



2016 IEEE Transportation Electrification Conference and Expo (ITEC '16)

Edward Village Michigan
Dearborn, MI, USA
June 27-29, 2016
<http://itec-conf.com>

Exhibit Hall Hours

Monday, June 27, 2016: 12:00 pm - 7:30 pm

Tuesday, June 28, 2016: 12:00 pm - 7:30 pm

ITEC Sponsors:



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Aerovironment

309

900 Innovators Way
Simi Valley, CA 93065

T: (626)357-9983
E: evscs@avinc.com
W: www.avinc.com
Booth Representative: Jonathan Oakley



Imagination, Passion and Persistence. These words define AeroVironment. For the past four decades, we have been relentlessly committed to creating and delivering powerful new Unmanned Aircraft and Electric Vehicle solutions that help our customers succeed

Bomatec International

310

400 Finchdene Sq., Unit 6
Toronto, ON M1XE2

T: (416)860-9300
E: lijun.peng@bomatec.com
W: www.bomatec.ch/en/
Booth Representative: Lijun Peng



Bomatec is a leading company in magnet, sensor and drive technology. We are an international supplier in industrial electronics, mechanical engineering, drive technology, automotive manufacturing and other industries. Our strengths lie in the calculation and development of various system and test equipment, which are used for the magnetic processing of sintered and plastic bonded permanent magnets to a custom magnet system. The powerful forces and brittleness of the magnets require special handling and a lot of experience. We can also take an assembly part in a development. Using modern software, we develop, build and industrialize innovative products/solutions for our clients. We implement customer requirements into systematical and marketable products.

The experience of our talented professionals allows us to develop an optimal economic and technical solution with you. Our customers can always expect tailor-made products and solutions. We look forward to realizing your ideas and projects.

D&V Electronics

408

130 Zenway Blvd.
Woodbridge, Ontario L4H 2Y7 Canada

T: (905)264-7646
E: sales@d&velectronics.com
W: www.dvelectronics.com
Booth Representative: Michael Kelly



D&V Electronics is testing the future of hybrid / electric vehicle motors and controllers combining proven reliability with performance, accuracy and modularity. D&V's EPT series of electric powertrain testers are built for endurance, laboratory and end of line production testing including the complete vehicle simulation of motors, inverters and batteries.

E&M Power

200

6 Emma Street
Binghamton, NY 13905

T: (607)766-9620
E: eddy@eandmpower.com
W: www.eandmpower.com

Booth Representatives: William Peterson, David Eddy, Joe Hanlin & Greg Grahm



E&M Power combines leading edge technology and innovative design to produce superior EV/HEV motor drive inverter and DC power system test solutions. The Active Load Emulator for automotive traction inverter testing mimics the 4-quadrant electrical output of 3-phase synchronous or induction motor/generators under user-controlled speed, torque and temperature conditions thereby simulating an electric drive train. This electronic dynamometer, with facility requirements suitable for laboratory installations, offers significant advantages in test capabilities and flexibility, and low acquisition and operating costs. The DC Emulator product line is a 30kW to 1.2MW DC source/sink that emulates dynamic, complex bidirectional loads with best in class frequency response, deterministic streaming with.

Egston

400

EGSTON System Electronics Eggenburg GmbH
Grafenbergerstrasse 37
3730 Eggenburg, Austria

T: 0043(664)614-7508
E: compiso@egston.com
W: www.egston.com

Booth Representative: Gernot Pammer



EGSTON is a medium-sized Austrian family business with an annual turnover of 50+ Mio. EUR active in the fields of Power Electronics, Inductive Components, Cable Systems and Power Supplies.

EGSTON provides turn-key P-HIL (Power Hardware in the Loop) Test Benches in a power range from 50kVA up to 1 MVA. Emulation models can be run on standard HIL platforms that are an integrated part of the test bench. The system's high voltage bandwidth is 5kHz@440V_{RMS} and harmonics up to 20kHz can be generated. Depending on the emulation model used the system can act as AC source / sink, DC source / sink, smart grid-, aerospace grid-, PV-panel-, battery- or electrical machine emulator.

Elantas PDG, Inc.

302

5200 North Second Street
St. Louis, MO 63147

T: (314)621-5700
E: dana.roschnafsky@altana.com
W: www.elantas.com

Booth Representatives: Stephen Tuckwell & Dave Reed



ELANTAS PDG, Inc. (formerly The P.D. George Co.) is the global leader in liquid electrical insulation products, including magnet wire enamel, insulating resins, potting compounds, conformal coatings, insulating films and a wide range of specialty resin systems and adhesives. ISO 9001, TS 16949. A Heritage of Innovation since 1919.

3021 Miller Road
Ann Arbor, Michigan 48103

T: 734 997-9393

E: sales.us@etas.com

W: www.etas.com

Booth Representatives: Joe Romeo & Vivek Jaikamal



ETAS provides a comprehensive product portfolio of integrated tools designed to increase quality and efficiency in the development and maintenance of embedded systems, with solutions for software modeling/integration, hardware-in-the-loop simulation, virtual and rapid-prototyping, measurement/calibration and functional safety and security. Our tools are widely deployed in automotive, off-highway, and adjacent segments of the embedded industry.

Fiat Chrysler Automobiles – 2017 Chrysler Pacifica Hybrid

503

All-new 2017 Chrysler Pacifica Reinvents Minivan Segment with Unprecedented Level of Functionality, Versatility and Technology

2017 Chrysler Pacifica Hybrid revolutionizes the minivan segment with nearly 40 new minivan firsts. The Pacifica Hybrid, the industry's first electrified minivan, will deliver an estimated range of 30 miles solely on zero-emissions electric power from a 16-kWh lithium-ion (Li-ion) battery. In city driving, it is expected to achieve an efficiency rating of 80 MPGe based on U.S. Environmental Protection Agency standards. The pivotal technology behind the all-new Chrysler Pacifica Hybrid is its innovative electrically variable transmission (EVT). Designed by FCA US, the device features two electric motors, which are both capable of driving the vehicle's wheels.



2016 Ford C Max Energi Plug in Hybrid A

501

Ford Motor Company
Customer Relationship Center
P.O. Box 6248
Dearborn, MI 48126

T: (800)392-3673

W: www.ford.com/cars/cmax



Think of C-MAX Energi Plug-In Hybrid as a “hybrid plus.” Featuring a state of the art lithium-ion battery and an electric motor with a gasoline engine, C-MAX Energi is designed for dynamic performance.

2017 Lincoln MKZ Hybrid Reserve

505

Ford Motor Company
P.O. Box 6248
Dearborn, MI 48126

T: (800)392-3673

W: www.lincoln.com/2017-mkz/



The Lincoln Motor Company has gone to extraordinary lengths to give the exterior of the 2017 MKZ an exceptional level of grace and elegance. An equal amount of effort has been applied to develop and harness the capabilities of an available 3.0L GTDI engine.* This engine, projected to deliver 400 horsepower* and 400 lb.-ft of torque,** makes the 2017 Lincoln MKZ one of the most powerful and compelling Lincoln vehicles to ever take to the road.

General Motors

406, 506, 508

P.O. BOX 33170
Detroit, MI 48232-5170

T: (313) 556-5000
W: www.gm.com



General Motors Co. (NYSE:GM, TSX: GMM) and its partners produce vehicles in 30 countries, and the company has leadership positions in the world's largest and fastest-growing automotive markets. GM, its subsidiaries and joint venture entities sell vehicles under the Chevrolet, Cadillac, Baojun, Buick, GMC, Holden, Jiefang, Opel, Vauxhall and Wuling brands.

Keysight Technologies

311

1400 Fountaingrove Pkwy
Santa Rosa, CA 95403

T: (877)424-4536
W: www.keysight.com
Booth Representative: Celeste Jenkins



At ITEC, Keysight Technologies will show new and innovative solutions that enable automotive electronic circuit designers to maximize the efficiency, safety and reliability of automotive electrical systems. Stop by booth 309 to learn how Keysight provides the analysis of power devices, components and sensors critical for realizing these goals.

GMW Associates

307

955 Industrial Road
San Carlos, CA 94070

T: (650) 240-1134
E: Ian@gmw.com
W: www.gmw.com
Booth Representative: Ian Walker



GMW is a Distributor and Integrator of Sensors, Transducers, Instruments and Systems based on magnetics. Products and support are provided for: non-contact, isolated sensing of mechanical position and magnetic material; magnetic field and magnetic property measurement; electric current measurement and control; magnetic field generation and control; particle beam control and acceleration.

We will be showing non-contact voltage-isolated current probes for test and measurement as well as probes for continuous monitoring and data-logging, including: GMW CPCO DC-AC Clamp-On Current Probes from $\pm 500\text{A}$ to $\pm 8000\text{A}$, DaniSense High Precision DC-AC Current Transducers from $\pm 300\text{A}$ to $\pm 8000\text{A}$, and PEM Clip-Around Rogowski Coil AC Current Probes with frequencies to 30MHz and range to $\pm 300\text{kA}$.

Laboratorio Elettrofisico

404

4280 Giddings Road
Auburn Hills, MI 48326

T: (248)340-7040
E: b.pittman@elettrofisico.com
W: www.laboratorio.elettrofisico.com
Booth Representatives: Bruce Pittman & Jacob Hohner



LABORATORIO ELETTROFISICO

Laboratorio Elettrofisico is a global company specializing in engineering, design and manufacturing of the world's most precise magnetizing and magnetic measurement equipment, automated workstations and software. Our comprehensive line of products provides a single source for magnetic measuring, processing and analysis of magnetic materials, circuits and assemblies. Products include magnetizers & custom magnetic charging fixtures, Gauss meters, flux meters, fluxgate magnetometers, Helmholtz and solenoid coils, electromagnets, hysteresisgraphs and linear power supplies. Established in 1959, Laboratorio Elettrofisico is headquartered in Milan, Italy with laboratories, testing facilities, support staff, sales and services centers in the United States (Michigan & California), India, and China.

MacAUTO

201

1280 Main Street West, ITB-A109
Hamilton, Ontario L8S 4K1

T: (289) 674-0250 ext. 59053
E: bilginb@mcmaster.ca
W: www.macauto.mcmaster.ca



MacAUTO is the coordinating body for automotive research and education at McMaster University. The University's numerous automotive-related research institutes and centers work with industry, government and academic partners in developing and commercializing new technologies including hybrid and electric vehicles, powertrains, and powertrain components and control.

MacAUTO Formula Hybrid

507

1280 Main Street West, ITB-A109
Hamilton, Ontario L8S 4K1

T: (289) 674-0250 ext. 59053
W: www.formulahybrid.ca



The Electrical and Computer Engineering Department is pleased to join forces with the Mechanical Engineering Department in McMaster's first ever, Formula SAE Hybrid competition. A group of undergraduate and graduate students, comprised mostly of Mechanical and Electrical Engineers will be designing, assembling and then racing an original hybrid car that meets the specifications set down by the Formula Hybrid Society of Automotive Engineers (SAE).

McMaster Engineering EcoCAR 3

509

200 Longwood Rd. South
Hamilton, Ontario L8P 0A6

T: (289) 674-0250 ext. 59053

W: hybrid.mcmaster.ca/ecocar/



McMaster Engineering EcoCAR 3 Team (MEE3T) hopes to build upon McMaster University's reputation as an outstanding technical school and academic leader in the development of sustainable advanced vehicle technology. By working closely with the McMaster Institute for Automotive Research and Technology (MacAUTO) and the McMaster-based Canada Excellence Research Chair (CERC) in Hybrid Powertrain Program research group, the McMaster Engineering EcoCAR 3 Team is looking to establish McMaster University as a major competitor in EcoCAR 3 and in AVTCs to come.

Mercedes-Benz: Research & Development North America, Inc.

304

12120 Telegraph Rd
Redford, MI 48239

T: (313)592-4205

E: xiaodong.shi@daimler.com

W: www.mbrdna.com

Booth Representative: Xiaodong Shi

Mercedes-Benz
Research & Development North America, Inc.

MBRDNA continuously strives to remain at the forefront of successful automotive research and development in North America. Key areas of focus include creating a digital design language for Mercedes-Benz vehicles, designing in-car instruments, hardware/software interfaces for the truly digital car, and connecting cars to the cloud and mobile devices. Many ideas test and trial in concept and show cars.

Mercedes-Benz C350e Plug In Hybrid

504

The new Mercedes-Benz C 350 e is a plug-in hybrid that combines extraordinary levels of efficiency, dynamism and comfort.

Its four-cylinder petrol engine, in conjunction with a powerful electric motor, gives it a total system output of 275 hp. It is equipped with air suspension and a pre-entry climate control system as standard, delivering a unique level of driving and climate comfort.

Mercedes-Benz
Research & Development North America, Inc.

Mersen

306

74 Merrimac Street
Newburyport, MA 01950

T: (978)462-6662

W: ep-us.mersen.com

Booth Representatives: Jason Gibson, Philippe Roussel & Bill Turse



Mersen is focused on design and application of power management solutions for global markets and we are excited to offer a vast array of innovative products for our customers. From air cooled heat sinks to high performance cold plates to heat exchangers, laminated bus bars and semiconductor protection fuses, Mersen has product application expertise in industries such as Transportation, Industrial, Alternative Energy, and Military.

Our applications experts can work closely with customers at the earliest design stages to create the most efficient custom solution for cooling, bus bars and fuse protection for power electronics applications.

Mersen's strategy is to strengthen the support of its partners in the development of the power electronic application with the critical passive components that improve system performance, reliability and safety.

NH Research

405

16601 Hale Avenue
Irvine, CA 92606-5049

T: (317)319-8644

E: mnolan@nhresearch.com

W: www.nhresearch.com

Booth Representative: Mike Nolan



NH Research, Inc. designs and manufactures power test instruments & solutions used to functionally test power & energy devices such as EV/HEV batteries, DC power supplies, converters, telecom rectifiers, chargers, adapters, grid tied inverters, stand-alone inverters and UPSs. NHR test equipment consists of power supply testers, power instruments such as AC and DC programmable electronic loads, regenerative battery test systems & battery simulator that provide multiple independent channels of charge/discharge testing on multiple battery modules, packs, DC regulators and motors. Flexibility to add more channels in parallel to support higher current requirements and also add channels can be done to increase channel count. Optional software packages are available and offer instrument & system level control to create cycle tests from basic to complex drive cycle testing for each channel or channel groups.

NovaStar Solutions

401

35200 Plymouth Rd
Livonia, MI 48150

T: 734-453-8003

E: info@novastar.net

W: www.novastar.net



NovaStar Solutions is a leading provider of new IT hardware and engineering software, IT asset management, and instrument calibration services. Our growth since 1998 is fueled by excellent service resulting in high levels of customer satisfaction. Located in Livonia, MI NovaStar serves automotive, manufacturing, aerospace, medical device makers, nuclear energy companies, and major universities among many other diverse businesses.

Oak Ridge National Laboratory

402

Oak Ridge National Laboratory
1 Bethel Valley Rd.
Oak Ridge, TN 37831

T: (865) 946-1351

E: onaroc@ornl.gov

W: www.ornl.gov

Booth Representatives: Madhu Chinthavali & Omer C. Onar



Oak Ridge National Laboratory is the largest US Department of Energy science and energy laboratory, conducting basic and applied research to deliver transformative solutions to compelling problems in energy and security. ORNL's diverse capabilities span a broad range of scientific and engineering disciplines, enabling the Laboratory to explore fundamental science challenges and to carry out the research needed to accelerate the delivery of solutions to the marketplace.

Ohio State University: Center for Automotive Research

305

930 Kinnear Road
Columbus, OH 43212

T: 614-292-4217

E: henley.53@osu.edu

W: www.car.osu.edu

Booth Representatives: Qadeer Ahmed & Don Butler



THE OHIO STATE UNIVERSITY

CENTER FOR AUTOMOTIVE RESEARCH

The Center for Automotive Research (CAR) is an interdisciplinary research center in The Ohio State University's College of Engineering. CAR research focuses on: energy, safety and the environment, aimed at improving sustainable mobility. CAR offers state-of-the-art facilities for students, faculty, research staff and industry partners. With a concentration on preparing the next generation of automotive leaders, CAR is recognized for: interdisciplinary emphasis on systems engineering, advanced and unique experimental facilities, collaboration on advanced product development projects with industry and a balance of government and privately sponsored research.

In collaboration with the Departments of Mechanical and Aerospace Engineering and Electrical and Computer Engineering, CAR provides students the opportunity to complete a graduate specialization in automotive systems engineering. Further, CAR directly offers a certificate program via distance learning for industry practitioners. Finally, CAR provides facilities and support for six automotive undergraduate student project teams.

Plexim, Inc.

308

5 Upland Road, Suite 4
Cambridge, MA 02140

T: (617)209-2121

E: info@plexim.com

W: www.plexim.com

Booth Representatives: Dr. Beat Arnet, Mr. Felix Prausse, & Mr. Vitalik Ablav



Plexim develops and markets design tools for the development of power electronic and motor drive systems. The company's electrical engineering software PLECS, now widely adopted in various industries and academia worldwide, is a complete power conversion system simulation package that yields robust and fast results. Available in two versions, PLECS Blockset works in the MATLAB/Simulink environment while PLECS Standalone offers an independent solution. Included with PLECS is a comprehensive component library, which covers not only the electrical, but also the magnetic, mechanical, and thermal aspects of power conversion systems and their associated controls.

Plexim offers a processor-in-the-loop (PLECS PIL) tool for directly integrating embedded control software to the simulated plant environment in PLECS for powerful and rigorous testing of production code. The company also recently added a hardware-in-the-loop (HIL) platform to its portfolio. The PLECS RT Box allows for real-time testing of a hardware control system and rapid prototyping.

Powersys Solutions: JMAG

409, 410

2000 Town Center, Suite #1900
Southfield, MI 48075

T: (727) 288-8100
E: d.cottini@powersys-solutions.com
W: www.powersys-solutions.com
Booth Representatives: Alain Kone & Vedanadam Acharya



JMAG is a simulation software for electromechanical design and development. Many companies and universities have supported and used JMAG since 1983. JMAG can accurately capture and quickly evaluate complex physical phenomena inside of machines. New and experienced users in simulation analysis can easily perform the simple operations required to obtain precise results. Some of the application fields are Motors, generators, transformers, reactor, solenoids, actuators, and many more. As an example these are some types of analysis that can be easily and accurately be performed with JMAG: Magnetic field analysis, electric analysis, structural analysis, thermal analysis, coupled analysis.

Shibaura Electronics

301

39555 Orchard Hill Place, Suite 600
Novi, MI 48375



T: (248)449-2984
E: koko@shibaura-e.co.jp
W: www.shibauraelectronics.com
Booth Representatives: Takashi Hoshino & Koko Yoshimura

Since its foundation, Shibaura Electronics Group has concentrated its power in thermistor elements and sensors for temperature measurement and control and has provided customers with such products meeting customers' needs. We are delivering highly reliable products, manufactured by our established production system and consistent quality management system in cooperation with group companies, to domestic and overseas customers.

TDK Lambda: High Power Division

303

405 Essex Rd
Neptune, NJ 07753

T: (732)922-9300 Ext. 235
E: bonnie.west@us.tdk-lambda.com
W: www.us.tdk-lambda.com/hp
Booth Representatives: George Scherma & Don Yordy



TDK-Lambda Americas High Power Division is a leading manufacturer of Programmable, High Density Power Supplies located in Neptune, N.J, U.S.A.. The Genesys™ series of Programmable Power Supplies has the highest density in power levels from 750W through 15KW with output ranges up to 600V and 1,000A.

Tridus Magnetics

403

1145 W. Victoria St.
Rancho Dominguez, CA 90220

T: (310)884-3200
E: sales@tridus.com
W: www.tridus.com

Booth Representative: Tracy Moon



Tridus is a supplier of permanent magnets and permanent magnet assemblies. Tridus is a US company with a China presence providing customers with a low cost and high reliability path to sintered and bonded NdFeB magnet manufacturing. Please stop by our booth to discuss our new line of NdFeB magnets that exhibit improved magnetic properties while thrifting heavy rare earths.

Yunsheng USA

407

395 Oyster Point Blvd, Suite 230
S. San Francisco, CA 94080 USA

T: (650) 827-7928
E: service@yunshengusa.com
W: <http://www.yunshengusa.com/>

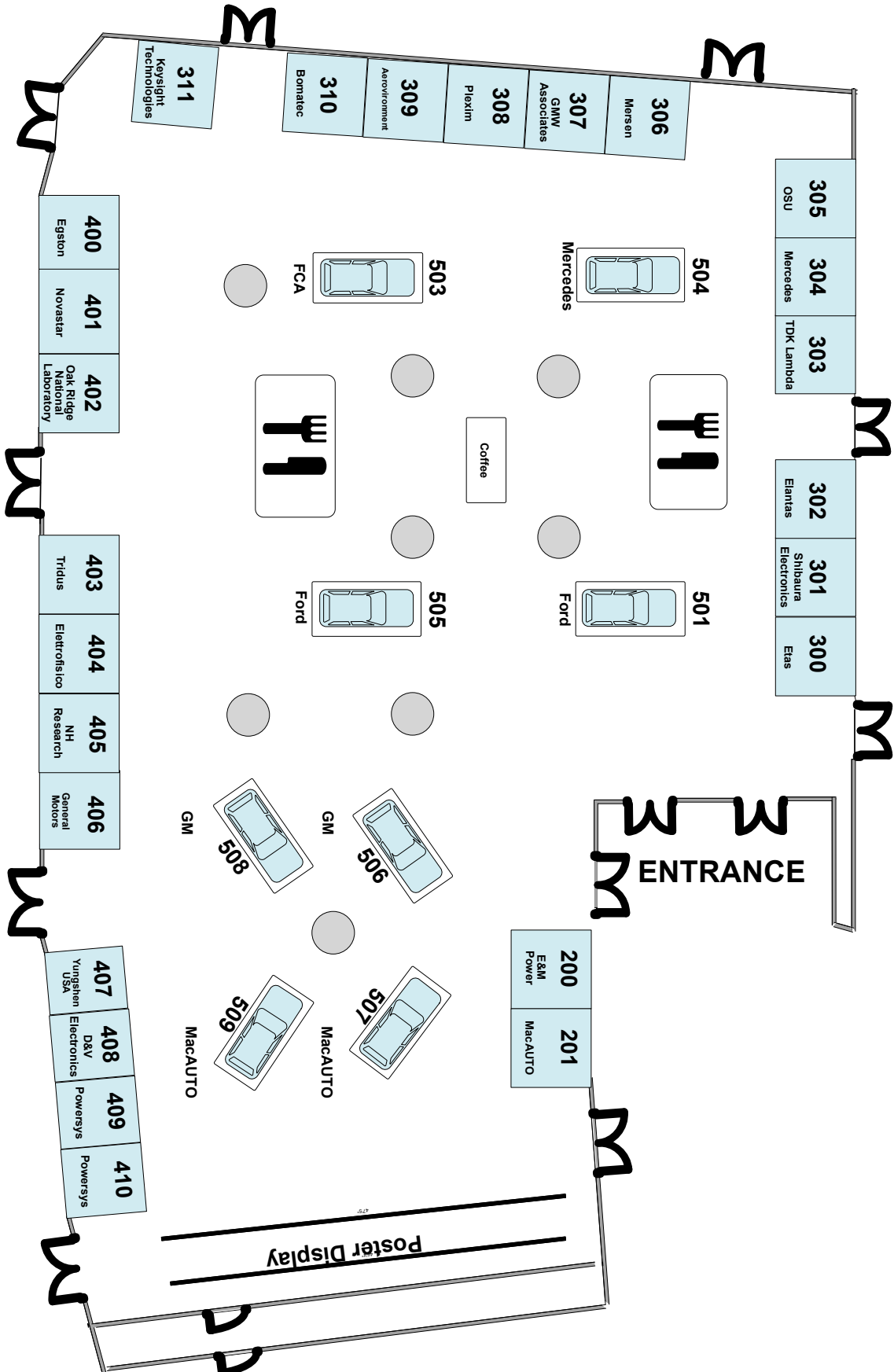
Booth Representatives: George Zhang & Freddy Fernandez



韵升集团
YUNSHENG GROUP

Yunsheng is a Hitachi-licensed manufacturer of NdFeB magnetic materials. With 7000+ employees, located across three continents, Yunsheng is the largest provider of NdFeB materials and magnetic assemblies in the world, with over 7500 tons of existing Neo production. Yunsheng specializes in high-energy product, high-coercivity materials and complex magnetic assemblies.

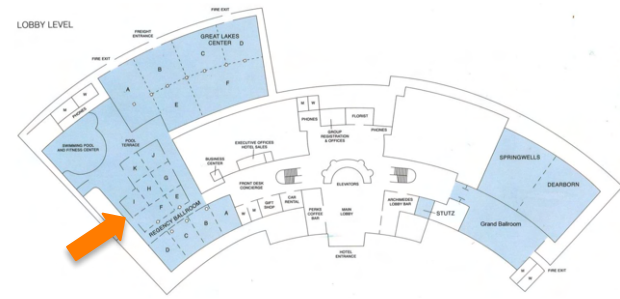
Expo Floor Plan



Exhibitor Presentations

Venue: Regency I

Tuesday June 28th, 4:20 Pm – 5:40 Pm

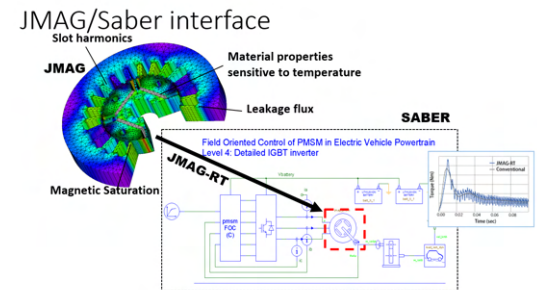


NH Research – 4:20 PM

Learn more about NH Research's Model 9410 12-kW Regenerative Grid Simulator, a full featured, 4-quadrant, modular, and compact size taking only 15 3/4" (9U). Three (3) fully programmable channels allow any combination of DC as well as 1, 2, 3 phase AC outputs. Expandable in 12-kW increments, the system is able to be right-sized for testing micro-grids, grid-tied solar inverters, on-line critical power systems (UPS), grid-aware chargers, and similar AC grid-connected devices.

Powersys Solutions – 4:45 PM

Proper electric machine control is crucial when it comes to achieving peak system performance. Being able to capture actual system behavior in simulation can lead to a reduction in development and testing time. For this, it is necessary to have high fidelity models for the machine, drive and the controller. JMAG-RT allows the user to create a highly accurate, finite element analysis (FEA) based model to be used inside a control simulation environment. At the same time, Saber contains highly accurate power electronics devices and has the ability to read JMAG-RT files. Together, these tools provide a quick solving, yet highly accurate system simulation.



Plexim, Inc – 5:10 PM

Plexim develops and markets tools for the design of power electronic systems. Our electrical engineering software, PLECS, is a complete power conversion system simulation package that yields robust, fast results. Our new Hardware-in-the-Loop (HIL) offering, the PLECS RT Box, is designed for real-time testing of a hardware control system and rapid control prototyping.



In this presentation, we explore an example design life cycle for a motor control system application. The workflow uses PLECS for model development in conjunction with the RT Box to verify a real controller. We demonstrate the generation and deployment of discretized code for an inverter and machine onto the RT Box to test a TI C2000-based control system.

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Dr. Berker Bilgin
Research Program Manager
MacAUTO, McMaster University,
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Hamilton, ON L8P 0A6, Canada
E-mail: bilginb@mcmaster.ca

Website: itec-conf.com



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