac Electrograms	Sasan Yazdani
14	142	Can one detect atrial fibrillation using a wrist-type photoplethysmographic device?	Sibylle Fallet
15	180	Development of a dual mode marker for navigated dental implant surgery	Simone Hemm
16	189	A Technique for Quantifying the Relative Angular Movement of the Head and Shoulders	Petr Volf
17	199	Classification of physical activities and sedentary behavior using raw data of 3D hip acceleration	Petra Tjurin
18	224	Correlation of Mayer waves in retinal vessel diameter and arterial blood pressure	Steffen Rieger
19	225	Application of Classification Tree for Quality Estimation of Textile Electrodes based ECG	Darius Jegelevičius
20	231	The Effect of Venous Occlusion To Increase The Accuracy Of Electrical Impedance Method Of Peripheral Veins Detection	Mugeb Al-harosh

21	241	A Clinical Decision Support System for a Holistic Approach to Dementia Diagnosis	Mark van Gils
22	245	Artificial Eye Blink Pacemaker - A First Investigation into the Blink Production Using Constant-interval Electrical Stimulation	Eeva Mäkelä
23	264	Correlation time determined in cartilage by MRI T1rho relaxation dispersion	Miika Nieminen
24	271	Comparison of dose calculations with two Monte Carlo-based codes in external beam small-field radiotherapy	Mari Partanen
25	272	Characterization of Chloride Channels in Human Embryonic Stem Cell Derived Retinal Pigment Epithelium	Iina Korkka
26	282	Novel Cap Concepts for Rapid EEG with Dry Multipin Electrodes	Patrique Fiedler
27		moved to June 12th	
28	295	Electrodermal activity asymmetry in sleep - a case study for migraine detection	Henna Mönttinen
29	325	Hearth cell beating force measurement using piezoelectric PVDF sensor platform	Arno Pammo
30	330	Eye movements estimate time awake	Kati Pettersson
31	333	Low-latency EMG Onset and Termination Detection for Facial Pacing	Anton Kontunen
32	334	Saliva as a non-invasive sample matrix: collection and handling for point-of-care diagnostics	Elisa Tikkanen
33	336	Saliva matrix effect elimination by detergents	Satu Kämäräinen
34	351	The effect of sample duration on the robustness of pulse-pressure variation during ongoing surgery	Shaoxiong Sun
35	352	Electrorotation of zebrafish embryo: a potential tool for toxicological assays	Aránzazu Sanchis-Otero
36	355	Artifact detection in neonatal EEG using Gaussian mixture models	Minna Kauppila
37	362	Prediction of Bone Mineral Density in Menopaused Women by Using Bioimpedance Parameters	Firat Matur
38	371	Screening sleep-related breathing disturbances in stroke patients using the Emfit ferroelectret film sensor and the oximeter	Toni Niiniviita
39	375	Human Activity Recognition Using A Single Optical Heart Rate Monitoring Wristband Equipped with Triaxial Accelerometer	Saeed Mehrang
40	380	ENTROPY IN ANALYSIS OF HEMODYNAMIC RESPONSE ON TITLT TEST IN PATIENTS WITH SYNCOPE	Katarzyna Buszko
41	385	Effect of Nitrocellulose Membrane on the Electrochemical Behavior of Hydroquinone	Adriana Ferancova
42	387	Intra- and inter-observer variation in depth of penetration of ultrasound scanners	Anna Vuorenmaa
43	396	Novel Sensor Technologies for a more Functional and Accurate EEG Acquisition	Carlos Fonseca

44	447	Development of molecularly imprinted polymers for detection of folic acid via solid phase extraction	Peter Panjan
45	469	System for Dynamic Body Balance Measurement	Nicolas Pallikarakis
46	489	Circadian blood pressure pattern in positive drug responsive hypertensives, hypertensives and normotensives, and gender influences.	Federica De Dea
47	493	PPG MEASUREMENT AND ANALYSIS BASED ON PULSE DECOMPOSTION, FOURIER TRANSMORMATION, AND PROBABILITY DENSITY FUNCTIONS	Matti Huotari
48	508	Vasovagal Syncope is Associated with Relative Autonomic Hypersensitivity and Lower Stroke Volume during Active Standing	Gerard Boyle
49	526	Numerical analysis of saline irrigable electrode for radiofrequency cardiac ablation	Jin Woo Ahn
50	554	Dynamic changes in the cardio and cerebrovascular measures due to random step-wise thigh-cuffs pressure	Dragana Nikolic

Student Poster Competition Finalists, 12 – 14 June

Panel	Paper ID	Title	Presenter
F1	042	Effect of sinus attenuation in MR-based attenuation correction in 18F-FDG brain PET/MR	Jarmo Teuho
F2	077	Center of Pressure based Assessment of Balance Responses to Repeated Perturbations of Upright Stance	Annachiara Strazza
F3	145	Carbon on poly(ε-caprolactone) (PCL) Ink-jet Printed Sensor for Monitoring Cell Cultures of Myoblasts	Mariagrazia Marziano
F4	160	Enhanced Sensing of Interleukin 8 by Stripping Voltammetry: Carbon Nanotubes versus Fullerene	Sarah Tonello
F5	382	The use of the TLD-100 for quality assurance in Total Body Irradiation (TBI)	Arnie Verde Nolasco
F6	402	Pre-processing to Enhance the Quantitative Analysis of Glucose from NIR and MIR Spectra	Osamah Alrezj
F7	441	Optically Induced Semiconductor Gas Sensor: Acetone Detection Range using Continuous and Cyclic Optical Irradiation Types	Maksims Sneiders
F8	485	Chronic Disease Management via Mobile Apps:the diabetes case	Panagiotis Katrakazas
F9	515	Method for Evaluation of Surgical Wound Healing: A Case Study	Atte Kekonen
F10	524	Auto-regression-driven, reallocative particle filtering approaches in PPG-based respiration rate estimation	Mikko Pirhonen

Final of Poster Competition: Wednesday 14 June at 9:45 – 10:45, Park Hall

Posters are also presented on Tuesday 13 June at 9:45 – 10:45

Late Breaking Posters

Monday 12 June

Panel	Paper ID	Title	Presenter
L1	579	Finite element method based evaluation of geometry for action potential propagation measurements	Jari Väliaho
L2	580	Cell-Type Specific Modulation Of Motor Plasticity Using Optogenetic Telemetry	Jia-Jin Chen
L3	581	Development Of Wireless Optogenetic Neural Interface	Jia-Jin Chen
L4	582	MiniHypoxy – Mobile alterable oxygen environment for cell biology research	Kaisa Tornberg
L5	583	New covalent coating methods of polydimethylsiloxane substrates for cell stretching applications	Joni Leivo

L6	584	Metastasis detection using feature engineering and machine learning	Mira Valkonen
L7	585	Disrupting acute healthcare	Meabh Smith
L8	586	Three-dimensional evaluation of static magnetic field exposure near MRI scanners	Jolanta Karpowicz
L9	593	Does the Human Body Alter Measurement Uncertainty of A Multi-Band Wearable Distributed Radio Frequency Exposure Meter?	Reza Aminzadeh

Tuesday 13 June

Panel	Paper ID	Title	Presenter
L1	568	A subject-specific sEMG model of the first dorsal interosseous incorporating muscle fiber direction assessed through diffusion tensor imaging	Kathleen Curran
L2	569	Mid-IR spectroscopy as a diagnostic tool for real time in-vitro tumor Classification: A preliminary study	Ben-Zion Dekel
L3	570	Free water elimination and mapping from diffusion tensor imaging (DTI) in chronic schizophrenia	Niall Colgan
L4	571	Mid IR water spectrum estimation in biopsies: significance for in-vitro tumor classification during surgery	Dov Malonek
L5	572	A Preliminary Study of Biometric Identity Authentication Using Acoustic Impedance of Fingers	Joo Yong Sim
L6	573	New approach of Biometric Authentication Using Bioelectric Finger Impedance Analysis	Hyung Wook Noh
L7	574	Carbon nanotube-based scaffolds designed for tissue engineering	Gabriela Lorite
L8	575	A Wearable Outdoor Mobility Aid for Subject with Parkinson's Disease	Hsiao-Yu Lee
L9	578	Electrophysiological assessment of retinal explant cultures in therapy development	Virpi Alarautalahti

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