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SPECIAL SESSION SS5

Session Title: Power Electronic Systems for Efficient and Sustainable Energy Supply

Session description (session scope, novelty, goals; 100-200 words):	Keywords, topics:
Over the last decade the increasing penetration of renewable energy systems and appearance of novel power supply paradigms such as Active Distribution Grids have stimulated an extensive research in advanced power converter topologies and control algorithms with the main emphasis on such merits as wide input voltage and load regulation range, improved quality of the input and output parameters, enhanced control flexibility and low cost. Another challenging task in the design of such converters is their long-term reliability for ensuring the continuity of operation and resilience of electric power supply system. This special session aims to concentrate the latest developments and allows researchers to discuss and share experiences to advance this technology.	Advanced power electronic converter topologies, Power flow control and optimization algorithms, Frequency and voltage regulation, Energy storage systems (including the use of electrical vehicles for this function), Demand generation strategies, Energy flexibility, Condition monitoring, Intelligent protection and fault diagnosis

Organizer(s) Details:

First (main) organizer (title, name and surname): Prof. Dmitri Vinnikov	
E-mail: dmitri.vinnikov@taltech.ee	Affiliation: Tallinn University of Technology, Estonia
Short bio: Prof. Dmitri Vinnikov received the Dipl.Eng., M.Sc., and Dr.Sc.techn. degrees in electrical engineering from Tallinn University of Technology, Tallinn, Estonia, in 1999, 2001, and 2005, respectively. His research interests include applied design of power electronic converters and control systems, renewable energy conversion systems, impedance-source power converters, and implementation of wide bandgap power semiconductors. He has authored or co-authored two books, five monographs and one book chapter as well as more than 300 published papers on power converter design and development and is the holder of numerous patents and utility models in this field.	
Second organizer (title, name and surname): Prof. Mariusz Malinowski	
E-mail: mariusz.malinowski@pw.edu.pl	Affiliation: Warsaw University of Technology, Poland
Short bio: Prof. Mariusz Malinowski received the Ph.D. and D.Sc. degrees in electrical engineering from the Institute of Control and Industrial Electronics, Warsaw University of Technology (WUT), Warsaw, Poland, in 2001 and 2012, respectively. His current research interests include the control and the modulation of grid-side converters, multilevel converters, smart grids, and power-generation systems based on renewable energies. He has co-authored over 130 technical papers and six books. He holds two implemented patents.	
Third organizer (title, name and surname): Dr. Roya Ahmadihangar	
E-mail: roya.ahmadi@taltech.ee	Affiliation: Tallinn University of Technology, Estonia
Short bio: Dr. Roya Ahmadihangar received the M.Sc. and Ph.D. degrees in power system engineering from the Babol University of Technology, Babol, Iran, in 2009 and 2014, respectively. She has authored or co-authored one book, and five book chapters, as well as more than 60, published papers on the power system and smart grids. She is Senior Member of the IEEE, and the current Secretary of the IEEE Estonia section. Her research interests include the integration of DER in smart grids, demand response and demand-side flexibility, AI applied to smart grid and planning, and management of power systems.	
Third organizer (title, name and surname): Prof. Joao Martins	
E-mail: jf.martins@fct.unl.pt	Affiliation: NOVA School of Science & Technology, Portugal
Short bio: Joao Martins was born in Lisbon, Portugal, in 1967. He graduated in electrical engineering at Instituto Superior Técnico (IST), Technical University of Lisbon, in 1990. He received his M.Sc. and Ph.D. degrees in electrical engineering at the same institute, respectively in 1996 and 2003. Currently he is an Associate Professor with Habilitation at the Electrical and Computer Engineering Department, Faculty of Sciences and Technology, NOVA University of Lisbon, Portugal and a senior researcher at CTS/UNINOVA, Portugal. Currently he is the head of the Electrical and Computer Engineering Department and integrates the board of directors at CTS. He has published more than 80 scientific articles in refereed journals and books and more than 180 articles in refereed conference proceedings. His research interests are mainly in energy efficiency: alternative energies and power quality, intelligent and energy efficient buildings, energy awareness, renewables integration and energy flexibility.	

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