2022 18th Biennial Baltic Electronics Conference (BEC 2022)

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4 – 6 October 2022

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WEDNESDAY, October 5
Nordic Hotel Forum,
Viru väljak 3, 10111 Tallinn, ESTONIA

[Capella] SENSORS AND COGNITIVE SYSTEMS

Session Chair – Yannick Le Moullec

[VEGA] OPTICAL AND ACOUSTIC IDENTIFICATION OF SYSTEMS

Session Chair – Olev Märtens

11:00-11:20 COFFEE BREAK

[CAPELLA] COMMUNICATION SYSTEMS
Session Chair – Muhammad Mahtab Alam

[VEGA] NONDESTRUCTIVE TESTING
Session Chair – Margus Metshein

12:40-13:40 LUNCH

[CAPELLA] POWER CONVERSION TECHNOLOGIES
Session Chair – Andrii Chub

13:40–14:00   Indrek Roasto, Andrei Blinov, Dmitri Vinnikov, "Soft Start Algorithm for a Droop Controlled dc Nanogrid"...79

14:00–14:20   Karolina Kudelina, Hadi Ashraf Raja, Siarhei Autsou, Bilal Asad, Toomas Vaimann, Anton Rassõlkin, Ants Kallaste, Noman Shabbir, "The Impact of Load on Global Parameters of Electrical Machines in Case of Healthy and Broken Rotor Bars"...85

14:20–14:40   Valery Vodovozov, Zoja Raud, Eduard Petlenkov, "Fuel Cell City Buses: Grey Shadows of Green Energy"...90

[VEGA] MEDICAL APPLICATIONS OF MEASUREMENT TECHNOLOGY
Session Chair – Paul Annus

13:40–14:00   Anar Abdullayev, Olev Martens, Marek Rist, Margus Metshein, Mart Min, Paul Annus, "A DSP-based impedance measurement device"...96

14:00–14:20   Olev Märtens, Margus Metshein, Gert Tamberg, Anar Abdullayev, "Impedance Cardiography Signal Processing with Savitzky-Golay and Frequency Sampling Kernels"...101

14:20–14:40   Kristjan Pilt, Deniss Karai, Maie Bachmann, Marietta Gavriljuk, Ardo Allik, Tuuli Uudeberg, Külle Tärnov, Ivo Fridolin, "Influence of mental stress on the arterial stiffness parameters detected from photoplethysmographic signal waveform"...106

14:40-15:20 COFFEE BREAK

[CAPELLA] ELECTRONIC DEVICES
Session Chair – Andrii Chub

15:20–15:40   Alexander Bubovich, Veronika Parinova, Ilya Galkin, Andreas Giannakis, "Initial Evaluation of Multilevel Converter with Unfolding Stage and Voltage Regulators for Applications in BESSs"...110

15:40–16:00   Róbert Ondica, Martin Kováč, David Maljar, Viera Stopjaková, "Fully Integrated Multi-layer Stacked Structure of Integrated Inductor with Patterned Ground Shield"...115

16:00–16:20   Kristof Hegedus, Ferenc Ender, Balazs Plesz, "Controlled Deposition of Perovskite Thin Layer with Electrospraying for Solar Cells"...121

[VEGA] SPONSOR PRESENTATION
Session Chair – Gatis Tillers

15:20-16:20   Saving the costs by EMI debugging of prototypes in R&D stage by using modern oscilloscopes...N/A

[CAPELLA] 5G TIMBER DISSEMINATION AND COMMUNICATION PANEL
Session Chair – Prof. Muhammad Mahtab Alam

16:20-17.30   Panel discussions: Title: "5G-TIMBER: Twin Green & Digital Transition in SMEs"...N/A

Moderator: Yannick Le Moullec (Professor of Cognitive Electronics) at Tallinn University of Technology, Estonia

Speakers:

Helen Sooväli-Sepping (Vice Rector for Green Transformation) at Tallinn University of Technology, Estonia
Jari Halme (Senior Scientist) at VTT Technical Research Centre of Finland Ltd., Finland
Colin Keogh (Innovation Consultant Engineer) at Inlecom, Ireland
Iftikhar Ahmad (Head of R&D Central Function) at Tietoevry Group Finland
Alar Kuusik, (Senior Researcher) at Tallinn University of Technology, Estonia
Annika Kadaja, (Head of Wooden houses association), Estonia
Stephen Parker, (Director of Software Engineering) at Accelleran, Belgium

18:00 BANQUET DINNER

THURSDAY, October 6
Nordic Hotel Forum,
Viru väljak 3, 10111 Tallinn, ESTONIA

CYBERPHYSICAL AND EMBEDDED SYSTEMS
Session Chair – Serge Dos Santos

10:00–10:20   Dismas Ndubuisi Ezechukwu, Yannick Le Moullec, "CapsNet on Embedded Devices in a Data
                  Scarce Scenario"...126

10:20–10:40   Nikolai Grigorjev, Yannick Le Moullec, Alar Kuusik, "Prototyping of a Machine Learning
                  based Auxiliary Neurostimulation System"...132

10:40–11:00   Md. Raisul Islam, Yannick Le Moullec, Fariha Afrin, Faisal Ahmed, "Deep-Learning based
                  Blood Cells Classification and Initial Edge Device Implementation"...138

11:00–11:20   Natalia Cherezova, Dmitri Mihhailov, Sergei Devadze, Artur Jutman, "HLS-based Optimization of
                  Tau Triggering Algorithm for LHC: a case study"...144

11:20-11:40 COFFEE BREAK

11:40-12:40   Keynote speaker: Prof. Mariusz Malinowski - Warsaw University of Technology
                  "Title"...N/A

12:40-13:00   CLOSING THE CONFERENCE