



POLITECNICO
DI TORINO



Virtual Conference

UPEC 2020

The 55th Universities Power Engineering Conference

Verifying the Targets

Torino, Italy
1-4 September 2020

SESSIONS AND EVENTS



GOLD SUPPORTER



SILVER SUPPORTER



GOLD SUPPORTER

Hour (CEST)	Monday 31.08.2020	Tuesday 01.09.2020	Wednesday 02.09.2020	Thursday 03.09.2020	Friday 04.09.2020
10:10–11:30		Virtual Room RTDS: <i>Hardware-in-the-loop Testing for Power Systems Protection</i>	Virtual Room RTDS: <i>Hardware-in-the-loop Testing for Microgrids</i>	Virtual Room RTDS: <i>Hardware-in-the-loop Testing for Power Electronics</i>	Virtual Room RTDS: <i>Fundamentals of Hardware-in-the-loop Testing and Real-time Simulation</i>
11:30–12:40		Conference Opening	W1A – Energy Efficiency in Buildings W1B – Microgrids W1C – Faults and Compensation	H1A – Power System Economics and Electricity Markets H1B – Grid Stability and Security H1C – Magnetic Materials and Electrical Machines	F1A – Demand Side Aspects F1B – Transmission Lines F1C – Power System Protections
12:55–14:10		P1 – Plenary Session <input type="checkbox"/> <i>Value of Energy Storage for Renewable Integration</i> (Anastasios G. Bakirtzis – AUTH, Greece) <input type="checkbox"/> <i>Towards Higher Renewables Penetration in Insular Power Systems</i> (João P.S. Catalão – FEUP & INESC TEC, Portugal)	P2 – Plenary Session <input type="checkbox"/> <i>Market Regulation of Energy Storage in Europe</i> (Javier Contreras – UCLM, Spain) <input type="checkbox"/> <i>Energy Transition and Innovation Framework: Challenges for Electricity System Operation</i> (Luca Orrù – Terna, Italy)	P3 – Plenary Session <input type="checkbox"/> <i>Evaluation of Uncertainties in Networks with Renewable-Based Electricity Generation Systems</i> (Sasa Djokic – University of Edinburgh, UK) <input type="checkbox"/> <i>Experiences with Using Real-time Simulation as a Tool in University Undergraduate Teaching</i> (Bruce Rigby – RTDS)	F2A – Energy Communities and Local Energy Systems F2B – Wind Systems F2C – Power Converters
14:25–15:35		T1A – e-Transition T1B – Power Engineering Education T1C – Active Distribution Systems	W2A – Power-to-Gas and Biogas W2B – Power System Dynamics and Stability W2C – Battery Technology Modeling and Advanced Chargers	H2A – Multi-Energy Systems H2B – State Estimation and PMU Applications H2C – Electric Vehicles and e-Mobility	
15:50–17:00	Welcome Event	T2A – Hydro Power T2B – Photovoltaic Systems	W3A – Grid Components and Applications W3B – Energy Storage Systems	H3A – Forecasting and Monitoring H3B – Transmission System Development	Final Event
17:00–18:20		Virtual Room RTDS: <i>Hardware-in-the-loop Testing for Power Systems Protection</i>	Virtual Room RTDS: <i>Hardware-in-the-loop Testing for Microgrids</i>	Virtual Room RTDS: <i>Hardware-in-the-loop Testing for Power Electronics</i>	



UPEC 2020 SESSIONS AND EVENTS

Date and time	Session or Event	Identifier
Monday 31 August 2020		
14:25–17:30	Welcome Event Welcome address and Virtual registrations opening (14:25–14:35) Indications on the Conference facilities (14:35–14:50) Supporter’s video (14:50–15:00) Entertainment (15:00–15:30) Virtual Room – TW TeamWare (15:30–16:30) Question time and connection testing (15:30–17:10) Virtual remarks (17:10–17:30)	
Tuesday 1 September 2020		
10:10–11:30	Virtual Room RTDS: Hardware-in-the-loop Testing for Power Systems Protection	VT1
11:30–12:40	Conference Opening	
12:40–12:55	Break	
12:55–14:10	Plenary Session <ul style="list-style-type: none"> • Value of Energy Storage for Renewable Integration <i>Anastasios G. Bakirtzis – AUTH, Greece</i> • Towards Higher Renewables Penetration in Insular Power Systems <i>João P.S. Catalão – FEUP & INESC TEC, Portugal</i> 	P1
14:10–12:25	Break	
14:25–15:35	Parallel sessions	
	e-Transition Chair: <i>Enrico Pons</i>	T1A
	1157	<ul style="list-style-type: none"> • Assessing the Transition of the Romanian Power System <i>Nikolaos Koltsaklis, Ioannis Panapakidis, Athanasios Dagoumas</i>
	1102	<ul style="list-style-type: none"> • The challenges of the electrical systems of the future <i>Petru Ruset, Florentin Batrinu, Radu Porumb</i>
	1113	<ul style="list-style-type: none"> • Impact of Electricity Taxation in Germany on the Electricity Wholesale Market <i>Tom Kulms, Moritz Nobis, Carlo Schmitt</i>
	1169	<ul style="list-style-type: none"> • A Brief Review of Methods to Simulate Peer-to-Peer Trading in Electricity Networks <i>Steven Deacon, Ioana Pisica, Gareth Taylor</i>
	1015	<ul style="list-style-type: none"> • On the Curtailments of Variable Renewable Energy Sources in Europe and the Role of Load Shifting <i>Chloi Syranidou, Jochen Linssen, Detlef Stolten, Martin Robinius</i>
	Power Engineering Education Chair: <i>Dan D. Micu</i>	
	1168	<ul style="list-style-type: none"> • E-learning of Electrical Engineering Subjects in the Context of the EU-Mong Educational Project <i>Filippo Spertino, Valentin A. Boicea, Gianfranco Chicco, Alessandro Ciocia, Paolo Di Leo, Luca Ferraris, Angela Russo, Slavka Tzanova, Bolormaa Dalanbayar</i>
	1153	<ul style="list-style-type: none"> • Virtual Power Electronics Labs for Online Teaching <i>Mohamed Darwish, Hassan Amreiz, Alan Al Janbey, Christos Marouchos</i>
	1039	<ul style="list-style-type: none"> • Simulation of Coupled Components within Power-Hardware-in-the-Loop (PHIL) Test Bench <i>Stephan Ruhe, Max Fechner, Steffen Nicolai, Peter Bretschneider</i>
	1160	<ul style="list-style-type: none"> • Development of a Great Britain Transmission System Reduced Model for Hardware-In-the-Loop Studies <i>Peter Imris, Martin Bradley, Gareth Taylor, Yun Li</i>

	1070	<ul style="list-style-type: none"> Frequency Influenceable Grid Emulation for the Analysis of Grid-Forming Inverters Using a Generator Set <i>Wolf Schulze, Timo Nowak, Patrick Pawlowski, Michael Suriyah, Thomas Leibfried</i> 	
	Active Distribution Systems <i>Chair: Mattia Marinelli</i>		T1C
	1047	<ul style="list-style-type: none"> Optimal Dispatch of PV Inverters in Multi-Phase Low Voltage Active Distribution Networks <i>Muhammad Usman, Andrea Cervi, Massimiliano Coppo, Fabio Bignucolo, Roberto Turri</i> 	
	1095	<ul style="list-style-type: none"> Distributed Voltage Optimization based on the Auxiliary Problem Principle in Active Distribution Systems <i>Anna Rita Di Fazio, Chiara Risi, Mario Russo, Michele De Santis</i> 	
	1100	<ul style="list-style-type: none"> DC coupled Distribution System Groups enable lowering Provision of Ancillary Services <i>Elisabeth Bach, Steffen Schlegel, Dirk Westermann</i> 	
	1088	<ul style="list-style-type: none"> Planning Aspects of MVDC Distribution System Interconnections including Analysis of a new Use Case <i>Johannes Kayser, Ronald Halbauer, Rene Steinhorst, Steffen Schlegel, Dirk Westermann</i> 	
	1011	<ul style="list-style-type: none"> Application of Digital Twin Assistant-System in State Estimation for Inverter Dominated Grid <i>Xinya Song, Hui Cai, Jan Kircheis, Teng Jiang, Steffen Schlegel, Dirk Westermann</i> 	
15:35–15:50	Break		
15:50–17:00	Parallel sessions		
	Hydro Power <i>Chair: Luciane Neves Canha</i>		T2A
	1173	<ul style="list-style-type: none"> Methodology for Designing and Implementing a Computing Platform for Improving Small Hydropower Plants Functioning <i>Victorita Radulescu</i> 	
	1065	<ul style="list-style-type: none"> Exploring Multitemporal Hydro Power Models of the Nordic Power System using Spine Toolbox <i>Iasonas Kouveliotis-Lysikatos, Manuel Marin, Mickael Amelin, Lennart Söder</i> 	
	1150	<ul style="list-style-type: none"> Reduction of Penstock Fatigue in a Medium-Head Hydropower Plant Providing Primary Frequency Control <i>Stefano Cassano, Christophe Nicolet, Fabrizio Sossan</i> 	
	1152	<ul style="list-style-type: none"> Analysis and Investigation of the Main Causes in Overheating the Frontal Areas of Stators at Vertical Hydro-generators <i>Victorita Radulescu</i> 	
	Photovoltaic Systems <i>Chair: Alessandro Ciocia</i>		T2B
	1002	<ul style="list-style-type: none"> Maximum Power Point Tracking Technique based on a Neural-Fuzzy Approach for a Stand-alone Photovoltaic System <i>Sadeq Al-Majidi, Maysam Abbod, Hamed Al-Raweshidy</i> 	
	1058	<ul style="list-style-type: none"> Short-term Forecasting of Photovoltaic Generation based on Conditioned Learning of Geopotential Fields <i>Kevin Bellinguer, Robin Girard, Guillaume Bontron, Georges Kariniotakis</i> 	
	1067	<ul style="list-style-type: none"> Spatio-Temporal Short Term Photovoltaic Generation Forecasting with Uncertainty Estimates using Machine Learning Methods <i>Steven de Jongh, Tobias Riedel, Felicitas Mueller, Ala Eddine Yacoub, Michael Suriyah, Thomas Leibfried</i> 	
	1135	<ul style="list-style-type: none"> Improving Accuracy of Solar Cells Parameters Extraction by Minimum Root Mean Square Error <i>Abdulhamid Atia, Fatih Anayi, Gao Min</i> 	
	1141	<ul style="list-style-type: none"> Super Twisting Control for a Photovoltaic Grid-Connected System with Filtering Function <i>Younes Dris, Virgil Dumbrava, Mohamed Choukri Benhabib, Sidi Mohammed Meliani</i> 	
17:00–18:20	Virtual Room <i>RTDS: Hardware-in-the-loop Testing for Power Systems Protection</i>		VT2

Wednesday 2 September 2020

Wednesday 2 September 2020		
10:10–11:30	Virtual Room <i>RTDS: Hardware-in-the-loop Testing for Microgrids</i>	VW1
11:30–12:40	Parallel sessions	
Energy Efficiency in Buildings <i>Chair: Alfonso Capozzoli</i>		W1A
1025	<ul style="list-style-type: none"> • A Bottom-up Modelling Approach for Household Power Profiles Using Time-series Measurements <i>Georgios Kryonidis, Georgios Barzegkar-Ntovom, Theofilos Papadopoulos, Antonios Marinopoulos, Catalin-Felix Covrig, Dimitrios Doukas, Eleftherios Kontis</i> 	
1031	<ul style="list-style-type: none"> • A Lumped-Capacitance Model for the Assessment of Energy Flexibility in different Building Typologies <i>Julia Freier, Clara Ceccolini, Mark Arnold, Jens Hesselbach</i> 	
1117	<ul style="list-style-type: none"> • Spatially Explicit Scenarios for Decarbonising Heat in Domestic Buildings <i>William Seward, Alexandre Canet, Meysam Qardan</i> 	
1166	<ul style="list-style-type: none"> • Flexibility Characterization from Thermal Inertia of Buildings at City Level: A Bottom-up Approach <i>Qiang Gao, Mathieu Demoulin, Han Wang, Shariq Riaz, Pierluigi Mancarella</i> 	
1170	<ul style="list-style-type: none"> • Analysis of Data Cleaning Techniques for Electrical Energy Consumption of a Public Building <i>Dacian I. Jurj, Dan D. Micu, Levente Czumbil, Alexandru G. Berciu, Mircea Lancrajan, Denisa Barar</i> 	
Microgrids <i>Chair: Angela Russo</i>		W1B
1087	<ul style="list-style-type: none"> • Simulation and Monitoring of Energy Flows in a Micro-Grid <i>David-Cătălin Urcan, Grațian Fierăscu, Dorin Bică, Lucian Ioan Dulău, Ilie Vlasa, Mădălina Arhip-Călin</i> 	
1163	<ul style="list-style-type: none"> • Combined Pre-Synchronization and Power Sharing Control for Microgrid Applications <i>Li Lei, Mohammed A. Elgendy, Neal Wade, Salaheddine Ethni</i> 	
1034	<ul style="list-style-type: none"> • New Approaches to Reactive Power Sharing and Voltage Control in Islanded AC Microgrids <i>Manuela Minetti, Gio Battista Denegri, Alessandro Rosini</i> 	
1001	<ul style="list-style-type: none"> • Dynamic Economic Load Dispatch in Isolated Microgrids with Particle Swarm Optimisation considering Demand Response <i>Ahmad Rezaee Jordehi, Mohamad Sadegh Javadi, João P.S. Catalão</i> 	
1026	<ul style="list-style-type: none"> • Reliability and Resilience Analysis and Comparison of Off-Grid Microgrids <i>Guglielmo De Vanna, Michela Longo, Federica Foiadelli, Mathaios Panteli, Mohamed Galeela</i> 	
Faults and Compensation <i>Chair: Alecksey Anuchin</i>		W1C
1028	<ul style="list-style-type: none"> • Approaches for Calculating LV DC Arc Flash Parameters <i>Holger Schau, Sebastian Glaser</i> 	
1059	<ul style="list-style-type: none"> • On the Forecast of the Voltage Sags: First Stages of Analysis on Real Systems <i>Christian Noce, Leonardo Di Stasio, Pietro Varilone, Paola Verde, Michele De Santis</i> 	
1151	<ul style="list-style-type: none"> • Operation of PV Inverter as Active Filter Under Different Loading and Supply Conditions <i>Zafar Iqbal, Sasa Djokic, Sergey Yanchenko, Aljaz Spelko, Igor Papic</i> 	
1044	<ul style="list-style-type: none"> • A Shunt Capacitor equipped with a Series Inverter being Compatible with Existing Shunt Capacitors <i>Guilherme Cirilo Leandro, Kenichiro Sano, Naotaka Okada</i> 	
1115	<ul style="list-style-type: none"> • Emulation of Series and Shunt Reactor Compensation <i>Hassan Amreiz, Alan Janbey, Mohamed Darwish</i> 	
12:40–12:55	Break	

12:55–14:10	Plenary Session		P2
	<ul style="list-style-type: none"> Market Regulation of Energy Storage in Europe <i>Javier Contreras – UCLM, Spain</i> Energy Transition and Innovation Framework: Challenges for Electricity System Operation <i>Luca Orrù – Terna, Italy</i> 		
14:10–14:25	Break		
14:25–15:35	Parallel sessions		
	Power-to-Gas and Biogas		W2A
	<i>Chair: Valentin A. Boicea</i>		
1019	<ul style="list-style-type: none"> Modeling Power-to-Gas in the Electrical Energy System in Real-Time Simulator <i>Hui Cai, Xinya Song, Jan-Philipp Hammer, Teng Jiang, Steffen Schlegel, Dirk Westermann</i> 		
1049	<ul style="list-style-type: none"> Demonstrations of DC Microgrid and Virtual Power Plant Technologies on the Danish Island of Bornholm <i>Tatiana Gabderakhmanova, Jan Engelhardt, Jan Martin Zepter, Thomas Meier Sørensen, Knud Boesgaard, Hans Henrik Ipsen, Mattia Marinelli</i> 		
1050	<ul style="list-style-type: none"> Biogas Plant Modelling for Flexibility Provision in the Power System of Bornholm Island <i>Jan Martin Zepter, Tatiana Gabderakhmanova, Karl Maribo Andreasen, Knud Boesgaard, Mattia Marinelli</i> 		
1066	<ul style="list-style-type: none"> Congestion Management of the German Transmission Grid through Sector Coupling: A Modeling Approach <i>Felicitas Mueller, Paul Hentschel, Steven de Jongh, Lukas Held, Michael Suriyah, Thomas Leibfried</i> 		
1093	<ul style="list-style-type: none"> A Real-Time Based Platform for Integrating Power-to-Gas in Electrical Distribution Grids <i>Cesar Diaz-Londono, Gabriele Fambri, Andrea Mazza, Marco Badami, Ettore Bompard</i> 		
	Power System Dynamics and Stability		W2B
	<i>Chair: Grigoris K. Papagiannis</i>		
1077	<ul style="list-style-type: none"> Practical Investigation of Load Angle Oscillations with Grid Connected Synchronous Generator <i>Timo Nowak, Wolf Schulze, Kristian Dimitrov, Michael Suriyah, Thomas Leibfried</i> 		
1130	<ul style="list-style-type: none"> Estimation of Power System Inertia from Electromechanical Modes <i>Vidar Johnsson, Olof Samuelsson</i> 		
1132	<ul style="list-style-type: none"> Investigating the Impact of using Modern Power System Stabilizers on Frequency Stability in Large Dynamic Multi-Machine Power System <i>Zeyad Obaid, Raghad Mejeed, Abdullatif Al-Mashhadani</i> 		
1020	<ul style="list-style-type: none"> Assessment of Power Swing Blocking Functions <i>Michael O'Donovan, Eoin Cowhey, Noel Barry, Joe Connell</i> 		
1075	<ul style="list-style-type: none"> Series Compensation of an Uprated 230 kV – 50 Hz Backbone in Central Italy: Impact on Fault Quantities <i>Michela Migliori, Stefano Lauria, Benedetto Aluisio, Corrado Gadaleta, Enrico Maria Carlini, Luca Piemonti</i> 		
	Battery Technology Modeling and Advanced Chargers		W2C
	<i>Chair: Yuriy Vagapov</i>		
1012	<ul style="list-style-type: none"> Small Scale Multivariate Testing of Dynamic Wireless Charging <i>Dominic Dattero Snell, Aaron Parkes, Thomas Edwards, Liana Cipcigan</i> 		
1023	<ul style="list-style-type: none"> Experimental Analysis of Ni-MH High Power Cells <i>Massimo Ceraolo, Giovanni Lutzemberger, Davide Poli, Claudio Scarpelli, Marco Sabatini</i> 		
1118	<ul style="list-style-type: none"> Battery Analysis using Kinetic Battery Model with Voltage Response <i>Gustavo Piske Fenner, Lucas Freksa Ramos, Luciane Neves Canha</i> 		
1144	<ul style="list-style-type: none"> Analysis of Lithium-ion Battery Cells Degradation Based on Different Manufacturers <i>Ahmed Gailani, Rehab Mokidm, Mo'ath El-Dalahmeh, Ma'd El-Dalahmeh, Maher Al-Greer</i> 		
1068	<ul style="list-style-type: none"> Characterization of NMC Lithium-ion Battery Degradation for Improved Online State Estimation <i>Malthe Thingvad, Lisa Calearo, Andreas Thingvad, Rasmus Viskinde, Mattia Marinelli</i> 		

15:35–15:50	Break	
15:50–17:00	Parallel sessions	
	Grid Components and Applications	
	<i>Chair: Roberto Turri</i>	
	1042	<ul style="list-style-type: none"> Modelling Aspects of Sheath Bonding in Medium-Voltage Cable Systems: Operational Condition <i>Theofilos Papadopoulos, Andreas Chrysochos, Christos Lazos, Ioannis Gonos, Konstantinos Pavlou, Georgios Georgallis</i>
	1074	<ul style="list-style-type: none"> Dynamic Thermal Rating of Electric Cables: A Conceptual Overview <i>Diana Enescu, Angela Russo, Radu Porumb, George Seritan</i>
	1114	<ul style="list-style-type: none"> Analysis of Low-Voltage Network Sensitivity to Voltage Variations Due to the Insulation Wear <i>Egnonnumi Lorraine Codjo, Bashir Bakhshideh Zad, François Vallee, Bruno François</i>
	1036	<ul style="list-style-type: none"> Modeling Photovoltaic Generation Uncertainties for Monte Carlo Method based Probabilistic Load Flow Analysis of Distribution Network <i>Harshavardhan Palahalli Mallikarjun, Paolo Maffezzoni, Giambattista Grusso</i>
	1158	<ul style="list-style-type: none"> Power Quality Analysis for Distributed Generation and Electric Vehicle Integrated Distribution System <i>Md Multan Biswas, Sultana Razia Akhter, Kamal Chandra Paul</i>
	Energy Storage Systems	
	<i>Chair: Andrea Mazza</i>	
	1037	<ul style="list-style-type: none"> Frequency Models and Control in Normal Operation: the Sardinia Case Study <i>Francesco Arrigo, Carmelo Mosca, Ettore Bompard, Paolo Cuccia</i>
	1121	<ul style="list-style-type: none"> A Review on Energy Storage Systems and Military Applications <i>Felipe Lucchese, Luciane Canha, Wagner Brignol, Camilo Rangel, Bruno Hammerschmitt, Criciele Castro</i>
1131	<ul style="list-style-type: none"> The FlexPlan Approach to Include the Contribution of Storage and Flexible Resources in Grid Planning <i>Gianluigi Migliavacca, Marco Rossi, Dario Siface, Matteo Marzoli, Hakan Ergun, Raul Rodriguez, Guillaume Leclercq, Nuno Amaro, Björn Matthes, Jawana Gabrielski, Andrei Morch</i> 	
1106	<ul style="list-style-type: none"> Optimal Sizing of Energy Storage with Embedded Wind Power Generation <i>Nicholas Roche, Jane Courtney</i> 	
1108	<ul style="list-style-type: none"> Voltage Profile Improving And Peak Shaving Using Multi-type Distributed Generators And Battery Energy Storage Systems In Distribution Networks <i>Bahman Ahmadi, Oguzhan Ceylan, Aydogan Ozdemir</i> 	
17:00–18:20	Virtual Room <i>RTDS: Hardware-in-the-loop Testing for Microgrids</i>	

Thursday 3 September 2020

Thursday 3 September 2020		
10:10–11:30	Virtual Room <i>RTDS: Hardware-in-the-loop Testing for Power Electronics</i>	VH1
11:30–12:40	Parallel sessions	
Power System Economics and Electricity Markets <i>Chair: Radu F. Porumb</i>		H1A
1010	<ul style="list-style-type: none"> • Viability Assessment of PV Systems in University Campuses Under the Net-Metering Policy <i>Kalliopi Pippi, Theofilos Papadopoulos, Georgios Kryonidis</i> 	
1091	<ul style="list-style-type: none"> • A Hybrid Data-and-simulation-based Analysis of the Participants' Behavior Potential in the Italian Spot Electricity Markets <i>Tao Huang, Luca Gioacchini, Francesco Guaiana, Shuo Huang, Bruno Valente, Gian Pio Domiziani</i> 	
1090	<ul style="list-style-type: none"> • A Data-based Platform for Supporting Profit-driven Strategy in the Italian Spot Electricity Markets <i>Tao Huang, Luca Gioacchini, Francesco Guaiana, Bruno Valente, Gian Pio Domiziani</i> 	
1076	<ul style="list-style-type: none"> • Balancing Services Provision from Wind Turbines: an Italian Case Study <i>Jan Marc Schwidtal, Matteo Bernardi, Marco Agostini, Fabio Bignucolo, Arturo Lorenzoni</i> 	
1112	<ul style="list-style-type: none"> • Method for Minimizing Grid Fees in Distribution Grids with DC-Links <i>Jan Kircheis, Johannes Kayser, Steffen Schlegel, Dirk Westermann</i> 	
Grid Stability and Security <i>Chair: Graeme Burt</i>		H1B
1123	<ul style="list-style-type: none"> • Demonstration of a Technology Neutral Control Architecture for Providing Frequency Control Using Unidirectional Charging of Electric Vehicles <i>René Juul Askjær, Peter Bach Andersen, Andreas Thingvad, Mattia Marinelli</i> 	
1107	<ul style="list-style-type: none"> • Security Constraint Optimal Reactive Power Dispatch under Uncertainty in a Wind Integrated Power System <i>Meysam Mokari, Mohammad Hassan Moradi</i> 	
1165	<ul style="list-style-type: none"> • Contribution to System Frequency Stability and Resilience from PV Plants: A Closed-loop System Identification Approach <i>Mehdi Ghazavi Dozein, Gilles Chaspierre, Pierluigi Mancarella</i> 	
1161	<ul style="list-style-type: none"> • Distribution Network Reconfiguration Considering Security-Constraints and Multi-DG Configurations <i>Ikenna Okafor, Geev Mokryani, Rana Zubo, Osieloka Ezechukwu, Preye Ivry</i> 	
1164	<ul style="list-style-type: none"> • Impacts of Load and Generation Volatilities on the Voltage Profiles Improved by Distributed Energy Resources <i>Bahman Ahmadi, Oguzhan Ceylan, Aydogan Ozdemir</i> 	
Magnetic Materials and Electrical Machines <i>Chair: Silvio Vaschetto</i>		H1C
1080	<ul style="list-style-type: none"> • Saturable Ferrite Inductor Parameters Obtained Through a Double Step Optimization <i>Luigi Solimene, Salvatore Musumeci, Carlo Stefano Ragusa</i> 	
1143	<ul style="list-style-type: none"> • Online Magnetization Surface Identification for a Switched Reluctance Motor <i>Alecksey Anuchin, Andrei Bogdanov, Galina Demidova, Evgeniy Stolyarov, Dimid Surnin, Yuriy Vagapov</i> 	
1136	<ul style="list-style-type: none"> • A Review of Electrical Motor Topologies for Aircraft Propulsion <i>Robert Bolam, Yuriy Vagapov, Alecksey Anuchin</i> 	
1078	<ul style="list-style-type: none"> • Determination and Comparison of Temperature Dependent Henry Constants for the DGA <i>I Gusti Ngurah Mahendrayana, Christof Riedmann, Uwe Schichler, Suwarno</i> 	
1089	<ul style="list-style-type: none"> • A Spreadsheet Based Dissolved Gas Analysis Diagnostic Tool For Oil-Filled Transformers <i>Anju Mekkayil, Gobind Pillai, Marc Malcolm</i> 	
12:40–12:55	Break	

12:55–14:10	Plenary Session		P3
	<ul style="list-style-type: none"> Evaluation of Uncertainties in Networks with Renewable-Based Electricity Generation Systems <i>Sasa Djokic – University of Edinburgh, UK</i> Experiences with Using Real-time Simulation as a Tool in University Undergraduate Teaching <i>Bruce Rigby – RTDS</i> 		
14:10–14:25	Break		
14:25–15:35	Parallel sessions		
	Multi-Energy Systems <i>Chair: Oguzhan Ceylan</i>		H2A
1171	<ul style="list-style-type: none"> Characterization of Residential Users' Behaviour and Influence on Distribution Network Planning <i>Roberto Turri, Fabio Bignucolo, Gianluca Pavoni, Andrea Scala, Pierfrancesco Da Ronco, Nicola Sempredoni</i> 		
1061	<ul style="list-style-type: none"> A Linear Programming Formulation of Time-Coupled Flexibility Market Bids by Storage Systems <i>Carlo Schmitt, Tobias Sous, Andreas Blank, Felix Gaumnitz, Albert Moser</i> 		
1120	<ul style="list-style-type: none"> Cost-beneficial Analysis of Utilizing a Combination of Renewable and Non-Renewable Energy Sources <i>Mahmood Gholizadeh, Martin Wolter</i> 		
1084	<ul style="list-style-type: none"> Dynamic Coupling Analysis and Control of an Integrated Thermal Energy Storage System <i>Ivan De la Cruz Loreda, Hector Bastida, Carlos E. Ugalde-Loo, Luis A. Amézquita Brooks, Daniel Alejandro Morales Sandoval</i> 		
1022	<ul style="list-style-type: none"> An Optimal Power Flow Algorithm for the Simulation of Energy Storage Systems in Unbalanced Three-Phase Distribution Grids <i>Lukas Held, Mohammed Barakat, Felicitas Müller, Michael R. Suriyah, Thomas Leibfried</i> 		
	State Estimation and PMU Applications <i>Chair: Matteo Saviozzi</i>		H2B
1051	<ul style="list-style-type: none"> Assessment of State Estimation Methods for Power Systems with Uncertain Parameters <i>Francesco Conte, Bruno Gabriele, Giacomo-Piero Schiapparelli</i> 		
1072	<ul style="list-style-type: none"> Effect of Varying the Genetic Algorithm (GA) Parameters and Operators on the Optimum PMUs Placement <i>Basem Alamri</i> 		
1018	<ul style="list-style-type: none"> Experimental Assessment of a PTP-based System for Large Scale Time Synchronization of Smart Grids <i>Antonio Pepiciello, Alfredo Vaccaro, Tommaso Pietropaoli</i> 		
1129	<ul style="list-style-type: none"> Parameter Identification of Interarea Oscillations in Electrical Power Systems via an Improved Hilbert Transform Method <i>Enrico Maria Carlini, Giorgio Maria Giannuzzi, Roberto Zaottini, Cosimo Pisani, Salvatore Tessitore, Leopoldo Angrisani, Annalisa Liccardo</i> 		
1126	<ul style="list-style-type: none"> Frequency Dynamics in the Romanian Power System under Large Perturbations <i>Lucian Toma, Mihai Sanduleac, Dorian Sidea, Carmen Stanescu, Ciprian Diaconu, Mihaela Albu, Ana-Maria Dumitrescu</i> 		
	Electric Vehicles and e-Mobility <i>Chair: Ghanim Putrus</i>		H2C
1024	<ul style="list-style-type: none"> Electric Vehicles Demonstration Projects - An Overview Across Europe <i>Mattia Marinelli, Lisa Calearo, Sabrina Ried, Xaver Pfab, Julio Cesar Diaz Cabrera, Christian Spalthoff, Martin Braun, Hanne Sæle, Bendik Nybakk Torsæter, Porja Hasanpor Divshali, Seppo Hänninen, Massimo Ceraolo, Stefano Barsali, Mats Larsson, Annika Magdowski, Laura Gimenez, Gregorio Fernández</i> 		
1043	<ul style="list-style-type: none"> Comparative Analysis of High Voltage Battery Pack Cells for Electric Vehicle <i>Khaled Sehil, Mohamed Darwish, Christos Marouchos, William Jeans</i> 		
1053	<ul style="list-style-type: none"> Reconfigurable Stationary Battery with Adaptive Cell Switching for Electric Vehicle Fast-Charging <i>Jan Engelhardt, Tatiana Gabderakhmanova, Gunnar Rohde, Mattia Marinelli</i> 		

	1069	<ul style="list-style-type: none"> Flexible Energy Management Strategy For Electric Vehicles Charging Stations <i>Daniel Bertineti, Luciane Neves Canha, Wagner Brignol, Aerton Medeiros, Rodrigo de Azevedo, Zeno Nadal</i> 	
	1147	<ul style="list-style-type: none"> Optimal Design of Grid-Side LCL Filters for Electric Vehicle Ultra-Fast Battery Chargers <i>Daive Cittanti, Fabio Mandrile, Radu Bojoi</i> 	
15:35–15:50	Break		
15:50–17:00	Parallel sessions		
	Forecasting and Monitoring <i>Chair: Tao Huang</i>		H3A
	1109	<ul style="list-style-type: none"> A CNN Based Model for Short-Term Load Forecasting: A Real Case Study on the Romanian Power System <i>Andrei Tudose, Dorian Sidea, Irina Picioroaga, Valentin Boicea, Constantin Bulac</i> 	
	1081	<ul style="list-style-type: none"> Utilizing Measurement Data from Low-voltage Grid Sensor in State Estimation to Improve Grid Monitoring <i>Minh-Quan Tran, Phuong H. Nguyen, Omar Mansour, Dennis Bijwaard</i> 	
	1159	<ul style="list-style-type: none"> Monitoring LV Prosumers Operation Using Hilbert – Huang Method <i>Radu Plamanescu, Ana-Maria Dumitrescu, Mihaela Albu, Siddharth Suryanarayanan</i> 	
	1101	<ul style="list-style-type: none"> eeRIS-NILM: An Open Source, Unsupervised Baseline for Real-Time Feedback Through NILM <i>Christos Diou, Georgios Andreou</i> 	
	1038	<ul style="list-style-type: none"> Improving Distribution System Observability Using Neural Networks <i>Jan Kircheis, Xinya Song, Teng Jiang, Steffen Schlegel, Dirk Westermann</i> 	
	Transmission System Development <i>Chair: Nouredine Harid</i>		H3B
	1027	<ul style="list-style-type: none"> Optimal Power Flow with Dynamic Line Rating for Wind Integrated System <i>Mikkel Bay Andreasen, Rasmus Jakobsen, Nazkhanom Rezaei</i> 	
	1082	<ul style="list-style-type: none"> Optimal Computation of Network Indicators for Electricity Market Bidding Zones Configuration <i>Cristian Bovo, Valentin Ilea, Enrico Maria Carlini, Mauro Caprabanca, Federico Quaglia, Luca Luzi, Giuseppina Nuzzo</i> 	
	1073	<ul style="list-style-type: none"> Model-based Identification of Alternative Bidding Zone Configurations from Clustering Algorithms applied on Locational Marginal Prices <i>Pietro Colella, Andrea Mazza, Ettore Bompard, Gianfranco Chicco, Angela Russo, Enrico Maria Carlini, Mauro Caprabanca, Federico Quaglia, Luca Luzi, Giuseppina Nuzzo</i> 	
	1032	<ul style="list-style-type: none"> Techno-Economic Benefit of Network Developments: a Flow-Based Evaluation <i>Maria Dicorato, Gioacchino Tricarico, Michele Trovato, Giuseppe Forte, Marco Bronzini</i> 	
	1083	<ul style="list-style-type: none"> Distributed AC-DC Optimal Power Flow in the European Transmission Grid with ADMM <i>Nico Huebner, Yannick Rink, Michael Suriyah, Thomas Leibfried</i> 	
17:00–18:20	Virtual Room <i>RTDS: Hardware-in-the-loop Testing for Power Electronics</i>		VH2

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10:10–11:30	Virtual Room <i>RTDS: Fundamentals of Hardware-in-the-loop Testing and Real-time Simulation</i>	VF1
11:30–12:40	Parallel sessions	
	Demand Side Aspects <i>Chair: Paolo Di Leo</i>	F1A
1162	<ul style="list-style-type: none"> Development of an FPGA based Time of Arrival Estimator for PLC Applications <i>Stephen Robson, Manu Haddad</i> 	
1119	<ul style="list-style-type: none"> New Fuzzy Logic Based Switch-Fault Diagnosis in Three Phase Inverters <i>Chukwuemeka Nzekwu Ibem, Mohamed Emad Farrag, Ahmed A. Aboushady</i> 	
1063	<ul style="list-style-type: none"> Targeted Messaging for Appliance-based Demand Response <i>Ioanna - Mirto Chatzigeorgiou, Christos Diou, Georgios T. Andreou</i> 	
1048	<ul style="list-style-type: none"> Improving Operating Modes of Automation Control of Technological Processes of Pump Equipment Based on Devices of Demand Side Management <i>Irina Klavsuts, Alexander Dvortsevoi, Dmitry Klavsuts, Marina Khayrullina</i> 	
1122	<ul style="list-style-type: none"> A Study on the Optimized Working Schedule of the Fully Mechanized Coal Mining <i>DiLei Chen, Zheng Zheng, Tao Huang, GuoPeng Zhang</i> 	
	Transmission Lines <i>Chair: Manu Haddad</i>	F1B
1124	<ul style="list-style-type: none"> The Influence of Mechanical Pressure on Solid/Solid Interface Under DC Voltages <i>Eko Yulianto, Rasagna Adepu, Andrea Cavallini, Suwarno</i> 	
1041	<ul style="list-style-type: none"> Efficient New Approach for Boundary Conditions on a Bipolar Corona System <i>Philipp Huber, Jens Kortenbrede, Frank Jenau</i> 	
1064	<ul style="list-style-type: none"> Optimized Numerical Modeling and Validation of negative DC Corona Discharges by using Pulse Shape Parameters <i>Kerstin Friebe, Daniel Wienold, Frank Jenau</i> 	
1167	<ul style="list-style-type: none"> Development of a Deep Learning Software for Visual Analysis of High Voltage Insulators <i>Timotheos Savva, Maurizio Albano</i> 	
1085	<ul style="list-style-type: none"> Investigation of the Possibility to Convert Medium Voltage AC Overhead Lines (OHL) to DC <i>Sinanuri Surawijaya, Anton Andreas Buchner, Uwe Schichler, Suwarno</i> 	
	Power System Protections <i>Chair: Pietro Colella</i>	F1C
1014	<ul style="list-style-type: none"> Directional Overcurrent Protection to account for Reactive Power Capability on Windfarms <i>Aaron McDonnell</i> 	
1060	<ul style="list-style-type: none"> The Effects of Mutual Coupling Compensation on Distance Protection of Parallel Lines <i>Michael O'Donovan, Eoin Cowhey, Noel Barry, Joe Connell</i> 	
1104	<ul style="list-style-type: none"> The “Short-term Isolated Star Point Grounding” to Detect Earth Faults in Compensated Networks – The Concept <i>Erwin Burkhardt, Dominik Hilbrich, Nils Offermann, Christian Rehtanz, Frank Jenau</i> 	
1105	<ul style="list-style-type: none"> The “Short-term Compensation Change” to Detect Earth Faults in Compensated Networks <i>Erwin Burkhardt, Lothar Fickert, Frank Jenau</i> 	
1154	<ul style="list-style-type: none"> Distribution of Impulse Current in Earth Grid Electrodes <i>Salah Mousa, Noureddine Harid, Huw Griffiths, Manu Haddad</i> 	
12:40–12:55	Break	
12:55–14:10	Parallel sessions	
	Energy Communities and Local Energy Systems <i>Chair: Marco Merlo</i>	F2A
1092	<ul style="list-style-type: none"> Energy Community and Collective Self Consumption in Italy <i>Matteo Zulianello, Valerio Angelucci, Diana Moneta</i> 	

1094	<ul style="list-style-type: none"> A Decentralized Market Solver for Local Energy Communities <i>Mario Mureddu, Marco Galici, Emilio Ghiani, Fabrizio Pilo</i>
1096	<ul style="list-style-type: none"> Energy Sharing in Renewable Energy Communities: the Italian Case <i>Matteo Moncecchi, Stefano Meneghello, Marco Merlo</i>
1009	<ul style="list-style-type: none"> Modeling Local Energy Market for Energy Management of Multi-Microgrids <i>Pouria Sheikahmadi, Salah Bahramara, Saman Shahrokhi, Gianfranco Chicco, Andrea Mazza, João P.S. Catalão</i>
1035	<ul style="list-style-type: none"> Economic Feasibility of Photovoltaic Micro-Plants Connected to the Brazilian Distribution Grid Facing the Regulation Changes Proposed <i>Gabriel Doyle, Paulo Rotela Junior, Priscila Carneiro, Rogério Peruchi</i>
Wind Systems	
<i>Chair: Filippo Spertino</i>	
1086	<ul style="list-style-type: none"> Lifetime Estimation of Semiconducting Components in 8MW Wind Turbine Generators with "Power Boost" Functionality <i>Jonas Pedersen, Kasper Juncker, Peter Randewijk</i>
1134	<ul style="list-style-type: none"> Optimization Modeling for Offshore Wind Farms <i>Siti Khadijah Hamzah, Gill Lacey, Gobind Pillai</i>
1137	<ul style="list-style-type: none"> Estimation of International Standards for Unconventional Wind Turbine Testing <i>Aleksandr Lukin, Anton Rassõlkin, Galina Demidova</i>
1006	<ul style="list-style-type: none"> Power Quality Study for Wind Farm Integration: The case of Dhofar Wind Farm <i>Ammar Al Yafai, Nural Hassan Shaikh, Sultan Al-Rawahi, Meganathan Seemaichamy, Husam Al Yafai, Nasser Al-Habsi</i>
1033	<ul style="list-style-type: none"> A Reliable Multi-Objective Methodology for Strategic Bidding of Wind Energy <i>Fabrizio De Caro, Alfredo Vaccaro, Domenico Villacci</i>
Power Converters	
<i>Chair: Salvatore Musumeci</i>	
1054	<ul style="list-style-type: none"> Modulation Processes in Power Electronic Converters <i>Stelios Ioannou, Maria Argyrou, Mohamed Darwish, Christos Marouchos</i>
1098	<ul style="list-style-type: none"> Detailed Modelling and Control of a Modular Multilevel Converter with Full-Bridge Submodules in a Multi-Terminal High Voltage DC Network <i>Ioan-Cătălin Damian, Mircea Eremia, Lucian Toma</i>
1145	<ul style="list-style-type: none"> PWM Strategy for Equal Distribution of Losses Between Low-Voltage Cells in an MV Frequency Converter <i>Yulia Kazemirova, Alecksey Anuchin, Alexey Kovyazin, Maxim Lashkevich, Dmitry Aliamkin, Sevastyan Grishin</i>
1149	<ul style="list-style-type: none"> Nested Loop Control of a Buck Converter under Variable Input Voltage and Load Conditions <i>Alecksey Anuchin, Dmitry Shpak, Md Rishad Ahmed, Evgeniy Stolyarov, Dimid Surnin, Jaime Pando Acedo</i>
1057	<ul style="list-style-type: none"> Design of a Medium Voltage Generator and Power Converter for High Power Wind Energy Conversion Systems <i>Jonas Steffen, Sebastian Lengsfeld, Marco Jung, Ponick Bernd, Herranz Gracia Mercedes, Aristide Spagnolo, Klaus Schleicher, Klaus Schäfer</i>
14:10–14:25	Break
14:25–17:30	Final Event Remarks on UPEC 2020 (14:25–14:45) Entertainment (14:45–15:15) Awards (15:15–15:45) Entertainment (15:45–16:15) Supporter's video (16:15–16:25) Presentation of UPEC 2021 (16:25–16:45) Entertainment (16:45–17:15) Virtual conclusion (17:15–17:30)
17:30	End of UPEC 2020