



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:



Finnish Society for Medical Physics
and Medical Engineering

Endorsed by:



Co-Sponsor:



Sunday 11.6.2017

17:30 -19.00	Registration opens <i>Tampere Hall, Yliopistonkatu 55, 33100 Tampere</i>
19:00 -21.30	Get-together <i>Tampere Hall: Restaurant Fuuga, Yliopistonkatu 55, 33100 Tampere</i>

Monday 12.6.2017

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

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

	<p>(parallel sessions continue)</p> <p><i>Duetto 1</i> BIOMEDICAL OPTICS - Special Session: Biomedical Optics Organizer: Professor Karin Wårdell</p> <p><i>Duetto 2</i> CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS - Diagnostic and Therapeutic Systems</p> <p><i>Riffi</i> HEALTHCARE INFORMATION SYSTEMS AND HEALTH INFORMATICS - Special Session: Snapshot of Medical Informatics Research Projects in Japan and Poland Organizer: Professor Piotr Ladyzynski</p> <p><i>Maestro</i> BIOPHYSICS AND MEDICAL PHYSICS - Special Track: Electromagnetic Fields in Biology and Medicine: Electric Field and Modelling Organizer: Professor Hiie Hinrikus</p>
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10:00 – 17:15	Commercial Exhibition <i>Park Hall</i>
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10:00 – 15.30	Networking Event, <i>Sopraano</i> https://www.b2match.eu/embec2017 10:00 - 12:00 Morning Session 13:30 - 15:30 Afternoon Session
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18:30 -	Social Programme: Evening at Lake <i>Viikinsaari, Departure from Laukontori</i>
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Tuesday 13.6.2017

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

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

	<p><i>Small Auditorium</i> HEALTH TECHNOLOGY ASSESSMENT - Special Track: Patient involvement in HTA: methods and experiences <i>Organizer: Assistant Professor Leandro Pecchia</i></p> <p><i>Duetto 1</i> BIOINFORMATICS, COMPUTATIONAL BIOLOGY AND SYSTEMS BIOLOGY - Bioinformatics, Computational Biology and Systems Biology</p> <p><i>Duetto 2</i> BIOPHYSICS AND MEDICAL PHYSICS - Special Session: New Applications for Detection of Sleep-disordered Breathing - Part II <i>Organizer: Dr. Mirja Tenhunen</i></p> <p><i>Riffi</i> BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Session: Recent Advances in Heart Rate Variability Analysis - Part II <i>Organizer: Dr. Mika Tarvainen</i></p> <p><i>Sopraano</i> MICRO- AND NANO-BIOENGINEERING - Special Session: BioMEMS for Organ-on-Chip Applications <i>Organizer: Professor Pasi Kallio</i></p>
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8:15-18:00	<p>Commercial Exhibition <i>Park Hall</i></p>
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10:00 – 15.30	<p>Networking Event, <i>Sopraano</i> https://www.b2match.eu/embec2017 10:00 - 12:00 Morning Session 13:30 - 15:30 Afternoon Session</p>
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18:30	<p>Student Evening <i>Villa Härmälänranta, Departure from Tampere-Hall</i> For students, who have registered to the event</p>
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Wednesday 14.6.2017

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

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

	<p><i>Duetto 2</i> WEARABLE AND IMPLANTABLE SYSTEMS - Special Session: Implantable and Wearable Antennas, Sensors, and Systems for Wireless Medicine and Healthcare – Part II <i>Organizers: Dr. Toni Björninen & Dr. Johanna Virkki</i></p> <p><i>Sopraano</i> BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING – Electrocardiography</p> <p><i>Maestro</i> BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING - Special Track: Advances in Bioimpedance Instrumentation and Measurement <i>Organizers: Marcel Młyńczak</i></p>
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8:15 – 16:00	Commeical Exhibition <i>Park Hall</i>
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19:00	Conference Dinner <i>Hotel Rosendahl, Departure from Tampere-Hall</i>
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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 <i>Sonaatti 1</i> BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING – Electroencephalography <i>Sonaatti 2</i> BIOPHYSICS AND MEDICAL PHYSICS - Biophysics and Medical Physics <i>Small Auditorium</i> Student Event: Career Planning <i>Duetto 1</i> CLINICAL ENGINEERING AND THERAPEUTIC AND DIAGNOSTIC SYSTEMS - Special Session: How can Functional Electrical Stimulation Currently Support Movement Rehabilitation: Advanced Technology Meets Physiological Reality <i>Organizer: Professor Winfried Mayr, Dr. Matthias Krenn & Jose Luis Vargas Luna</i> <i>Duetto 2</i> BIOMATERIALS - Special Session: Biomaterials and Tissue Engineering - Part II <i>Organizers: Dr. Teresa Calejo & Dr. Jonathan Massera</i> <i>Riffi</i> BIOSENSING AND BIOSIGNAL ANALYSIS AND PROCESSING – Electromyography and Functional Electrical Stimulation <i>Sopraano</i> WEARABLE AND IMPLANTABLE SYSTEMS - Wearable and Implantable Systems <i>Maestro</i> BIOMEDICAL ENGINEERING IN DEVELOPING COUNTRIES - Special Session: Biomedical Engineering in Africa <i>Organizers: Professor Timo Jämsä</i>
11:45	Keynote, Main Auditorium Professor Gordon Wallace: "New Materials and Fabrication Tools to Facilitate Neural Communications" Chair: Prof. Jari Hyttinen

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

- 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:

- 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

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 (428) *Experimental threshold for magnetophosphene perception triggered by retinal magnetic induction*, Alexandre Legros
- 11:45 (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
- 12:00 (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:

- 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-Myrsky*

13:15 Vulnerability Management

13:45 Threat Intelligence

14:15 Information Sharing to Reduce Risk

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*, Piotr Ladyzynski

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*, Włodzimierz 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:

- 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 Sobiecki

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

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 rheophthalmography*, 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 Paštěka

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-sensitive SQUID instrumentation 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:

- 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:

- 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 ASSESSMENT

Picking the Winner: How HTA of Medical Devices Can Help Identify Routes to a Sustainable Healthcare System

Organised by: Dan Clark

Chair: *Nikolas Pallikarakis* Co-Chair: *Dan Clark*

- 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 Polisen
- 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:

- 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: *Riccardo Barbieri*

- 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 (400) *Assessment of Instantaneous Heartbeat Dynamics in amnesic Mild Cognitive Impairment*, Riccardo Barbieri
- 14:15 (504) *Pattern recognition techniques and classification sets supporting behavioural tagging when using a limited number of body sensors*, Wilhelm 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:

- 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 Poly(lactide) 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 ASSESSMENT

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:

- 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) *Identification 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: *Herbert Jelinek*

- 16:30 (026) *The Influence of Pharmacological Autonomic Blockades on Multi-Scale Measures of Heart Rate Variability*, Herbert Jelinek
- 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*, Alpo Värri
- 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*, Mattias Goksör
- 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 Avena

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*, Evren Değirmenci

14.6.2017 10:45-12:15 Small Auditorium

STUDENT EVENT: FUNDING OPPORTUNITIES FOR YOUNG SCIENTISTS

- 10:45 EU Commission
- 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: *Tapio Seppänen* Co-Chair:

- 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*, Tuğçe Sena Avşar

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

Women in Biomedical Engineering

Organised by: Eleni Kaldoudi & Birgit Glasmacher

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

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:

- 10:45 (186) *Linearity of Simultaneously Recorded Impedance Pneumography and Direct Pneumotachography in Thoracic Surgery Patients*, Milla Jauhainen
- 11:00 (465) *Does asthma-like increased breathing load influence impedance pneumography signal?*, Marek Żyliński
- 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 Młyńczak
- 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:

- 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 Rynnänen

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:

- 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 Fluorimetric Signals*, Jana Holmas
- 14:27 (519) *Determination of the Effect of SiO₂ Nanoparticles on Spontaneous Activity of Rat Uterus Smooth Muscles using Wavelet Scalogram Analysis*, Evren Değirmenci

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*, Xinchu 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 Subramaniam, 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 Młyńczak

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 ASSESSMENT

HTA, medical device R&D, manufacturing 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: *Juha Nousiainen* Co-Chair:

- 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:

- 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 Gökşen
- 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:

- 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 biomaterials 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:

- 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:

- 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
7	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	Shuji Abe

		with 320-Detector-row Computed Tomography for Pediatric Tracheal Bronchus	
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	PathValue: 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

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	Tatsuhiko 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	287	Treatment planning of microbrachytherapy with 3D NSGA-II	Manuel Bardiés
28	295	Electrodermal activity asymmetry in sleep - a case study for migraine detection	Henna Mönttinen
29	325	Heart 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 Menopausal 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 TILT 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 DECOMPOSITION, FOURIER TRANSFORMATION, 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 ID	Paper ID	Title	Presenter
1	042	Effect of sinus attenuation in MR-based attenuation correction in 18F-FDG brain PET/MR	Jarmo Teuvo
2	077	Center of Pressure based Assessment of Balance Responses to Repeated Perturbations of Upright Stance	Annachiara Strazza
3	145	Carbon on poly(ϵ -caprolactone) (PCL) Ink-jet Printed Sensor for Monitoring Cell Cultures of Myoblasts	Mariagrazia Marziano
4	160	Enhanced Sensing of Interleukin 8 by Stripping Voltammetry: Carbon Nanotubes versus Fullerene	Sarah Tonello
5	382	The use of the TLD-100 for quality assurance in Total Body Irradiation (TBI)	Arnie Verde Nolasco
6	402	Pre-processing to Enhance the Quantitative Analysis of Glucose from NIR and MIR Spectra	Osamah Alrezj
7	441	Optically Induced Semiconductor Gas Sensor: Acetone Detection Range using Continuous and Cyclic Optical Irradiation Types	Maksims Sneiders
8	485	Chronic Disease Management via Mobile Apps: the diabetes case	Panagiotis Katrakazas
9	515	Method for Evaluation of Surgical Wound Healing: A Case Study	Atte Kekonen
10	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

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