

ORGANISING COMMITTEE

STEERING COMMITTEE MEMBERS (Tallinn University of Technology)

Toomas Rang, *general chairman*, Semiconductor devices and analog electronics, Thomas Johann Seebeck Department of Electronics
Ants Koel, *vice-chair*, Semiconductor devices and analog electronics, Thomas Johann Seebeck Department of Electronics
Peeter Ellervee, *vice-chair*, Digital and Embedded Systems, Department of Computer Engineering
Yannick Le Moullec, Digital and Embedded Systems, Thomas Johann Seebeck Department of Electronics
Jaan Raik, Test, Verification, and Validation, Department of Computer Engineering
Leonidas Tsiopoulos, Test, Verification, and Validation, Department of Computer Science
Olev Märten, Instrumentation, Communication, Signal Processing and RF Solutions, Thomas Johann Seebeck Department of Electronics
Paul Annus, Instrumentation, Communication, Signal Processing and RF Solutions, Thomas Johann Seebeck Department of Electronics
Jüri Vain, Cyber-physical and cognitive systems, Department of Computer Science
Kalju Meigas, Cyber-physical and cognitive systems, Department of Biomedical Engineering
Dmitri Vinnikov, Power Electronics, Department of Electrical Engineering
Indrek Roasto, Power Electronics, Department of Electrical Engineering

PROGRAMME COMMITTEE MEMBERS

Alar Kuusik, Tallinn University of Technology, Estonia
Albrecht Zur, University of Applied Sciences Kiel, Germany
Alfons Blum, University of Saarland, Professor Emeritus, Germany
Ambrožič Vanja, University of Ljubljana, Slovenia
András Poppe, Budapest University of Technology and Economics, Hungary
Andres Udal, Tallinn University of Technology, Estonia
Andrii Chub, Tallinn University of Technology, Estonia
Anindya Gupta, Tallinn University of Technology, Estonia
Ants Koel, Tallinn University of Technology, Estonia
Arturas Serackis, Vilnius Gediminas Technical University, Lithuania
Christoph Grimm, University of Kaiserslautern, Germany
Dangirutis Navikas, Kaunas University of Technology, Lithuania
Daniel Foty, Gilgamesh Associates, LLC, USA
Darius Andriukaitis, Kaunas University of Technology, Lithuania
Dieter Meissner, Johannes Kepler University Linz, Austria
Eduard Petlenkov, Tallinn University of Technology, Estonia
Eiko Priidel, Tallinn University of Technology, Estonia
Enrique Romero-Cadaval, PE&ES, University of Extremadura, Badajoz, Spain
Faisal Ahmed, Tallinn University of Technology, Estonia
Gert Tamberg, Tallinn University of Technology, Estonia
Graziano Pravadelli, University of Verona, Italy
Guntars Balodis, Faculty of Electronics and Telecommunications RTU, Latvia
Ilya Galkin, Riga Technical University, Latvia
Ivars Bilinskis, Institute of Electronics and Computer Science, Latvia
Jaakko Malmivuo, Aalto University School of Electrical Engineerings, Finland
Jaan Ojarand, Tallinn University of Technology, Estonia
Jaan Raik, Tallinn University of Technology, Estonia
Janis Spigulis, University of Latvia, Latvia
Jari Nurmi, Tampere University of Technology, Finland
Joao Martins, Universidade Nova de Lisboa-FCT-DEE and UNINOVA-CTS, Portugal
Johnny Öberg, Royal Institute of Technology, Sweden
Juha Plosila, University of Turku, Finland
Julian L. Webber, Advanced Telecommunications Research Institute Int, Japan
Jüri Vain, Tallinn University of Technology, Estonia
Kalle Tammemäe, Tallinn University of Technology, Estonia
Katarina Jelemenska, Slovak University of Technology, Slovak Republic
Kevin J. M. Martin, Univ. Bretagne Sud / Lab-STICC, France
Kristjan Pilt, Tallinn University of Technology, Estonia
Leonidas Tsiopoulos, Tallinn University of Technology, Estonia
Marta Rencz, Budapest University of Technology and Economics, Hungary
Oleksandr Bondarenko, National Technical University of Ukraine "KPI", Ukraine
Oleksandr Husev, Tallinn University of Technology, Estonia
Pascal Cotret, IETR, CentraleSupélec, France
Pasi Liljeberg, University of Turku, Finland
Peeter Ellervee, *vice-chair*, Tallinn University of Technology, Estonia
Pires Victor Fernão, ESTSetubal / Polytechnic Institute of Setúbal, Portugal
Raimund Ubar, Tallinn University of Technology, Estonia
Raul Land, Tallinn University of Technology, Estonia
Roman Kosenko, Tallinn University of Technology, Estonia
Serge Dos Santos, INSA Centre Val de Loire, France
Serhii Stepenko, Chernihiv National University of Technology, Ukraine
Thomas Hollstein, Tallinn University of Technology, Estonia
Toomas Parve, Tallinn University of Technology, Estonia
Tõnis Saar, Tallinn University of Technology, Estonia
Valery Meleshin, JSC "Electro C", Russia Federation
Vasyl Chopyk, The Institute of Electrodynamics of National Acade, Ukraine
Vianney Lapotre, Université Bretagne Sud, France
Viesturs Bražis, Riga Technical University, Latvia
Wieslaw Kuzmicz, Warsaw University of Technology, Poland
Yannick Le Moullec, Tallinn University of Technology, Estonia

BEC2016

BEC2016, the 15th Biennial Baltic Electronic Conference takes place in Tallinn, Estonia on October 3–6, 2015. Tallinn University of Technology and Thomas Johann Seebeck Department of Electronics has been hosted previous Baltic Electronics Conferences in 1987, 1989, 1991, 1994, 1996, 1998, 2000, 2002, 2004, 2006, 2008, 2010, 2012, and 2014. The conference continues the tradition to be the forum for the presentation of the latest research and development results in the area of electronics, micro- and nanotechnologies, embedded systems, dependable computing, signal processing, and RF electronics in the Baltic Sea Region and wider. The conference attracted contributions covering design, analysis, simulation, optimization, and process simulation in component and system electronics, microsystems technology, and embedded systems. All of the papers in the conference proceedings have been directly reproduced from the materials submitted by the authors and all accepted papers will be referred by the IEEE Xplore Database.

The conference opening plenary session site is the Mektory House of Tallinn University of Technology, located in the TUT Campus about 8 km to the south from the city Centre. There is frequent city transport between the Campus and City. After registration of the participants and opening plenary session at the Mektory House on October 6, the conference will be continued at the conference centre of Laulasmaa SPA and Resort hotel (<http://www.laulasmaa.ee>), where the buses will transfer all registered participants. The welcome reception of the conference chairman Prof. Toomas Rang will take place in the evening of arrival to Laulasmaa and the conference dinner takes place in the evening of next day at the same place. The closing plenary session takes place at conference centre of Laulasmaa and finishes the conference, where additionally to invited presentations the awarding of authors of best papers of the sections presented at the conference will take place.

“Smart space technologies and services” is a very wide-ranging multidisciplinary R&D and application field with rapid growth and expansion. The conference BEC2014 will provide an opportunity to come together and discuss the recent R&D results in defined topics at this international forum in Tallinn and Laulasmaa, Estonia.

Topics of the BEC2016 will include the following areas:

1. Semiconductor Devices and Analog Electronics.
Chair/Cochair: Dr. Ants Koel/Prof. Toomas Rang
2. Digital and Embedded Systems.
Chair/Cochair: Prof. Peeter Ellervee/Dr. Yannick Le Moullec
3. Test, Verification and Dependability.
Chair/Cochair: Prof. Jaan Raik/Dr. Leonidas Tsiopoulos
4. Instrumentation, Communication, Signal Processing and RF Solutions.
Chair/Cochair: Dr. Olev Märtens/Dr. PaulAnnus
5. Cyberphysical and Cognitive Systems.
Chair/Cochair: Prof. Jüri Vain/Prof. Kalju Meigas
6. Power Electronics.
Chair/Cochair: Dr. Dmitri Vinnikov/Dr. Indrek Roasto

In response to the call for papers the International Program Committee we received over 70 papers, mostly from Estonia, Latvia, Lithuania, Hungary, Finland, Sweden, Czech Republic, Slovak Republic, Slovenia, Germany, Russia, Portugal, Ukraine, and Poland, but even from USA, France, Italy, Spain, India and other countries worldwide. Finally, the Conference program featured 6 invited papers and 48 papers for oral presentation.

The BEC2016 was the last conference for me to act as the general chair. In the future there will be two chairmen acting for the conference. Dr. Ants Koel will be responsible for the organizing, steering and budget side, and Prof. Peeter Ellervee will continue to be the responsible chairman for papers, evaluation and IEEE connections. So, I have to thank all of my co-workers over the 30 years' history of BEC and wish success for the new chairmen as well.

On behalf of the International Program Committee I would like to wish you a pleasant study of the conference proceedings, and I personally and new chairmen looking forward meeting you at the next Baltic Electronics Conference in the year 2018, the 100-year anniversary year of Tallinn University of Technology.

Prof. Toomas Rang
General Chair of BEC2016

MONDAY, Oct. 3

Tallinn, TUT Mektory House

REGISTRATION:
10.00–15.30

OPENING PLENARY SESSION

Session chair Prof. Toomas Rang

12.00–12.20

Opening Address. General Chairman Prof. Toomas Rang

12.20–13.00

Digital Design: Best Practices and Future Trends

Prof. Valery Skliarov, Dr. Iouliia Skliarova
University of Aveiro, Portugal

13.00–13.40

Non-invasive measurements in material characterization, its applications and future trends

Dr. Serge Dos Santos
INSA Centre Val de Loire, France

13.40–14.00 Coffee break

14.00–14.40

Growth and investigation SiC based heterostructures.

A.A.Lebedev^{1,2}, S.P.Lebedev^{1,2}, V.Yu.Davydov¹, S.N.Novikov³,
Yu.N.Makarov^{4,5}

¹ Ioffe Institute, Russia

² ITMO University, Russia

³ Aalto University, Finland

⁴ Nitride Crystals Group, Ltd., Russia

⁵ Nitride Crystals Inc, USA

14.40–15.20

Amplification, Feedback, and Sub-Biasing: Applying Analog Techniques to High-Speed, Low-Power Digital CMOS Circuits

Dr. Daniel Foty
Gilgamesh Associates, LLC, USA

15.45

Buses to Laulasmaa

18.00

Conference Welcome Reception

REGISTRATION: 9.30–15.30 Laulasmaa Resort and SPA

CUMULUS – 1. Semiconductor Devices and Analog Electronics**1.1. Sensors and Devices – session chair Dr. Oleg Korolkov**

10.00–10.20

1.1.1. Modelling and experimental characterisation of thermoelectric heating for molecular diagnostics devices.Tamas Pardy¹, Toomas Rang¹, Indrek Tulp²¹ Tallinn University of Technology, Estonia² Selfdiagnostics Deutschland GmbH, Germany

10.20–10.40

1.1.2. Method for obtaining linear spectral responsivity of InGaAs-photodetector in the NIR wavelength range.Andrei Pokatilov^{1,2*}, Martin Parker^{1,2}, Toomas Kübarsepp^{1,2},Viktor Vabson³, Riho Vendt³, Ilmar Ansko³, Farshid Manoocheri⁴¹ Metroser AS, Estonia² Tallinn University of Technology, Estonia³ Tartu Observatory, Estonia⁴ Metrology Research Institute, Aalto University, Finland

10.40–11.00

1.1.3. Method of samples preparation intended for research of deep centers in i-, n-, and p-layers of GaAs p+-pin-n+ structures and result of analysis

Jana Toompuu, Natalja Sleptšuk, Oleg Korolkov, Toomas Rang

Tallinn University of Technology, Estonia

11.00–11.20

1.1.4. Comparative Characteristics of Diffusion-Welded High-Voltage Stacks and Connected in Series Schottky diodes

Natalja Sleptšuk, Oleg Korolkov, Raul Land, Jana Toompuu,

Paul Annus, Toomas Rang

Tallinn University of Technology, Estonia

11.20–11.50 Coffee break

CUMULUS**1.2. Analog Circuits – session chair Dr. Natalja Sleptšuk**

11.50–12.10

1.2.1 A smart capless voltage regulator for very high bandwidth A/D and D/A converters in a standard 28nm CMOS Process

Vahur Kampus, Toomas Rang

Tallinn University of Technology, Estonia

12.10–12.30

1.2.2. Implementation Guidelines for a Real-Time Fault Location System in Electrical Power Networks

Francois Gaugaz, Francois Krummenacher, Maher Kayal
Electronics Laboratory Ecole Polytechnique Fédérale de Lausanne

12.30–12.50

1.2.3. A Novel Adiabatic SRAM Design using Two Level Adiabatic Logic

Aditya Dave, Aishwarya Lekshmi Chithra
Birla Institute of Technology and Science (BITS), India

12.50–13.10

1.2.4. Portable remote photoplethysmography device for monitoring of blood volume changes with high temporal resolution

Edgars Kvisies-Kipge, Uldis Rubīns
University of Latvia, Institute of Atomic physics and Spectroscopy
Biophotonics laboratory, Latvia

13.10–14.10 Lunch

CUMULUS – 2. Digital and Embedded Systems

2.1. FPGA Applications – session chair Dr. Yannick Le Moullec

14.10–14.30

2.1.1. Hardware-based Systems for Partial Sorting of Streaming Data

Artjom Rjabov
Tallinn University of Technology, Estonia

14.30–14.50

2.1.2. Hardware Implementation of Face Recognition using Low Precision Representation

Sai Kumar Dwivedi¹, Siavoosh Payandeh Azad², Peeter Ellervee²,
Ratnakar Dash¹

¹ National Institute of Technology, Rourkela

² Tallinn University of Technology, Estonia

14.50–15.10

2.1.3. Digital Design Laboratory

Giuliano Donzellini, Domenico Ponta
DITEN-University of Genoa, Italy

15.10–15.30

2.1.4. Linux task scheduler for reconfigurable hardware accelerators

Petr Cvek, Ondřej Novák
Technical University of Liberec, Czech Republic

15.30–16.00 Coffee break

CUMULUS – 3. Test, Verification and Dependability

3.1. Test Generation and Fault Modeling – session chair
Prof. Jaan Raik

16.00–16.20

3.1.1. A New Area-efficient Reconfigurable Encoder Architecture for Flexible Error Detection and Correction in Dependable Communication Systems

Petr Pfeifer, Heinrich Theodor Vierhaus
Brandenburg University of Technology, Germany

16.20–16.40

3.1.2. A Tool for Random Test Generation Targeting High Diagnostic Resolution

Emmanuel Ovie Osimiry, Sergei Kostin, Jaan Raik, Raimund Ubar
Tallinn University of Technology, Estonia

16.40–17.00

3.1.3. SAT-ATPG for Application-Oriented FPGA Testing

Robert Hülle, Petr Fišer, Jan Schmidt, Jaroslav Borecký
Czech Technical University in Prague, Czech Republic

19.00–22.00 Conference Dinner

REGISTRATION: 9.30–15.30 Laulasmaa Resort and SPA

STRATUS – 4. Instrumentation, Communication, Signal Processing and RF Solutions

4.1. Measurements and Testing – session chair Dr. Paul Annus

10.00–10.20

4.1.1. Infrared and red PPG signals analysis of the healthy subjects and clinical patients

Matti Huotari, Juha Röning, Kari Määttä
Oulu University, Finland

10.20–10.40

4.1.2. Optical Measurement of 4-Pyridoxic acid in the spent dialysate: algorithm development

Sigrid Kalle, Risto Tanner, Jürgen Arund, Ruth Tomson, Ivo Fridolin
Tallinn University of Technology, Estonia

10.40–11.00

4.1.3. Test and Error Correction in a Dependable Wireless Communication System

Petr Pfeifer¹, Heinrich Theodor Vierhaus²
¹ Brandenburg University of Technology, Germany
² Technical University of Liberec, Czech Republic

11.00–11.20

4.1.4. Developing a Data Acquisition System for Measuring Microcontroller Energy Consumption using LabVIEW

Priit Ruberg, Keijo Lass, Peeter Ellervee
Tallinn University of Technology, Estonia

11.20–11.50 Coffee break

STRATUS

4.2. Theoretical Considerations – session chair Dr. Alina Gavrijaševa

11.50–12.10

4.2.1. On optimal spatial probability density estimation of passive mobile positioning events

Toivo Vajakas, Joosep Rõõmusaare
University of Tartu, Estonia
Reach-U Ltd, Estonia

12.10–12.30

4.2.2 Parametric Linear Precoding for OFDM using Generalized Unitary Rotation

Arturs Aboltins, Anna Litvinenko, Peteris Misans
Riga Technical University, Latvia

12.30–12.50

4.2.3 Selection of Informative Bands for Classification of Hyperspectral Images Based on Entropy

Aivars Lorencs, Ints Mednieks, Juris Sinica-Sinavskis
Institute of Electronics and Computer Science, Latvia

12.50–13.10

4.2.4 Discrete Fourier Transform of the signals recovered by using high-performance Event Timers

Kaspars Sudars, Ivars Bilinskis, E.Buls
Institute of Electronics and Computer Science, Latvia

13.10–14.10 Lunch

STRATUS

4.3. Characterization of Materials and Objects – session chair Dr. Olev Märtens

14.10–14.30

4.3.1. Experimental Modal Analysis of Maritime Composite Panel

Alina Gavrijaseva¹, Olev Märtens¹, Raul Land¹, Tõnis Saar¹, Henrik Herranen¹, Jüri Majak¹, Marko Reidla², Alar Kuusik^{1,2}

¹ Tallinn University of Technology, Estonia

² Eliko Competence Centre, Estonia

14.30–14.50

4.3.2. Ultrasound-based multimodal imaging for cultural heritage: aging of the weathered Tuffeau ston

Serge Dos Santos¹, Nathalie Poirot², Morgan Brochard³

¹ INSA Centre Val de Loire, France

² GREMAN CNRS, IUT de Blois, France

³ Inspection et Techniques de Contrôles Spécialisés (ITCS), France

14.50–15.10

4.3.3. Metal Discrimination Using Time Domain Processed Sinc Signal

Jakub Svatos

Czech Technical University in Prague, Czech Republic

15.10–15.30

4.3.4. The design of an analog to digital front-end for frequency domain spectroscopy analyzer

Ondrej Teren, Jan Tomlain, Radek Sedlacek, Josef Vedral
Czech Technical University in Prague, Czech Republic

15.30–16.00 Coffee break

STRATUS – 5. Cyberphysical and Cognitive Systems

5.1. Identification in Physical and Virtual Reality Systems – session chair Prof. Jüri Vain

16.00–16.20

5.1.1. Sound Localization and Processing for Inducing Synesthetic Experiences in Virtual Reality

Aleksei Tepljakov, Sergei Astapov, Eduard Petlenkov,
Kristina Vassiljeva, Dirk Draheim
Tallinn University of Technology, Estonia

16.20–16.40

5.1.2. Identification, Implementation and Simulation of Ground Source Heat Pump with Ground Temperature Modeling

Ahmed Kose, Eduard Petlenkov
Tallinn University of Technology, Estonia

16.40–17.00

5.1.3. Military Vehicle Acoustic Pattern Identification by Distributed Ground Sensors

Sergei Astapov, Andri Riid, Jürjo-Sören Preden
Tallinn University of Technology, Estonia

19.00–22.00 Conference Dinner

REGISTRATION: 9.30–15.30 Laulasmaa Resort and SPA

STRATUS – 3. Test, Verification and Dependability

3.2. Reliable Design Methods and Architectures – session chair Prof. Raimund Ubar

10.00–10.20

3.2.1 A New Measure for Calculating Multiple Fault Coverage of Microprocessor Self-Test

Adeboye Stephen Oyeniran, Uzochukwu Eddie Odozi,
Raimund Ubar

Tallinn University of Technology, Estonia

10.20–10.40

3.2.2. Protecting Flash Memory Areas Against Memory Faults in Tiny Embedded Systems

Patryk Skoncej

BTU Cottbus-Senftenberg, Germany

IHP, Im Technologiepark, Germany

10.40–11.00

3.2.3. Early Prediction of Timing Critical Instructions in Pipeline Processor

Seyedeh Hanieh Hashemi, Arash Fouman Ajirlou, Morteza Soltani,
Zainalabedin Navabi

School of Electrical and Computer Engineering University of
Tehran, Iran

11.00–11.30 Coffee break

STRATUS

3.3. Validation, Analysis and Real-time Model-based Testing – session chair Dr. Leonidas Tsiopoulos

11.30–11.50

3.3.1. Generating Optimal Test Cases for Real-Time Systems using DIVINE Model Checker

Deepak Pal¹, Jüri Vain²

¹ Elvior LLC Software Test Automation, Estonia

² Tallinn University of Technology, Estonia

11.50–12.10

3.3.2. Development of an Automated Test System for ECU Software Validation: an Industrial Experience

Enea Bagalini, Massimo Violante

Politecnico di Torino, Italy

12.10–12.30

3.3.3. Dynamic Reference for Evaluation of Bioimpedance Spectroscopy Devices

Marek Rist^{1,2}, Mart Min¹

¹ Tallinn University of Technology, Estonia

² Eliko Competence Centre, Estonia

12.30–13.30 Lunch

STRATUS – 5. Cyberphysical and Cognitive Systems

5.2. Biomedical Applications – session chair Prof. Kalju Meigas

13.30–13.50

5.2.1. On the Possibility of Detecting the Electrical Bioimpedance of Human Body by Using Non-Contact Electrodes in Capacitive Connection

Margus Metshein, Rauno Gordon

Tallinn University of Technology, Estonia

13.50–14.10

5.2.2. Bioimpedance measurement system for evaluation of the status of wound healing

Atte Kekonen¹, Mikael Bergelin², Jan-Erik Eriksson³, Heimo Ylänen¹, Sami Kielosto⁴, Jari Viik¹

¹ Tampere University of Technology, Finland

² Turku University Hospital, Finland

³ Åbo Akademi University, Finland

⁴ Aalto University, Finland

14.10–14.30

5.2.3. Hysteresis and memory effects in skin aging using PM Space Density Identification

Colette Kozena¹, Vaclav Kus¹, Serge Dos Santos²

¹ Czech Technical University in Prague, Czech Republic

² INSA Centre Val de Loire, France

SUUR SAAL, Closing plenary session
Chairmans Dr. Ants Koel and Prof. Peeter Ellervee

14.40–15.20

Mission profile driven field lifetime estimation of power modules using active power cycling

Prof. Dr. Marta Rencz

Budapest University of Technology and Economics Budapest, Hungary

15.20–16.00

Diversity for Safety and Security of Embedded and Cyber Physical Systems: Fundamentals Review and Industrial Cases

Prof. Vyacheslav Kharchenko

National Aerospace University KhAI Centre for Safety Infrastructure

Research and Analysis

Kharkiv, Ukraine

16.00–17.00

Best paper Award, etc.;

Final remarks from Prof. Toomas Rang

17.30

Buses to Tallinn

CUMULUS – 6. Power Electronics

6.1. Renewable Energy Systems – session chair Dr. Dmitri Vinnikov

10.00–10.20

6.1.1. Impact of Photovoltaic Systems with Ancillary Services in Low Voltage Grids

José L. Sousa, Cláudio J. Brito, V. Fernão Pires
Instituto Politécnico Setúbal, Portugal

10.20–10.40

6.1.2. Startup Strategy for Grid Connected PV Microinverter

Indrek Roasto, Tanel Jalakas
Tallinn University of Technology, Estonia

10.40–11.00

6.1.3. Bidirectional DC-DC Converter with High Voltage Gain for the Charge/Discharge Control of Storage Systems

V. Fernão Pires¹, Daniel Foito¹, J. F. Martins²
¹ Instituto Politecnico Setubal, Portugal
² Universidade Nova de Lisboa, Portugal

11.00–11.30 Coffee break

CUMULUS

6.2. Power Electronics and Electrical Drives – session chair Dr. Indrek. Roasto

11.30–11.50

6.2.1. Low Harmonic Multipulse Voltage Converters using Coupled Reactors

Ryszard Strzelecki^{1,2}, Tomasz Sak³, Maciej Grabarek⁴, Pavel Zolov², Natalia Strzelecka⁴

¹ GMU, Gdynia, Poland

² ITMO University, Russia

³ Electrotechnical Institute, Poland

⁴ GMU, Gdynia, Poland

11.50–12.10

6.2.2. Study of the Centrifugal Pump Efficiency at Throttling and Speed Control

Levon Gevorgov, Valery Vodovozov
Tallinn University of technology, Estonia

12.10–12.30

6.2.3. High-Efficiency Predictive Control of Pumping

Valery Vodovozov, Ilja Bakman, Zoja Raud, Tõnu Lehtla
Tallinn University of technology, Estonia

12.30–13.30 Lunch

CUMULUS

6.3. Electrical Engineering – session chair Dr. Victor Fernão Pires

13.30–13.50

6.3.1 Design and Experimentation of Fuzzy Logic Control for an Anti-Lock Braking System

Andrei Aksjonov, Valery Vodovozov, Eduard Petlenkov
Tallinn University of technology, Estonia

13.50–14.10

6.3.2. Influence of Skin Effect on Current Flow Through Electrodes of Electro-Surgical Instruments and Biological Tissue

Volodymyr Sydorets¹, Andrii Dubko¹, Oleksandr Bondarenko², Roman Kosenko³

¹ Paton Electric Welding Institute of the NAS of Ukraine, Ukraine

² National Technical University of Ukraine
“Kyiv Polytechnic Institute”, Ukraine

³ Tallinn University of technology, Estonia

14.10–14.30

6.3.3. Reliable smart electrical power supply for cubesat platforms

V. Pooler, Eiko Priidel, Veljo Sinivee
Tallinn University of technology, Estonia

SUUR SAAL, Closing plenary session

Chairmans Dr. Ants Koel and Prof. Peeter Ellervee

14.40–15.20

Mission profile driven field lifetime estimation of power modules using active power cycling

Prof. Dr. Marta Rencz

Budapest University of Technology and Economics Budapest, Hungary

15.20–16.00

Diversity for Safety and Security of Embedded and Cyber Physical Systems: Fundamentals Review and Industrial Cases

Prof. Vyacheslav Kharchenko

National Aerospace University KhAI Centre for Safety Infrastructure
Research and Analysis

Kharkiv, Ukraine

16.00–17.00

Best paper Award, etc.;

Final remarks from Prof. Toomas Rang

17.30

Buses to Tallinn

MONDAY, October 3

Tallinn, TUT Mektory House

REGISTRATION: 10.00–15.30 Tallinn University of Technology Mektory House

Opening Plenary Session. Session chair – Prof. Toomas Rang

12.00–12.20 Opening Address. General Chairman Prof. Toomas Rang

12.20–13.00 INVITED TALK: **Digital Design: Best Practices and Future Trends**

Prof. Valery Skliarov, Dr. Iouliia Skliarova – University of Aveiro, Portugal

13.00–13.40 INVITED TALK: **Non-invasive measurements in material characterization, its applications and future trends**

Dr. Serge Dos Santos – INSA Centre Val de Loire, France

13.40–14.00 Coffee break

14.00–14.40 INVITED TALK: **Growth and investigation SiC based heterostructures**

A.A.Lebedev – Ioffe Institute, Russia; ITMO University, Russia
S.P.Lebedev – Ioffe Institute, Russia; ITMO University, Russia
V.Yu.Davydov – Ioffe Institute, Russia
S.N.Novikov – Aalto University, Finland
Yu.N.Makarov – Nitride Crystals Group, Ltd., Russia; Nitride Crystals Inc, USA

14.40–15.20 INVITED TALK: **Amplification, Feedback, and Sub-Biasing: Applying Analog Techniques to High-Speed, Low-Power Digital CMOS Circuits**

Dr. Daniel Foty – Gilgamesh Associates, LLC, USA

15.45 Buses to Laulasmaa Resort and SPA

18.00 Conference Welcome Reception

REGISTRATION: 9.30–15.30 Laulasmaa Resort and SPA**CUMULUS****10.00–11.20**
1. Semiconductor Devices and Analog Electronics1.1. Sensors and Devices
Session chair – Dr. Oleg Korolkov**11.20–11.50 Coffee break****11.50–13.10**
1. Semiconductor Devices and Analog Electronics1.2. Analog Circuits
Session chair – Dr. Natalja Sleptšuk**13.10–14.10 Lunch****14.10–15.30**
2. Digital and Embedded Systems
2.1. FPGA Applications
Session chair – Dr. Yannick Le Moullec**16.00–17.00**
3. Test, Verification and Dependability3.1. Test Generation and Fault Modeling
Session chair – Prof. Jaan Raik**STRATUS****4. Instrumentation, Communication, Signal Processing and RF Solutions**4.1. Measurements and Testing
Session chair – Dr. Paul Annus**11.20–11.50 Coffee break****4. Instrumentation, Communication, Signal Processing and RF Solutions**4.2. Theoretical Considerations
Session chair – Dr. Alina Gavrijaševa**13.10–14.10 Lunch****4. Instrumentation, Communication, Signal Processing and RF Solutions**4.3. Characterization of Materials and Objects
Session chair – Dr. Olev Märtens**15.30–16.00 Coffee break****5. Cyberphysical and Cognitive Systems**5.1. Identification in Physical and Virtual Reality Systems
Session chair – Prof. Jüri Vain**19.00–22.00 Dinner**

6. Power Electronics

6.1. Renewable Energy Systems
Session chair – Dr. Dmitri Vinnikov

3. Test, Verification and Dependability

3.2. Reliable Design Methods and Architectures
Session chair – Prof. Raimund Ubar

10.00–11.00**11.00–11.30 Coffee break****6. Power Electronics**

6.2. Power Electronics and Electrical Drives
Session chair – Dr. Indrek Roasto

3. Test, Verification and Dependability

3.3. Validation, Analysis and Real-time Model-based Testing
Session chair – Dr. Leonidas Tsiopoulos

11.30–12.30**12.30–13.30 Lunch****6. Power Electronics**

6.3. Electrical Engineering
Session chair – Dr. Victor Fernão Pires

5. Cyberphysical and Cognitive Systems

5.2. Biomedical Applications
Session chair – Prof. Kallu Meigas

13.30–14.30**SUUR SAAL****Closing Plenary Session**

Chairmans Dr. Ants Koel and Prof. Peeter Ellervee

14.40–15.20 Mission profile driven field lifetime estimation of power modules using active power cycling

Prof. Dr. Marta Rencz – Budapest University of Technology and Economics Budapest, Hungary

15.20–16.00 Diversity for Safety and Security of Embedded and Cyber Physical Systems: Fundamentals Review and Industrial Cases

Prof. Vyacheslav Kharchenko – National Aerospace University KhAI Centre for Safety Infrastructure Research and Analysis, Kharkiv, Ukraine

Best paper Award, etc.

Final remarks from Prof. Toomas Rang

16.00–17.00**Buses to Tallinn****17.30**





Chair man of BEC2016

Prof. T. Rang

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