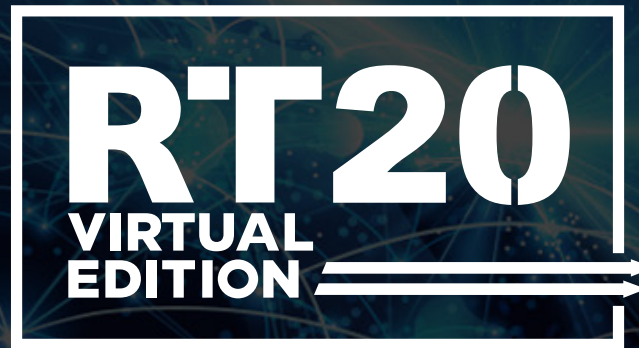


# PRELIMINARY AGENDA



OPAL-RT's 12<sup>th</sup> Conference on Real-Time Simulation

June 18-19, 2020 | 24h Conference  
Starting at 9AM EST



# Preliminary Agenda

OPAL-RT's 12<sup>th</sup> Conference on Real-Time Simulation  
June 18-19, 2020 | 24h Conference





Montreal (EDT)	Paris (CEST)	Bangalore (IST)	Beijing (CST)	Presentation type:		
				CORPORATE	TECHNICAL PRESENTATION	SPONSOR
				PRODUCT FOCUS	MARKET FOCUS	PANEL
09:00	15:00	18:30	21:00	RT20 Opening Session		
09:30	15:30	19:00	21:30	Jean Belanger, CEO & CTO, OPAL-RT TECHNOLOGIES Pierre-Francois Allaire, VP Sales & Marketing, OPAL-RT TECHNOLOGIES		
10:00	16:00	19:30	22:00	Real-time application in North America; Project Overview, trends and perspectives. Martin Belanger, North America Sales Director, OPAL-RT TECHNOLOGIES		
10:30	16:30	20:00	22:30	Panel: Digital Twin to increase resiliency of power grid.		
11:00	17:00	20:30	23:00			
11:30	17:30	21:00	23:30	Advanced Simulation Tools for Enabling Energy and Digital Transitions. Innocent Kamwa, Chef Expertises, Hydro-Québec (Research institute of Hydro-Québec)		
12:00	18:00	21:30	0:00	Panel: Real-Time Simulation and HIL in Education. Moderator: Yona Baskharoun, International Chancel Manager, OPAL-RT TECHNOLOGIES	Panel : Model-in-the-loop (MIL) and Hardware-in-the-loop for Autonomous Vehicle and ADAS Testing (NA)	New features of HYPERSIM & Live Demo. Etienne Leduc, HYPERSIM Product Owner, OPAL-RT TECHNOLOGIES
12:30	18:30	22:00	0:30		Real-time application in Latin America; Project Overview, trends and perspectives. Victor Hirata, Latin America Sales Director, OPAL-RT TECHNOLOGIES	

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				CORPORATE	TECHNICAL PRESENTATION	SPONSOR
				PRODUCT FOCUS	MARKET FOCUS	PANEL
13:00	19:00	22:30	1:00	<div><div></div><div>Performance Assessment of a Wide Area Damping Controller Using Real-Time Hardware-in-the-Loop Simulations <i>Hossein Hooshyar, Technical Leader, EPRI</i></div></div>	<div><div></div><div>Performance Evaluation Method of Phasor Measurement Unit Using Real Time Simulation. <i>José Eduardo Alves, Researcher, CEPEL</i></div></div>	<div><div></div><div>PHIL Tests with OPAL-RT's High-Fidelity 4-Quadrant Power Amplifier</div></div>
13:30	19:30	23:00	1:30	<div><div></div><div>Flexgrid at Berkeley Lab: a Flexible Testbed for Power-HIL Experiments. <i>Maxime Baudette &amp; Christoph Gehbauer, Berkeley</i></div></div>	<div><div></div><div>STATCOM Real-Time Implementation Based on a Novel Cascaded Multilevel Converter Topology. <i>Renner Sartório Camargo, Professor, Instituto Federal do Espírito Santo</i></div></div>	
14:00	20:00	23:30	2:00	<div><div></div><div>Power Electronic Hardware-in-the-loop (PE-HIL) for HVDC Systems. <i>Suman Debnath, R&amp;D Staff, Oak Ridge National Laboratory</i></div></div>	<div><div></div><div>Implementation of multiport Frequency Dependent Network Equivalents (FDNE) on FPGA hardware for efficient representation of very large power systems in real-time. <i>Henildo Barros, Specialist Engineer, Operador Nacional do Sistema Elétrico (ONS)</i></div></div>	<div><div></div><div>Round table: Power Hardware-in-the-Loop (PHIL)</div></div>
14:30	20:30	0:00	2:30	<div><div></div><div>Modeling the impact of GIC neutral blocking devices on distance protection relay operations for transmission lines. <i>Emilio Piescorovsky, Professional Technical Staff, Oak Ridge National Laboratory GIES</i></div></div>	<div><div></div><div>Projects developed in Smart Grid Group (SG2) based on OPAL-RT. <i>Camila Gehrke, Professor, Universidade Federal da Paraíba (UFPB)</i></div></div>	

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				PRODUCT FOCUS	MARKET FOCUS	PANEL			
15:00	21:00	0:30	3:00	Voltage source converter models for real time simulation and HIL test of Microgrids. <i>Wei Li, Simulation Specialist, OPAL-RT TECHNOLOGIES</i>				Implementation of a Real-Time Digital Simulation Platform to Train Operators in Phasor Domain (Dynamic Simulator). <i>Diego Alejandro Aguas Revelo, Researcher and Technical Specialist in Power System Operation, CENACE</i>	
15:30	21:30	1:00	3:30	D&V Electronics: Testing the Future				Proud users: CENACE	
16:00	22:00	1:30	4:00	Control algorithm evaluation of stacked low inertia medium voltage inverters using CHIL in OPAL-RT environment <i>Rajendra Prasad Kandula, Senior Research Faculty, Georgia Institute of Technology</i>				Multi-FPGA Simulation for Modern Power Systems Hardware in the Loop Testing. <i>Amine Yamane, Power Systems RT Simulation Expert, OPAL-RT TECHNOLOGIES</i>	
16:30	22:30	2:00	4:30	Automation of Control Validation using RT-LAB API. <i>Anuradha Ogale, Power Electronics Engineer, Johnson Controls</i>				Using HYPERSIM to co-simulate cyber-physical energy systems in the context of Hydro-Quebec's IEC 61850-based substation digitalization program. <i>Chuma Francis Mugombozi, Researcher, Hydro-Québec (Research institute of Hydro-Québec)</i>	
17:00	23:00	2:30	5:00	Power electronic switches modeling in real-time and HIL tests for DERs and Microgrid studies. <i>Syed Qaseem Ali, Team Lead - T&amp;D-DER, OPAL-RT TECHNOLOGIES</i>				National Instrument & OPAL-RT's platform-based approach to high fidelity, turnkey HIL solutions	
17:30	23:30	3:00	5:30	Rapid Control Prototyping (RCP) Assessed Boost Mode Operation of a 15 kW SiC-based 380/480 V Matrix Converter. <i>Boran Fan, Research scholar, Virginia tech</i>				HIL simulation for Hybrid Electric Vehicle with National Instruments. <i>Bruno Cesar, Integration Specialist, OPAL-RT TECHNOLOGIES</i>	

New Features of RT-LAB & Toolboxes

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18:00	0:00	3:30	6:00	OPAL-RT Technologies Applications in Control and Energy Systems: Research in Engineering at Saint Mary's University. <i>Adel Merabet, Associate Professor, Saint Mary's University</i>		
				PI Innovo		
18:30	0:30	4:00	6:30	Virtual Robotics Training and the Next Generation Workforce. <i>Jennifer Javornik, Vice President, Filament Games</i>		
				Rivian		
19:00	1:00	4:30	7:00	PNNL Cyber-physical research laboratory overview and co-simulation case study of a Hardware-in-the-loop (HIL) microgrid for cybersecurity experimentation. <i>Aditya Ashok, Senior Research Engineer, Pacific Northwest National Laboratory</i>		
				Karma Automotive		
19:30	1:30	5:00	7:30	Real-time application in Australia; Project Overview, trends and perspectives. <i>Christy Genganantha, Customer Solutions Architect, OPAL-RT TECHNOLOGIES</i>		
20:00	2:00	5:30	8:00	Real-Time Synthetic Network of the Australian National Electricity Market. <i>Felipe Arrano-Vargas, PhD Candidate, UNSW Sydney</i>		
20:30	2:30	6:00	8:30			
21:00	3:00	6:30	9:00	Real-time application in Asia; Project Overview, trends and perspectives. <i>Benoit Marcoux, Intern sales representative - Asia, OPAL-RT TECHNOLOGIES</i>		
				RT20 开幕式 (RT20 Opening session) Development of Keliang in Real-time simulation industry [Mandarin] <i>Yijun Zou, Vice-President, Shanghai Keliang Information Tech. &amp; Co.,Ltd.</i>		

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				CORPORATE PRODUCT FOCUS	TECHNICAL PRESENTATION MARKET FOCUS SPONSOR PANEL
21:30	3:30	7:00	9:30	Recent developments and applications of JMAG-RT; a high fidelity motor model for HIL/MIL. <i>Takashi Yamada, CTO, JMAG Div. / JSOL Corp.</i>	A Glimpse of Recent Applications in Real-time Simulation: Multi-domain and Multi-timescale Co- Simulation [Mandarin] <i>Weihua Wang, Chief Representative of Asia-Pacific Technical Center, OPAL-RT TECHNOLOGIES</i>
22:00	4:00	7:30	10:00		Real-time simulation of integrated energy [Mandarin] <i>Guixiong He, Wind farm &amp; Energy Efficiency Office of CEPRI</i>
22:30	4:30	8:00	10:30		Simulation and Modeling of offshore Wind Farm. [Mandarin] <i>Wenming, PhD, Senior Engineer, EPRI of China Southern Grid</i>
23:00	5:00	8:30	11:00		HIL simulation for large-scale integrated grid [Mandarin] <i>Linlin Wu, Deputy Director, Smart Grid &amp; New Energy Institute of China North EPRI</i>
23:30	5:30	9:00	11:30	Real-time application in India; Project Overview, trends and perspectives. <i>Girish Najundaiah, General Director, OPAL-RT India</i>	Real-time simulation testing of integrated energy [Mandarin] <i>Hongbiao Li, Manager of integrated energy department, Keliang</i>
00:00	6:00	9:30	12:00	Simulation of ERG, PGCIL System Using ePHASORSIM on RT-LAB platform: Overview and Issues. <i>Dr. Sanjoy Kumar Parida, Associate Professor, IIT PATNA</i>	
00:30	6:30	10:00	12:30	Application of Fractional Order PID Controller for Power Quality Improvement Under Non-Stationary Load Conditions. <i>Bharat Singh Rajpurohit, Associate Professor, Indian Institute of Technology Mandi</i>	Chat and technical communication [Mandarin] Noon Break



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				PRODUCT FOCUS	MARKET FOCUS	PANEL		
01:00	7:00	10:30	13:00	<div><div></div><div>Hardware Implementation of AC/DC Microgrid using OPAL-RT. Sukumar Mishra, Professor, IIT Delhi</div></div>			<div><div></div><div>Real-time simulation of HVDC [Mandarin] Chang Lin, Chief Engineer, Simulation Center of Global Energy Interconnection Research Institute Co., Ltd (GEIRI)</div></div>	<div><div></div><div>Impedance Scanning of wind turbine converters. [Mandarin] Yixing Liu, Director of Wind Power Electric department of Haizhuang Windpower China State Shipbuilding Co.,Ltd"</div></div>
01:30	7:30	11:00	13:30	<div><div></div><div>HIL Simulation for Control Applications. Dr. Amitava Gupta, Professor, Jadavpur University Kolkata</div></div>			<div><div></div><div>HIL simulation in testing Photovoltaic application. [Mandarin] Xiaolin Zhang, Nanjing New Energy Institute of CEPRI"</div></div>	
02:00	8:00	11:30	14:00	<div><div></div><div>Power Electronics Applications to Hydropower Plants. Thanga Raj Chelliah, Associate Professor, Indian Institute of Technology Roorkee</div></div>				
02:30	8:30	12:00	14:30	<div><div></div><div>Realization of Hybrid Nine-Level Inverter Using RT-LAB in HIL Sanjiv Kumar, Assistant Professor, Harcourt Butler Technical University</div></div>	<div><div></div><div>Real-time application in Europe; Project Overview, trends and perspectives. Timo Roesch, Director Business Development and Marketing, OPAL-RT Germany Yoann Mougnot, Sales Director, OPAL-RT Europe</div></div>			
03:00	9:00	12:30	15:00	<div><div></div><div>Electric Vehicles Chargers Dr. Mukesh Singh, Associate Professor, Thapar University Patiala</div></div>	<div><div></div><div>Evolution of the grid with advances in ICT and its impact on simulation. Antonello Monti, Director of the Institute for Automation of Complex Power Systems, E.ON Energy Research Center</div></div>	<div><div></div><div>SESLAB, an OPAL-RT based virtual environment for developing and testing smart energy systems. Pedro Rodriguez, Professor, LOYOLATECH - Universidad Loyola</div></div>		

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				CORPORATE	TECHNICAL PRESENTATION	SPONSOR	
				PRODUCT FOCUS	MARKET FOCUS	PANEL	
03:30	9:30	13:00	15:30	<p>A Novel Technique of Maximum Power Point Tracking Controller for Real-time Wind Energy System.</p> <p>Mohammad Junaid Khan, Assistant Professor, MEC Nuh Haryana</p> 	<p>Proud Users: R&amp;D Nester</p> 	<p>Specialized inverter controls, testing and multidomain simulation at the FIEK lab in Budapest.</p> <p>David Raisz, Associate Professor - Head of Lab, Budapest University of Technology and Economics (BME)</p> 	<p>Performance Validation of A Novel Single-Phase Micro-inverter for PV systems Using Real-Time Simulation.</p> <p>Mahmoud Gaafar, Assistant Professor, APEARC - Aswan University</p> 
04:00	10:00	13:30	16:00	<p>Real time implementation of Power Electronics systems using OPAL-RT.</p> <p>Dr. Abdul Hamid Bhat, Professor, NIT Srinagar, J &amp; K</p> 	<p>EGSTON POWER   Hardware in the Loop Testing</p> 	<p>ROCOF-based Under Frequency Load Shedding in Low Inertia Power Systems.</p> <p>Frigo Guglielmo, PostDoc Researcher, EPFL Yihui Zuo, PhD Student, EPFL</p> 	<p>Current-type Power Hardware in the Loop (PHIL) Evaluation for Smart Transformer Application.</p> <p>Sante Pugliese, Post-doctoral researcher, Kiel University</p> 
04:30	10:30	14:00	16:30	<p>Implementation of Distribution Network State Estimator using Hybrid measurements from the IIT Kanpur 11KV Network Modelled in HYPERSIM.</p> <p>Rajarshi Dutta, PhD Scholar, IIT KANPUR</p> 	<p>Power-Hardware-in-the-Loop Tests of DC Systems in Scaled Laboratory Environments.</p> <p>Marc René Lotz, Research Associate, Ostfalia University of Applied Sciences</p> 	<p>Development of a Technical Ancillary Services Controller in Real-time Co-simulation Platform.</p> <p>Katja SIRVIÖ, Project researcher - VEBIC FREESI, University of Vaasa</p> 	<p>Hardware-in-the-loop relay testing with a reduced GB transmission system model.</p> <p>Peter Imris, Research Assistant, Brunel University London</p> 
05:00	11:00	14:30	17:00	<p>Real-Time Communication in a Hybrid Microgrid System with Centralized Control System Under Power Imbalance.</p> <p>Dinesh Varma Tekumalla, Research Scholar, Indian Institute of Technology Kharagpur</p> 	<p>DC Grid Protection demonstration.</p> <p>Philipp Ruffing, Team Leader DC Systems, RWTH Aachen University</p> 	<p>ANSI 21 Distance Relay HIL testing.</p> <p>Joaquin Pulido, Electrical Design Engineer, SCLE SFE</p> 	<p>Real Time Simulation of Wind Turbines for HiL Testing at the Dynamic Nacelle Laboratory.</p> <p>Adam Zuga, Automation Engineer and Group Leader, Fraunhofer IWES</p> 



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				PRODUCT FOCUS	MARKET FOCUS	PANEL	
05:30	11:30	15:00	17:30	<div>Importance of power system simulations in real time.</div> <div>Preeti Gupta, Research Scholar, UIET Panjab University</div> <div></div>	<div>Hybrid RCP and PHIL Setup for Parallel Converters for Analysis and Damping of ubsynchronous Oscillations.</div> <div>Malte Eggers, Research Assistant, Technische Universität Berlin</div> <div></div>	<div>Multi-Agent based Real-Time Infrastructure for Energy: modeling and simulation of a Farm Microgrid.</div> <div>Dr. Pedro Faria, Researcher, Polytechnic of Porto</div> <div></div>	<div>A PHIL Test Bench for Smart Charging Algorithms</div> <div>Lode De Herdt, MSc Thesis Student, TU Delft</div> <div></div>
06:00	12:00	15:30	18:00	<div>Design and development of advanced research modules in power electronics applications to power system.</div> <div>Pavitra Shukl, PhD Research Scholar, Indian Institute of Technology Delhi</div> <div></div>	<div>Experimental Verification of smart grid functions with Hardware-in-the-loop simulations.</div> <div>Rajkumar Palaniappan, Research Assistant, TU Dortmund</div> <div></div>	<div>Real-time Cost Optimisation for Power Management in Microgrids.</div> <div>Marcos Eduardo Cruz Victorio, PhD Student, Durham University</div> <div></div>	<div>Early stage development of adaptive mechatronic systems through simulation-based optimization and mechanical hardware-in-the-loop testing.</div> <div>Jonathan Millitzer, Group Manager Active Control, Fraunhofer LBF</div> <div></div>
06:30	12:30	16:00	18:30	<div>Lights off as a tribute to health system heroes - Opportunities to improve grid security with real-time simulation technology.</div> <div>Shravana Musunuri, Team Leader, OPAL-RT India</div> <div></div>	<div>FPGA Based Simulation of Power Electronics Systems: an Example of co-simulation.</div> <div>Andrea Benigni, Professor, Forschungszentrum Jülich</div> <div></div>	<div>Ancillary services in distribution systems: modeling and validation with RT-LAB.</div> <div>Grazia Todeschini, Senior Lecturer, Swansea University</div> <div></div>	<div>Proud Users: OFFIS</div> <div></div>
07:00	13:00	16:30	19:00		<div>The Design of a "Fast Hardware-in-the-Loop" Framework to perform High Frequency Interdependency Phenomena.</div> <div>Matthias Klee, Research Assistant, Fraunhofer Institute for Energy Economics and Energy System Technology</div> <div></div>	<div>Design of a cyber-physical co-simulation platform for a digital substation.</div> <div>Stephan Ruhe, Research Associate, Fraunhofer IOSB-AST</div> <div></div>	<div>HIL tests - a possibility for the verification of functional safety in safety critical systems.</div> <div>Gotz Dittmar, Interim Manager, Götz Dittmar Interim Management</div> <div></div>
07:30	13:30	17:00	19:30				
08:00	14:00	17:30	20:00				
08:30	14:30	18:00	20:30	RT20 Closing Session			

# On Demand Presentations



Some of our 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.

Presentation type:

TECHNICAL PRESENTATION  
PRODUCT FOCUS

MARKET FOCUS

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<p>Automating RT-LAB PHIL Experiments to Conduct DER Interconnection Conformance Tests, Parametrized Fault Experiments, and Cybersecurity Research</p> <p>Jay Johnson, Principal Member of Technical Staff, Sandia National Laboratories</p> 	<p>Considerations for performing power-hardware-in-the-loop based motor emulation: modeling and control.</p> <p>Amit Kumar KS, Graduate Research Assistant - PHIL R&amp;D, OPAL-RT TECHNOLOGIES</p> 	<p>Rapid control prototyping platform for multiphase series capacitor converter.</p> <p>Oihane Cunado, APERT research team collaborator student, UPV EHU</p> 
<p>Hardware Implementation of Direct Power Control Scheme on RT-LAB Platform.</p> <p>Monalisa Pattnaik, Assistant Professor, NIT ROURKELA</p> 	<p>Real Time Validation of a Wind Energy conversion Systems under Wind Speed Conditions in Tamaulipas, Mexico.</p> <p>Nadia M Salgado-Herrera, Associate Researcher, Instituto de Energías Renovables (IER-UNAM)</p> 	<p>Why OPAL-RT Technology is the best solution to evaluate PEM Fuel Cells.</p> <p>Raboaca Maria Simona, ICSI, Romania</p> 
<p>Proud Users: Scalable Network Technologies</p> 	<p>HIL Testbed for Designing Grid Codes and Ancillary Services to Electric Vehicle Mobile Energy Storage.</p> <p>Yutaka Ota, Professor, Osaka University</p> 	<p>Real-Time Cyber-Physical Simulation of the Electric Power Grid.</p> <p>Shijia Li, Team Lead - Protection &amp; Smart Grid, OPAL-RT TECHNOLOGIES</p> 
<p>PHIL testing experience at KIT: experimental validations of new technologies.</p> <p>Sebastian Hubschneider, Research Associate, Karlsruhe Institute of Technology (KIT)</p> 	<p>Power Hardware In the Loop infrastructure at KIT: research focus and testing possibilities.</p> <p>Simon Waczowicz, Head of Research Platform Energy, Karlsruhe Institute of Technology (KIT)</p> 	<p>Digital and Analog Hybrid simulation of Large-scale AC/DC Grid [Mandarin]</p> <p>Dr. Yingying ZHU, Director of Digital and Analog Hybrid Simulation Laboratory of Simulation Center, CEPRI</p> 
<p>A real-time educational platform for the protection relaying study.</p> <p>Mohammed Latroch, Doctoral student, National Polytechnic School of Oran (ENPO - Maurice Audin)</p> 		

# Gold sponsors

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Hydro-Québec 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.



NI accelerates productivity, innovation, and discovery through an open, software-defined platform. This approach helps you develop and increase the performance of automated test and automated measurement systems.

OPAL-RT has a core competency in high performance modeling for real-time simulation. They also have expertise in building and delivering HIL systems for power electronics control components. These capabilities complement NI's flexible offering of real-time hardware platforms (PXI, CompactRIO, SLSC) and VeriStand real-time simulation software. Together NI and OPAL-RT provide a complete end-to-end solution for HIL applications with an unmatched combination of flexibility and performance.

# Gold sponsors

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Ansys offers a comprehensive software suite that spans the entire range of physics, providing access to virtually any field of engineering simulation that a design process requires.

You can't deploy autonomous technology without proving it will perform safely. This requires a massive and potentially costly testing effort. Your advanced driver-assistance-systems (ADAS), highly autonomous or urban air mobility (UAM) vehicle must be tested under millions of possible operating scenarios.

To do this, you'd need to drive a prototype autonomous vehicle billions of miles —and do it faster than the competition. Simulation is the only answer and Ansys Autonomy is the industry's most comprehensive simulation solution for ensuring the safety of autonomous technology.



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.

# Silver sponsors

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Imperix develops high-end control equipment and prototyping hardware for power electronics, drives, smart grids and related topics. Its products are designed 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, ranging from the delivery of plug-and-play hardware and software to that of fully customized systems involving specialized control software algorithms.

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Austrian-based EGSTON Power Electronics offers a revolutionary Digital Power Amplifier System for P-HIL applications. This system offers a full span bandwidth of 5kHz and can generate harmonics up to 15kHz. A modular design allows power ratings up to 1,2 MVA. 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.

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CINERGIA is the result of know-how, experience and passion of a team committed to the development, production and commercialization of power electronics solutions. We offer high technology, robust and competitive products adapted to the needs of our clients.

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Pi Innovo provides prototype and production custom electronics (ECUs) for development of embedded control systems for markets such as automotive where reliability and functional safety are highly valued. OpenECU® is our family of customizable rapid control prototyping ECUs and software suitable for prototypes, fleet trials and low to medium volume production. For higher volume production, we deliver cost-optimized custom ECUs under aggressive development timeframes. Production volumes are supplied by EMS partners in North America and China.

# Bronze sponsors

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Based in Culver City, California, SCALABLE provides network design, modeling and analysis tools, cyber training systems and engineering support services to commercial enterprises, government and defense agencies, research organizations and educational institutions around the world.

SCALABLE solutions integrate simulated virtual network models with physical hardware and applications, allowing users to reduce the time, cost and risks of developing, testing and deploying large, sophisticated wired and wireless networks and new communications equipment, and train personnel on cyber defense. More information on the company is available at [scalable-networks.com](http://scalable-networks.com).



OFFIS has been founded in 1991 and is an application-oriented institute conducting basic research through to transfer of results bringing solutions to the industry. For many years OFFIS has been researching and developing ICT-based concepts and prototypical systems for the energy industry and energy efficiency. Thus, for example decisive contributions were made to the IT/OT integration of decentralized generator units into an energy management, for the energy efficiency in the IT from the computer chip to the computer center and for the management of large IT system landscapes in the energy supply which conform to the standards. To validate user-oriented and application-oriented solutions, OFFIS established living labs infrastructures such as "Smart Energy Simulation and Automation (SESA) – Lab" with its unique capability for multi-domain large scale real-time simulations.



OMICRON is an international company serving the electrical power industry with innovative testing and monitoring solutions. The application of our products allows users to assess the condition of the primary and secondary equipment on their systems with complete confidence. Customers in more than 160 countries rely on our high quality products on a daily basis.



# Bronze sponsors

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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.

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Propulsion Québec mobilise tous les acteurs de la filière autour de projets concertés ayant pour objectif de positionner le Québec parmi les leaders mondiaux du développement et du déploiement des modes de transport terrestre favorisant le transport intelligent et électrique. Créé en 2017, cette grappe compte aujourd'hui près de 160 membres de différents secteurs et déploie ses ressources selon sept 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), du Fonds de solidarité de la FTQ et de la Ville de Québec.

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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.

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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, we 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.



With an original position combining Production and Service R&D, expertise in the fields of power electronics, analog, measurement, digital and programming, Puissanc+ has been affirming itself for more than 20 years as a reference in the fields of: design of electronic equipment, energy conversion, instrumentation in power electronics, and integration of emulation systems.

Its industrial know-how is exercised within the framework of the business of critical systems and services. Its equipment are integrated into: production bench, on ground and embedded test equipment, system integration benches, testing laboratories, and tools for testing and maintenance.

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JMAG is a simulation software for electromechanical design and development. Many companies and universities have supported and used JMAG since 1983.

JMAG-RT generates a high fidelity plant model. Since the model is still numerically based, it can solve very quickly. And since it is based on Finite Element Model results, it will not sacrifice accuracy to achieve this calculation speed. The JMAG-RT plant model can be used in system level simulations to provide a more accurate representation of the electromagnetic device. The JMAG-RT block can be used in Hardware in the Loop Simulations (HILS) which connect a physical Electronic Control Unit (ECU) to a virtual motor.



Chroma manufactures high quality power conversion and electrical safety test instruments and automated test systems to suit a variety of applications.

From aerospace and defense to automotive and renewable energy technologies, Chroma products are providing consistent, accurate, and efficient measurements to the world's leading R&D labs. With offices and manufacturing facilities located worldwide, Chroma is committed to excellence in product, service, and innovation.