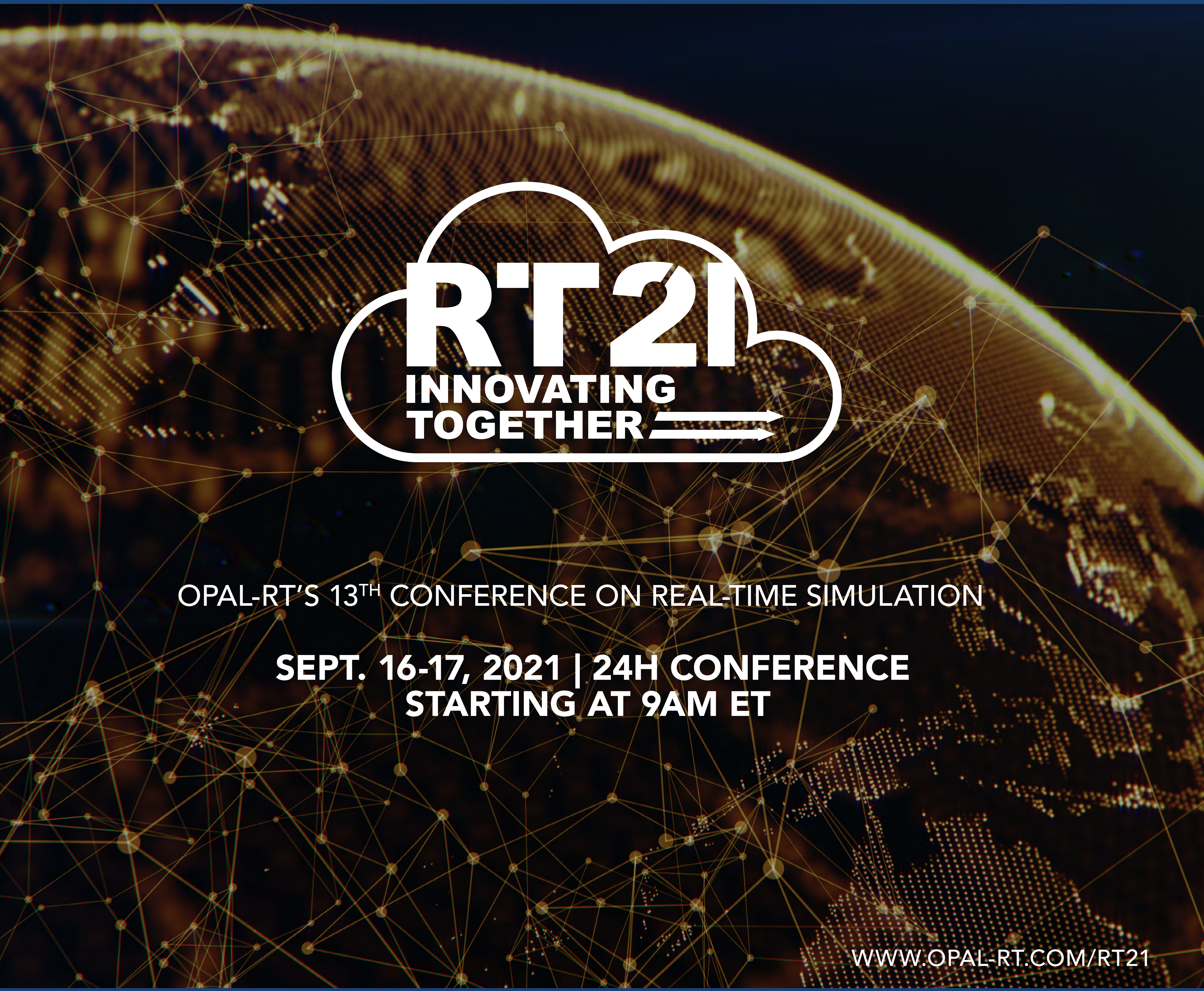
AGENDA

OPAL-RT TECHNOLOGIES



RT21

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OPAL-RT'S 13TH CONFERENCE ON REAL-TIME SIMULATION

SEPT. 16-17, 2021 | 24H CONFERENCE
STARTING AT 9AM ET

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OPAL-RT's 13th Conference on Real-Time Simulation

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Montreal (EDT)	Brazil (BRT)	Paris (CEST)	Bangalore (IST)	Beijing (CST)		
09:00	10:00	15:00	18:30	21:00	RT21 OPENING SESSION	
09:30	10:30	15:30	19:00	21:30		
10:00	11:00	16:00	19:30	22:00	Webinar: Cloud-Based Power System Digital Twins: The Next Decade of Innovation Etienne Leduc, Energy Market Offering Manager at OPAL-RT John Lemmon, Global Power & Utilities Leader Azure Energy at Microsoft Jean Bélanger, CEO & CTO at OPAL-RT Alistair Wells, Project Leader at AEMO Vincent Lapointe, Principal Analyst at OPAL-RT	
10:30	11:30	16:30	20:00	22:30		Panel: Critical HIL Applications for Aerospace Jeferson Cintra, Business Development Manager at OPAL-RT Julien Rohmer, Automation V&V Engineer at Liebherr Fabio Pizzi, Product Development Engineer at Embraer Greg Brown, Principal Offering Manager at NI Alexandre Leboeuf, Customer Solutions Division Manager at OPAL-RT
11:00	12:00	17:00	20:30	23:00	Panel: Validation of Power Electronic Industrial Applications through HIL François Tempez, Sales Engineer at OPAL-RT Mathieu Giroux, Head of Product Engineering and Quality at ABB Geraldo Nojima, MV Power Conversion Chief Technologist at EATON Dr. Alex Q. Huang, Chair Professor, The University of Texas at Austin Dr. Hamish Laird, CTP at ELMG Digital Power	
11:30	12:30	17:30	21:00	23:30		Panel: Real-Time Simulation: A Must For Modern and Advanced Educational and Training Tools Dr. Danielle Nasrallah, Technical Lead - Advanced Control & Intelligent Mobility at OPAL-RT Dr. Flavia Khatounian, Associate professor at Université Saint-Joseph de Beyrouth Dr. Ron Brandl, Team Leader and Researcher at Fraunhofer IEE Dr. Philippe Viarouge, Professor Electrical Engineering at Université Laval Dr. Jean-Patrick Da Costa, Professor at UTFPR
12:00	13:00	18:00	21:30	00:00	Panel: HIL Simulation and The Future of Grid and Microgrid Controls with Renewables Dr. Sudipta Chakraborty, Director - Energy Systems at OPAL-RT TECHNOLOGIES Dr. Ulrich Muenz, Principal Key Expert & Head of Autonomous Systems and Control at Siemens Dr. Sima Seidi, Principal Consultant - Microgrids and DERs at Tetra Tech Dr. Wei Sun, Associate Professor at University of Central Florida Devendra Vishwakarma, Chief Technology Officer at L&T Digital Solutions	
12:30	13:30	18:30	22:00	00:30		Meet the President Jean Bélanger, CEO & CTO at OPAL-RT TECHNOLOGIES
13:00	14:00	19:00	22:30	01:00	Panel: The Role of Power Hardware-in-the-Loop (PHIL) for the Power Systems Modernization Chris Gengenantha, Channel Manager at OPAL-RT TECHNOLOGIES Sebastian Hubschneider, Researcher at Karlsruhe Institute of Technology (KIT) Olivier Tremblay, Research engineer at Hydro-Québec (IREQ) Jay Johnson, Principal Member of Technical Staff at Sandia National Laboratories Georg Lauss, Researcher at Austrian Institute of Technology (AIT)	
13:30	14:30	19:30	23:00	01:30		Panel: How Hardware-in-the-Loop is Accelerating Electric Transportation Development, Testing and Validation Derek Boychuk, Offering Manager - Automotive (EV) at OPAL-RT Dr. Scott Johnson, Staff Control Systems Engineer at John Deere Dr. Youcef Abdelli, CTO at ZeroAvia Siavash Sadeghi, Propulsion and levitation Technical lead at Hyperloop
14:00	15:00	20:00	23:30	02:00	Panel: Cybersecurity on Power Systems Christine Van Slyke, VP Sales and Marketing at SCALABLE Network Technologies Dr. Manohar Chamana, Instructor at Texas Tech University Dr. Davood Babazadeh, Lecturer at Hamburg University of Technology Dr. Mike Mekkanen, Assistance Professor at University of vaasa Dr. Charalambos Konstantinou, Assistant Professor at KAUST	
14:30	15:30	20:30	00:00	02:30		Meet OPAL-RT Innovation Leaders Yanique Martin, VP, Technology and Operations at OPAL-RT Jean-Nicolas Paquin, Director - AXES, at OPAL-RT
15:00	16:00	21:00	00:30	03:00	HYPERSIM Simulation for Digital and Energy Transition at Hydro-Québec Melanie Harvey, Control & Protection Engineer at Hydro-Québec Dr. Rawad Zgheib, R&D Project Manager at Hydro-Québec Leonardo Montealegre, Power Systems Specialist at Hydro-Québec	A unified framework for motor testing using a PHIL motor simulation and high precision data acquisition equipment Mitchell Marks, Business development – Electrification at HBK
15:30	16:30	21:30	01:00	03:30		
16:00	17:00	22:00	01:30	04:00	Smart Inverter Development and Testing Nayeem Ninad, Research Engineer at CanmetENERGY, NRCan	Simulação de eletrônica de potência usando HYPERSIM para mostrar os benefícios de algoritmos PMUs mais rápidos & Bancada multiterminal PHIL do Laboratório de Redes Elétricas Oscar Solano Rueda, Research Engineer at CEPEL José Eduardo Alves Junior , Researcher at CEPEL
16:30	17:30	22:30	02:00	04:30	Testbed Development for Real-Time HIL Demonstration for Flexible CHP Systems Alok Kumar, Student at Virginia Tech	
17:00	18:00	23:00	02:30	05:00	A generic method for interfacing IEDs using low voltage interfaces to real-time simulators Emilio Piesciorovsky, Technical Professional Staff / Lab Space Manager at Oak Ridge National Laboratory	New Modular Multilevel Converter Topologies using an OPAL-RT Reconfigurable MMC Testbed Matias Diaz, Associate professor at University of Santiago of Chile
17:30	18:30	23:30	03:00	05:30	Role of Real Time Digital Simulation in Performing the Data Analytics for Utility Networks Sanjeev Pannala, Post-doctoral Research Associate at Washington State University	Adaptative Scheme of LS as Function of Voltage and Frequency Using Digital Simulation in RT Bolívar Escobar, Electrical Engineer at Inproconfi
18:00	19:00	00:00	03:30	06:00	BREAK	
18:30	19:30	00:30	04:00	06:30		
19:00	20:00	01:00	04:30	07:00		
19:30	20:30	01:30	05:00	07:30		Real-time Applications in Australia: Project Overviews, Trends and Perspectives Sorrell Grogan, Principal Engineer at AusNet Services Dr. Behrooz Bahrani, Director of Grid Innovation Hub and Senior Lecturer at Monash University Felipe Arraño-Vargas, PhD Candidate and OPAL-RT's Ambassador at UNSW Sydney Chris Gengenantha, Channel Manager at OPAL-RT TECHNOLOGIES Dipak Kumar, Regional Sales Manager at Braemac
20:00	21:00	02:00	05:30	08:00		
20:30	21:30	02:30	06:00	08:30		
21:00	22:00	03:00	06:30	09:00	Welcome presentation Hongbiao LI, Vice president of Keliang	
21:30	22:30	03:30	07:00	09:30	Development and Prospect of DC Distribution Technology Jianfu Chen, Director of DC Distribution Center, Guangdong Power Grid Co. of China Southern Grid	Real-time Hardware-in-the-Loop (HIL) Simulation: Use Cases and Applications in TNB Mohd Khairun Nizam Mohd Sarmin, Head (Power System) at TNB RESEARCH
22:00	23:00	04:00	07:30	10:00	Application of energy-storage technology in power system Qingsheng Li, Senior expert at Guizhou Power Grid Co. of China Southern Grid	Simulator Study on 500Hz MMC Convertor for Off-Shore Windfarm System Isao Iyoda, Ex-professor at Osaka Electro-Communication University
22:30	23:30	04:30	08:00	10:30	Design of Adaptive/Inertia Simulation Control Scheme of Electric Power System Dr. Jiebei ZHU, Professor at University of Tianjin	Evaluation of Short-circuit Protection Units for an Inverter Based Distribution Network Yoshinobu Ueda, Senior Engineer at Meidensha Corporation
23:00	00:00	05:00	08:30	11:00	Research and application of key technologies for grid-friendly wind turbines Yixing LIU, Senior Engineer at HZ Windpower of China State Shipbuilding Co.,Ltd	Hardware-in-the-Loop Verification and Test System for Electric Vehicle Battery Management Kevin Kuo, Application Engineer at CYBERNET Systems Taiwan
23:30	00:30	05:30	09:00	11:30	Analysis on modeling technology based on HYPERSIM of Zhangbei Flexible DC Grid Dr. Limin YANG, Researcher at Simulation Center of CEPRI	Power Quality Improvement of Grid-Tied Solar PV System with Synchronization Capability Pavitr Shukl, Ph.D. Research Scholar at IIT Delhi
00:00	01:00	06:00	09:30	12:00	BREAK AND TECHNICAL COMMUNICATION	Power Control in DFIG based Wind Energy Conversion System Prangya Pradhan, Research scholar at NIT Rourkela
00:30	01:30	06:30	10:00	12:30		Execution of Real-time Wide Area Monitoring System with Big Data Functions and Practices Raju Chintakindi, Research Scholar at Visvesvaraya National Institute of Technology - Nagpur
01:00	02:00	07:00	10:30	13:00	The security of Industrial Internet from the perspective of energy and power systems Dr. Qiang YANG, Professor at Zhejiang University	Modeling of a 3Φ VSI for a Power System in Real-Time Preeti Gupta, Ph.D. Research Scholar at UIET, Panjab University
01:30	02:30	07:30	11:00	13:30	Modeling methods of Flexible DC transmission in large-scale off-shore windfarm using real-time simulation platform Dr. Bin YUAN, Senior Engineer, project leader at SPERI of State Grid Corporation of China	EV Charging System Mukesh Singh, Dr at Thapar Institute of Engineering and Technology Patiala
02:00	03:00	08:00	11:30	14:00	R&D and Engineering applications of high-voltage high capacity flexible DC real-time simulation Dr. Wenming GONG, Senior Engineer at EPRI of China Sourthern Grid	The Real-Time modelling and Analysis of Eastern regional Grid India through ePHASORSIM Kundan Kumar, JRF at IIT Patna
02:30	03:30	08:30	12:00	14:30	Real-time Simulation: Evolution, Projects and Perspectives in Europe Timo Roesch, Director Of Sales & Marketing at OPAL-RT Germany Yoann Mougenot, Sales Director at OPAL-RT Europe François Deudon , Managing Director at OPAL-RT Europe	DC Microgrid: Implementations using Real Time Simulator Deepak Fulwani, Associate Professor at IIT Jodhpur
03:00	04:00	09:00	12:30	15:00	HIL System Setup for Converter Control Interaction Studies on Multi-Vendor MTDC Networks Fisnik Loku, Research Associate at RWTH Aachen University	Real-Time Modeling-Simulations of Microgrid Operation in an Arid Desert Environment Mohd Zamri Che Wanik , Senior Scientist at Qatar Environment and Energy Research Institute (QEERI)
03:30	04:30	09:30	13:00	15:30	MTDC HIL Test Bench for the Testing and Validation of New Control and Protection Functions Louis Filliot, Research Engineer at Supergrid Institute	Real-time Simulation and Rapid Control Prototyping of AC Microgrid Dr. Abdelbasset Krama, Postdoctoral research associate at Texas A&M University at Qatar
04:00	05:00	10:00	13:30	16:00	Real-time Simulation for Sector-Coupling: Opportunity and Challenges Davood Babazadeh, Lecturer at Hamburg University of Technology	Modular Multilevel Converter (MMC) in DC Grids Yousef Nazih, Teaching assistant at Alexandria University
04:30	05:30	10:30	14:00	16:30	Hardware-in-the-Loop Real-Time Simulations for Power Electronics Drives Wojciech Jurczak, Power Hardware Engineer at Rockwell Automation	Wind Power Plant Digital Twin Dr. Ramon Blasco-Gimenez , Professor at Universitat Politecnica de Valencia Jaime Martínez-Turégano, Researcher at Universitat Politècnica de València
05:00	06:00	11:00	14:30	17:00	Automated Setup of Cyber-Physical Tests Beds for Validation of Large Scale Smart Grid Apps Catalin Gavriluta , Research Engineer at Austrian Institute of Technology (AIT)	Hardware-In-the-Loop (HIL) Validation of Energy Management System in ATENEA Microgrid Aitor Ollacarizqueta, Engineer at CENER
05:30	06:30	11:30	15:00	17:30	3D Wind Flow Model for Real-Time Wind Farm Co-simulation Johnny Chhor, Researcher at Ruhr University Bochum	Microgrid Solutions Using HIL Ruben Benedetti, Product Test Engineer at GE Renewable Energy
06:00	07:00	12:00	15:30	18:00	The growing role of real time simulation in power systems: from testing to education Dr. Antonello Monti, Director of the Institute for Automation of Complex Power Systems at E.ON Energy Research Center	HIL for Validation of Harmonic Mitigation Provided by Grid-Connected PV Inverters Atheer Habash, Research Assistant at Swansea University
06:30	07:30	12:30	16:00	18:30	Parallel Operated VSC and LCC Schemes - HIL Study Sebastien Dennetiere, Engineer at RTE	External Intelligent MGC Development for Microgrid HIL Simulation Subject to Cyber-Attack Mike Mekkanen, Assistance Professor at University of Vaasa
07:00	08:00	13:00	16:30	19:00	Validating Inertia Emulation Controllers using Rapid Control Prototyping and PHIL Testing Shahab Karrari, Postdoctoral Researcher at KIT-ITEP	On Validation of Smart Grid Applications for Low Voltage Distribution Systems Florin Iov, Associate Professor at Aalborg Universitet
07:30	08:30	13:30	17:00	19:30	Real-time simulation activities and real-time based HIL simulation methodologies Georg Lauss, Researcher at Austrian Institute of Technology (AIT), Denis Vettoretti , Junior Research Engineer at Austrian Institute of Technology (AIT)	Real-Time Simulation of Complex Converters Models and Fast Converter Start-Up Daniel Santamargarita , PhD Researcher at Uneversity of Alcala de Henares
08:00	09:00	14:00	17:30	20:00	Modeling and Stability Analysis of Converter-Dominated Grids with Dynamic Loads Huoming Yang, Research Assistant at Technische Universität Berlin	Design of Distributed Control Systems for Microgrids Marcos Eduardo Victorio, PhD Student at Durham University
08:30	09:30	14:30	18:00	20:30	RT21 CLOSING SESSION	
09:00	10:00	15:00	18:30	21:00		

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Some of the RT21 speakers have created on-demand video presentations for you to access at any time!

On-demand presentations will be available at the beginning of the event.

Power Hardware in the Loop Testing – Value Proposition
Uday Deshpande, CTO at D&V Electronics

Microgrid development and real-time validation from the lab to a real installation
Mathieu Plourde, Global Product Manager at Festo Didactic

Model-Based Simulation and EV HIL Testing
Nate Holmes, Offering Manager at NI
Bruno Cesar, Integration Specialist at OPAL-RT
Derek Boychuk, Offering Manager at OPAL-RT

Real-Time Simulation on Grid Integration of Electric Vehicle Wireless Charging
Rong Zeng, Technical Professional Staff at Oak Ridge National Laboratory

Demonstration of OPAL-RT ePHASORSIM Export Tool with ETAP PPC
Neetin Choudary, Power System Engineer at ETAP
Etienne Leduc, Energy Market Offering Manager at OPAL-RT

Increase Flexibility & Lower Hardware-in-the-Loop Simulation Cost Using PXI
Bob Stasonis, Technical Product Specialist at Pickering Interfaces

Demonstration of OPAL-RT ePHASORSIM Export Tool with ETAP PPC
Neetin Choudary, Power System Engineer at ETAP
Etienne Leduc, Energy Market Offering Manager at OPAL-RT TECHNOLOGIES

Near Real-Time Transient Stability Analysis using Deep Learning Approach
Sumathi Lakshmiranganatha, PhD Researcher at University of Wyoming

Shortened Development Cycle of Battery Electric Vehicle using Virtual Testing Solution
Abhishek Singh, Senior Solution Engineer at AVL List GmbH

Digital Twin of a Power Network: Development, Validation, and Application
Daniele Carta, Postdoctoral Researcher at Forschungszentrum Jülich

Validation of a Model Predictive Control Algorithm in a Hardware-in-the-Loop Simulation
Sebastian Raczka, Research associate at TU Dortmund University

Data-Driven Microgrid Control and Validation through Real-Time Simulation and PHIL Setup

Prototyping solutions for modern Power Electronics applications
Julien Orsinger, Power applications specialist at Imperix

OPF Driven UFLS in Low-Inertia Power Grids Hosting Large-Scale BESSs
Yihui Zuo, Doctoral Assistant at Ecole Polytechnique Fédérale de Lausanne

Application of a Real-time Simulator for Microgrid Studies
Kuldeep Kumar, Post Doctoral Researcher at Hanyang University

Data-Driven Microgrid Control and Validation through Real-Time Simulation and PHIL Setup
Seyed Sohail Madani, PhD Student at EPFL

Energy of the Future Labs in Academic Teaching and Research
Gevorg Parsyan, Senior Systems Engineer at Bitlismen

Design and Development of a Wind Turbine Emulator using Separately Excited DC Motor
Balaji Mendi, Research Scholar at National Institute of Technology Rourkela

TBA
Maria Raboaca, Researcher at ICSI Rm. Valcea

Three-Phase Grid-Connected PV Power System using a Modified Dual-Stage Inverter
Ashkkumar S., Student at PSG College of Technology

Grid and Microgrid Test Solution of ITECH
Queena Qi, Product Manager at ITECH Electronics

UPS HIL Testbench and Gs Understanding
Ricky Zhang, Firmware Test Section Manager at Schneider Electric

PHIL Case Study by Using Linear Type 4-Quadrant Power Amplifier
Xiaolong Wei, Senior Engineer at PONOVO POWER

Real-Time RMS-EMT Co-Simulation and its Application in HIL Testing of Protective Relays
Renzo Espinoza, Researcher at Itaipu Technological Park

Synchronous Generator and Excitation System Response to GIC
Pitambar Jankee, PhD Student at University of Cape Town

Real-time simulation of Power System Wide Area Protection Algorithm
Bright Tetteh, PhD Student at University of Cape Town

How to accelerate Power Electronics R&D cycle with PELab and OPAL-RT Real-Time Simulators
Khalid Ahmad, CEO & CTO at Taraz Technologies

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PLATINUM

Hydro-Québec's mission is to deliver reliable electric power and high-quality services. By developing clean, renewable energy sources, we make a strong contribution to Québec's collective wealth and play a central role in the emergence of a low-carbon economy. As recognized leaders in hydropower and large transmission systems, we export clean, renewable power and leverage our expertise and innovations within Québec and around the world.

Hydro-Québec is the only electric utility in North America to have a research centre the size of IREQ. The company invests a yearly average of $100 million in its innovation projects. The IREQ team is made up of approximately 500 people: a broad range of scientists, technicians, engineers and specialists pool their efforts and expertise to support Hydro-Québec in every facet of its operations, from electricity generation to consumption.

Intel (Nasdaq: INTC) is an industry leader, creating world-changing technology that enables global progress and enriches lives. Inspired by Moore's Law, we continuously work to advance the design and manufacturing of semiconductors to help address our customers' greatest challenges. By embedding intelligence in the cloud, network, edge and every kind of computing device, we unleash the potential of data to transform business and society for the better.

Since 2000, KeLiang has been concentrating on simulation & test technology and committing itself to providing reliable control system R&D and testing products, system-level solutions, and consultation services to global professional users in the industries of electric power, avionics, automobile, marine, rail, certification, etc.

The company's business covers the full life cycle of projects, including requirements analysis, collaborative development, model-based system R&D consulting, system integration & project implementation, training, and on-site technical services. After years' accumulation and dedication, KeLiang has bloomed into a market-leading supplier in the industry, offering professional engineering services and simulation & test systems like Integrated Energy Simulation System (IESS), SIL. PRCP, PHIL, TestBench and so on., SIL. PRCP, PHIL, TestBench and so on.

GOLD

We believe in the power and potential of making connections—between people, ideas, and technology. In fact, connection is central to everything we do. We constantly challenge ourselves to find those connections because that's what creates a path forward. This means bringing the right people together to build solutions that make a difference. It means combining fresh perspectives with new technologies to turn your vision into reality.

Lucas-Nülle stands for training systems for key technologies such as electrical engineering, automation or mechatronics. Whether individual training systems or entire laboratories – we are your full-service partner in 18 technical fields. Our own subsidiary in the USA, together with over 60 international sales partners, form a worldwide training network. Lucas-Nülle training systems combine teaching equipment with digital learning software. The result are competences imparted to trainees, pupils and students – also in the new topics of digitalisation.

ETAP is the global market and technology leader in modeling, design, analysis, optimization, monitoring, control, and automation software for electrical power systems.

D&V Electronics designs and manufactures leading edge test solutions for all components of an electrified powertrain and for all stages of the product life cycle, from R&D through to end of line production and aftermarket. Its worldwide customer base includes OEMs, Tier 1 & 2 manufacturers, universities, government institutions and test centers. D&V Electronics has supplied high quality testing expertise, technology, and support to customers in over 90 countries for over 20 years.

Festo Didactic is the world-leading provider in the field of technical education. As a global partner for educational institutions, governments, state organizations and companies around the world, they design and implement training centers and laboratories, educational equipment and programs that train people to perform in highly dynamic and complex environments. The product and service portfolio offers customers holistic education solutions for all areas of technology in factory and process automation, such as pneumatics, hydraulics, electrical engineering, power systems, renewable energies, production technology, mechanical engineering, mechatronics, CNC, HVAC and telecommunications.

Austrian-based EGSTON Power Electronics offers a revolutionary power electronic test bench based on P-HIL technology (Power – Hardware in the Loop). Our unique Compiso system offers a high voltage bandwidth of 5 kHz at 440 VRMS which can generate harmonics of up to 15 kHz with a power range of 100kW up to several megawatt. Based on a modular design, the Compiso P-HIL System offers full flexibility and can be used as an AC source/sink, DC source/sink, smart grid, aerospace grid, PV-panel, battery or electrical machine emulator.

Realtimewave is an experienced supplier of real-time avionics SIL (System Integration Laboratory), HILS (Hardware In the Loop Simulation) and ATE (Automatic Test Equipment) systems for the Defense & Aerospace industry. We have key technologies and diverse experience in the development of avionics systems including SIL, HILS, manned and unmanned (UAV) weapons test benches, missile guidance control HILS, satellite launcher SIL, autonomous vehicle control HILS. We have manufacturing, integration, and testing capability for avionics equipment and flight control equipment.

For over 30 years, Pickering has been helping test engineers design, deploy and sustain high-performance electronic test and verification systems. As a global specialist in high-quality modular signal switching and simulation, software and services for PXI, LXI, USB and PCI applications, we provide the engineering capabilities and worldwide resources you need to succeed. Our core focus is high-density modular switching and simulation systems (with over 1,000 products in PXI alone) to meet your specifications. And, when our product range doesn't fit your application, we have the agility and expertise needed to develop a system to your specifications, with little to no engineering cost. That's our specialty. At Pickering, we are focused solely on helping you design, deploy and sustain your automated test switching system

SILVER

SCALABLE Network Technologies has developed a family of software products for engineers, analysts, and operators of mission-critical, business-critical environments to help ensure the networks, the networked systems, and the distributed applications work effectively under all normal and emergency operating scenarios. Our network digital twin solutions integrate software virtual networks with physical hardware and applications, allowing users to rapidly test a wide range of highly realistic scenarios for better operational planning, more effective training and enhanced communications effectiveness without the expense of building out physical infrastructure. SCALABLE's simulation software is used by commercial, government, military, and educational organizations around the world.

PONOVO POWER is the professional protection relay testing and power amplifier products provider, mainly including PHIL (power-hardware-in-loop) power amplifier solution, conventional power amplifier for power system, linear type 4-quadrant power amplifier for new engery research, EV charging facilities testing platform, protection relay test sets(6-hase, 3-phase), CT/PT Analyzer, single phase tester, primary injection, HVDC, railway transportation related testing devices, etc. PONOVO Power as an ISO 9001-2015 certified company, founded in 1998 and started international sales for more than 10 years. We have been supplying more than 1500 sets of testing device to more than 50 countries.

Along with technological development and the birth of Industry 4.0 the world needs better educated people. The traditional educational methods and approaches are no longer effective and do not provide the required knowledge and expertise to future specialists. The educational trainers should be transformed from a fixed, static trainer into open, flexible and software defined platforms. Biltlismen's Power Labs Ecosystem comes to fulfill these needs. It is designed to be expandable, reconfigurable and reprogrammable. The ecosystem consists of: Solar, Wind, Hydrogen Fuel Cell, Hydro, Traditional Power Generation Trainers; Transmission, Distribution, Substation Automation, Electromechanical and Microprocessor Relay Protection Trainers; Smart Grid Platform. To check more about our company and products please visit www.bitlismen.com and www.youtube.com/bitlismen

Modelon offers systems modeling and simulation software that accelerates product innovation, development, and operations in a range of industries. Modelon's flagship product, Modelon Impact, is a cloud-native system simulation software platform featuring a collaborative browser-based interface and thousands of proven models and components spanning a broad range of applications. With global reach, Modelon is an expert industry leader in model-based systems engineering with a focus on leveraging open standard technologies. Modelon Library Suite, Modelon Inside, and FMI Toolbox are leading solutions, integrated and available on several industry recognized platforms. Our products, regardless of platform, enable us to serve a clientele, base across a wide range of industry sectors, which include some of the largest companies in the world.

Imperix is a Swiss company developing high-end control equipment and prototyping hardware for power electronics, drives, smart grids and related topics. Its products are designed to enable cutting-edge innovation in corporate and academic environments. They are especially valued for their ability to accelerate the implementation of laboratory-scale power converters and facilitate the derivation of high-quality experimental results. The company also offers various levels of integration services, intended to assist its customers in their prototyping activities. As such, its offering ranges from the delivery of plug-and-play hardware and software, to that of fully customized systems involving specialized control software algorithms. For more information, visit http://www.imperix.com

BRONZE

EMTP® is the most complete and technically advanced software for simulation and analysis of power systems. EMTP® is the reference for the simulation of electromagnetic and electromechanical EMT transients. It is known to be the fastest, the most accurate and the most numerically stable time-domain software in the industry. Control systems and protections can be modelled in detail using the complete libraries of components. EMTP® has a powerful unbalanced multi-phase load-flow capable of solving very large scale transmission and distribution grids, cases with more than 300 000 buses can be solved by our EMT solver. EMTP® has the most user-friendly graphical interface and load-flow, steady-state and time-domain simulations using the same grid data and within the same environment. EMTP® is completely scriptable. EVERYTHING that can be done by hand can be automated by scripts!

As a professional manufacturer of power electronics testing instruments and systems, ITECH has brought to the market over 700 products including AC/DC programmable power supply, AC/DC programmable electronic load, regenerative power system, gird simulator, bidirectional DC power supply, battery tester, battery simulator, PV simulator, power meter, battery IR tester, power system, etc. ITECH also provides more than 20 solutions which can be applied to different industry areas, such as EV,solar, automotive electronics, semiconductor, education, 5G, IoT... Every year, there will be at least 6 new products to be launched to the market. Like IT6000B/C/D series, featured as high voltage (max.2250V),high power (max. 1.152MW) and multiple functions. we also low power products Like IT-M3600/IT-M3400(bidirectional), IT-M3200(high precision)... ITECH, Your Power Testing Solution.

Taraz Technologies has been providing research oriented power electronics solutions to customers in more than 30 countries. Our products include DC/DC Converters, Gate Drivers, Power Modules, Embedded Controllers, Isolated Sensors, Smart Probes, Data Acquisition devices as well as fully integrated Power Electronics Systems. Our product design philosophy focuses on easy to use, research friendly and modular solutions that can accelerate the research and development cycle while providing maximum versatility for research. Furthermore, our finished product portfolio includes Programmable Power Supplies and Solar Inverters for the domestic market. Founded in 2012, Taraz was nominated among the top most innovative technology startups in Pakistan. Our research and manufacturing facility is located in Islamabad, the green capital city of Pakistan.

Electro-Meters is a major distributor of Test and Measurement, portable instruments as well as Analog and Digital Panel meters. We have all your needs in Test & Measurement Instrumentation, Portable Instrumentation, Panel Meters and Signal Conditioners. For over 50 years we have provided service and support for products that are manufactured by the world's leading suppliers. Whether you need technical assistance in selecting a product, need CSA approval, or are designing a turnkey solution, we are here to help. By teaming with our suppliers, we provide the level of support that you would expect from one of Canada's leading organizations. Our portfolio includes ITECH power supplies, loads and power systems, Yokogawa precision power analyzers and data acquisition systems, Rigol oscilloscopes, generators, spectrum analyzers and many more state-of-the-art manufacturers.

Neosoft Technologies is a software and electronic engineering company specialized in system integration involving instrumentation and control. Neosoft has proven its expertise in a variety of system delivered including high-speed data acquisition and analysis, embedded systems, machine vision system, Hardware-in-the-loop (HIL) simulators, automated test systems (ATE), database and geographic information system (GIS) systems. Neosoft have a great team of qualified professionals in the field of Software and Electronics ready to help for your simple and complex projects.

In a world where dependence on fossil energy will greatly decrease during the century, PUISSANCE PLUS puts its unique know-how at the service of the challenges of energy transformation and the e-mobility of the world of tomorrow. To meet these challenges, PUISSANCE PLUS relies on its technological innovation capabilities, the main driver of its growth. PUISSANCE PLUS joined the SPHEREA group in 2015 and has supported the major players in electrification (multi sectors) for over 25 years. PUISSANCE PLUS is a leading company in providing Instrumentation and complex solution for test and measurement in different areas, especially in providing Power Amplifiers for PHIL application.

Propulsion Québec est la grappe des transports électriques et intelligents du Québec qui mobilise tous les acteurs de la filière autour de projets concertés ayant pour objectif de positionner le Québec parmi les leaders du développement et de l'implantation des modes de transport terrestre favorisant les transports électriques et intelligents. Créé en 2017, Propulsion Québec compte aujourd'hui près de 215 membres de différents secteurs et déploie ses ressources selon six chantiers distincts visant à développer et soutenir des projets innovants. La grappe bénéficie de l'appui financier du gouvernement du Québec, du gouvernement du Canada, de la Communauté métropolitaine de Montréal (CMM), d'ATTRIX, du Mouvement Desjardins, du Fonds de solidarité FTQ, d'Hydro-Québec et de Québecor.

L&T is a publicly traded company with over $21Bn business, with its power transmission and distribution IC, serving the full value chain of electric power transmission lines & substations, utility power distribution systems, automation & control systems, renewables, microgrid and energy storage. We are one of the leading players in Solar PV installations with a track record of having built some of India's largest solar plants thanks to our proven EPC capabilities to offer economically viable and technically superior solutions.

Our digital solutions ensure fast, reliable, secured and smarter solutions, to operate mission critical power applications. The solution domain includes electric vehicles charging infrastructure, distributed energy solution, virtual worker solution & operational technology integration services.