



2014 IEEE Transportation Electrification Conference and Expo (ITEC '14)  
Components Systems and Power Electronics - From Technology to Business and Public Policy

The Adoba Hotel

Dearborn, MI

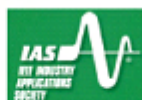
June 15-18, 2014

**Exhibit Hall Hours**

Monday, June 16, 2014: 12:00 pm - 7:30 pm

Tuesday, June 17, 2014: 12:00 pm - 7:30 pm

ITEC Sponsors:



# Exhibitor Directory

Company	Booth Number
Arnold Magnetic Technologies .....	416
Cadillac .....	214
D&V Electronics Ltd.. .....	315
ELANTAS PDG, Inc.....	311
FleetCarma (a division of CrossChasm) .....	305
2014 Ford Fusion Energi .....	511
2013 Ford Focus Electric .....	515
Formula SAE Electric Race Team @ Illinois Institute of Technology.....	503
IEEE Future Directions Committee .....	414
International Rectifier .....	406
McMaster Formula Hybrid Racecar.....	523
McMaster Institute for Automotive Research and Technology (MacAUTO).....	519
Mentor Graphics- Mechanical Analysis .....	418
Mercedes Benz S-Class Plug-in Hybrid .....	100
Mercedes Benz Smart Electric Drive .....	104
Motor Design Ltd.....	319
NH Research, Inc. ....	410
Plexim, Inc. ....	408
Powersys, Inc. (JMAG'FEA'Software's'Distributor) .....	412
Rinehart Motion Systems .....	307
Society of Automotive Engineers .....	Grand Lakes Ballroom Foyer
Shin-Etsu Magnetics, Inc. ....	313
Wanger Institute of Sustainable Energy Research at Illinois Institute of Technology .....	501
Zeus .....	317

# Booth Order

100 .....	Mercedes Benz S-Class Hybrid	414 .....	IEEE Future Directions Committee
104 .....	Mercedes Benz Smart Electric Drive	416 .....	Arnold Magnetic Technologies
214 .....	Cadillac	501 .....	Wanger Institute of Sustainable Energy Research
305 .....	FleetCarma (a division of CrossChasm)	503 .....	Formula'SAE'Electric'Race'Team'@'IIT
307 .....	Rinehart Motion Systems	511 .....	2014 Ford Fusion Energi
311 .....	ELANTAS PDG, Inc.	515 .....	2013 Ford Focus Electric
313 .....	Shin-Etsu Magnetics, Inc	519 .....	McMaster Institute for Automotive Research and Technology (MacAUTO)
315 .....	D&V Electronics Ltd.	523 .....	McMaster Formula Hybrid Race Car
317 .....	Zues	Grand Lakes Ballroom Foyer.....	SAE
319 .....	Motor Design Ltd.		
406 .....	International Rectifier		
408 .....	Plexim, Inc.		
410 .....	NH Research, Inc		
412 .....	Powersys, Inc. (JMAG'FEA'Software's'Distributor)		

770 Linden Avenue  
Rochester, NY  
14625 USA  
(P) 585-385-9010  
x292



[www.arnoldmagnetics.com](http://www.arnoldmagnetics.com)

Arnold Magnetic Technologies is a global leader in the manufacture of high-performance magnets, magnetic assemblies, and precision thin metals. Our product line features RECOMA® rare earth samarium cobalt, carbon fiber sleeving, shaped field magnets, and more. Arnold has facilities in the United States, Europe and Asia, and can support customers on a global basis.

**D&V Electronics Ltd.**
**315**

130 Zenway Blvd.  
Woodbridge, Ontario L4H 2Y7 Canada  
(P) 905-264-7646  
(F) 905-264-0502



[www.dvelectronics.com](http://www.dvelectronics.com)

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.

**FleetCarma (a division of CrossChasm)**
**305**

2-60 Northland Road  
Waterloo, Ontario  
N2V2B8  
Canada  
Ph: (519) 404-5987



[www.fleetcarma.com](http://www.fleetcarma.com)

FleetCarma C5 is an advanced vehicle logger that performs real-world energy measurement of plug-in vehicles and enables smart-charging programs.

In addition to the C5, the FleetCarma Review Service combines vehicle logging of conventional vehicles with modeling to develop personal fuel efficiency labels for fleets and individuals.

**Cadillac**
**214**

100 Renaissance Center  
Detroit, MI 48220 USA  
(P) 313-665-1547



[www.cadillac.com/elr](http://www.cadillac.com/elr)

The Cadillac ELR is the brand's first Extended Range Electric Vehicle - providing 340 miles of total range. Cadillac has been a leading luxury auto brand since 1902. Today Cadillac is growing globally, driven by an expanding product portfolio featuring dramatic design and technology. More information on Cadillac appears at [www.cadillac.com/elr](http://www.cadillac.com/elr).

**ELANTAS PDG, INC.**
**311**

130 Zenway Blvd.  
Woodbridge, Ontario L4H 2Y7  
Canada  
(P) 905-264-7646  
(F) 905-264-0502



[www.elantas.com/pdg](http://www.elantas.com/pdg)

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 and a wide range of specialty resin systems and adhesives. ISO 9001, TS 16949. A Heritage of Innovation since 1919.

**2014 Ford Fusion Energi**
**511**

20300 Rotunda Drive  
Dearborn, Michigan 48124  
USA

[www.ford.com](http://www.ford.com)



The 2014 Ford Fusion Energi is Ford's newest plug-in hybrid and differentiates itself from the competition in many ways - starting with an EPA-estimated range of up to 620 miles. The new model year brings with it more amenities and safety features such as inflatable rear seat belts and a top speed of up to 85 mph in electric mode - and up to 21 miles of electric range.

20300 Rotunda Drive  
Dearborn, Michigan 48124  
USA



[www.ford.com](http://www.ford.com)

The 2013 Ford Focus Electric, the all electric car from Ford, is one of the most fuel-efficient cars in America and has an EPA-estimated rating of 110 MPGe city while traveling up to 76 miles on a single charge.

216 Edpas Road  
New Brunswick, NJ 08901 USA



IEEE Future Directions Committee  
[http://http://electricvehicle.ieee.org/](http://electricvehicle.ieee.org/)

Incubates emerging technologies and new applications of current technologies. Identifies opportunities to engage the engineering community and the general public. Works with IEEE members and staff to focus on emerging technologies through technical, professional, and educational activities.

Serves as a catalyst for new conferences, publications, standards, educational products, forums, white papers, grants, and projects to support new technologies.

200 Longwood Road S  
Hamilton, Ontario  
L8S0A6  
Canada



[www.formulahybrid.ca](http://www.formulahybrid.ca)

The 2013/2014 McMaster Formula Hybrid Race Car is a lightweight post transmission parallel plug in hybrid vehicle. Comprised of a carbon fiber monocoque chassis and unequal length non-parallel control arm suspension. Power is supplied to the road by a 250cc motocross engine directly coupled to liquid cooled axial-fluxed permanent magnet AC Synchronous motor.

Illinois Institute of Technology  
10 W. 35th Street  
IIT Tower- 16th Floor  
Chicago, Illinois 60616  
USA  
Ph: (312) 567-7232



**IIT SAE**

<http://fsae.iit.edu>

IIT Formula SAE offers students of all majors the opportunity to gain real life experience in designing, building, and promoting a competitive electric Formula SAE racecar. By showing team-oriented performance on the racetrack as well as in the garage, theoretical knowledge meets interdisciplinary skills. Through this, the team aims to ensure the confidence and exceed the expectations of the university and our industry partners.

101 N. Sepulveda Blvd.  
El Segundo, California 90245  
USA  
Ph: (310) 726-8412



[www.irf.com](http://www.irf.com)

International Rectifier (NYSE:IRF) is a world leader in power management technology. IR's analog and mixed signal ICs, advanced circuit devices, integrated power systems and components enable high performance computing and reduce energy waste from motors, the world's single largest consumer of electricity. For more information, go to [www.irf.com](http://www.irf.com).

1280 Main Street West, ITB-A109  
Electrical and Computer Engineering Dept  
Hamilton, Ontario L8S 4K1  
Canada  
Ph: (289) 674-0250 ext. 59053



<http://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.

10 North Martingale Road  
Schaumburg, Illinois 60173  
USA  
[www.mentor.com/mechanical](http://www.mentor.com/mechanical)



Mentor Graphics - Mechanical Analysis provides accurate Thermal Characterization test solutions (MicReD®T3Ster®) for assessing reliability, quality and thermal performance of semiconductor devices for High Power Electronics (IGBTs and MOSFETs >1200A), LED lighting to packaged ICs. Mentor provides world leading 1D and 3D Computational Fluid Dynamics software (Flowmaster®, FloEFD™ & FloTHERM®).

## Mercedes-Benz Smart Electric Drive

104

Mercedes Benz R&D North America, Inc.  
12120 Telegraph Rd.  
Redford, Michigan 48239  
USA  
Ph: (248) 794-9341



[www.mbrdna.com](http://www.mbrdna.com)

The smart electric drive is the type of car that makes you want to take the scenic route wherever you go. The smart electric drive has an EPA estimated combined range of 68 miles and combined 107 MPGe. And with access to Plug Share, you can charge up at public charging stations across the US.

## NH Research

410

16601 Hale Avenue  
Irvine, CA 92606  
Ph: (949) 491-5111



<http://www.nhresearch.com>

NH Research manufactures configurable power instruments and system-level software addressing the testing needs of power conversion and battery applications. Our solutions provide advanced control, precision measurement features, and data management tools simplifying the test setup for engineering characterization as well as functional validation and improving speed in production testing.

- Battery Testing Solutions
- Battery Emulation
- Charging Testing Solutions
- LED Emulators
- AC and DC Electronic Loads

## Mercedes-Benz S-Class Plug-In Hybrid

100

Mercedes Benz R&D North America, Inc.  
12120 Telegraph Rd.  
Redford, Michigan 48239  
USA  
Ph: (248) 794-9341



[www.mbrdna.com](http://www.mbrdna.com)

With a 328-horsepower, turbocharged 3.0-liter V-6 gasoline engine and 85-kW electric motor system, the S-Class Plug-In Hybrid can accelerate 0 to 60 mph in about 5.5 seconds. Based on EU-cycle driving, the S500 Plug-In will go more than 30 km (19 miles) on a charge, in all-electric mode.

## Motor Design Ltd.

319

4 Scotland Street  
Ellesmere SY12 0EG  
United Kingdom  
Ph: +44 1691623305



[www.motor-design.com](http://www.motor-design.com)

Motor-CAD software for integrated electromagnetic and thermal design of electric motors and generators.  
Motor-LAB software for fast and accurate traction motor drive cycle analysis - both electromagnetic losses (efficiency map) and transient thermal analysis of drive cycles.  
Expert consultancy for design of electric motors and generators.

## Plexim, Inc.

408

5 Upland Rd, Suite 4  
Cambridge, Massachusetts 2140  
USA  
Ph: (617) 209-2121



[www.plexim.com](http://www.plexim.com)

Plexim develops the simulation software PLECS for power electronics systems and electrical drives. PLECS makes it easy to model and simulate complex electrical circuits along with their controls. PLECS is available as a Blockset for MATLAB/Simulink or as Standalone, a completely independent product. PLECS provides components for modeling all types of power converters and controls. It includes electrical, thermal, magnetic and mechanical domains, as well as software-in-the-loop (SIL) testing of control algorithms.

**Powersys, Inc (JMAG FEA Software's Distributor) 412**

2000 Town Center, Suite 1900  
Southfield, Michigan 48075  
USA  
Ph: (727) 288-8100



<http://jmag-international.com/>

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 Motor, generator, transformer, reactor, solenoids, actuators, etc. The following Analysis can be performed: Magnetic field analysis, field analysis, structural analysis, thermal analysis, coupled analysis.

**Shin-Etsu Magnetics Inc. 313**

909 Parkview Blvd  
Lombard, Illinois 60148  
USA  
Ph: (317) 319-8644



[www.shinetsumagnetics.com](http://www.shinetsumagnetics.com)

Fully licensed Japanese producer of sintered NdFeB magnets as well as SmCo magnets. Tb/Dy Free NdFeB grades with the highest properties in the market. Grain Boundary Diffusion magnets reduce Dy by 50% or more, and can even eliminate Dy completely! Visit us to learn how Shin-Etsu innovation reduces magnet costs.

**Zeus****317**

3737 Industrial Blvd  
Orangeburg, South Carolina 29118  
USA  
Ph: (803) 268-9500



[www.zeusinc.com](http://www.zeusinc.com)

Specializing in fluoropolymer extruded tubing and heat shrink when high temperature, chemical resistance, extreme pressure and dielectric strength are critical design features. Zeus extrudes a wide variety of engineered high-performance tubing used in demanding applications, such as PTFE, FEP, PFA, PEEK and other high-temperature plastics.

**Rinehart Motion Systems LLC****307**

7929 SW Burns Way, Suite B  
Wilsonville, Oregon 97070  
USA  
Ph: (503) 344-5085  
Fax (503) 682-9014



[www.rinehartmotion.com](http://www.rinehartmotion.com)

Standard and custom propulsion system components - motors, inverters, controls - for advanced electric and hybrid electric vehicles.

**Wanger Institute of Sustainable Energy Research 501**

Illinois Institute of Technology  
10 W. 35th Street  
Chicago, Illinois 60616  
USA  
Ph: (312) 567 7232



<http://www.iit.edu/wiser/>

The mission of WISER Institute at IIT is to improve the quality of life while preserving our natural resources and the environment. In the area of transportation, the center pioneers sustainable energy-efficient solutions from power electronic systems, electric machines & drives, semiconductor devices, energy storage, V2G integration and micro grids. WISER is a proud sponsor of the award winning Formula SAE race team at IIT.



# Power Electronics Component Reliability Testing & Failure Analysis **Combined Power Cycling & Thermal Characterization Test Solutions**

# Mentor Graphics®

— Mechanical Analysis

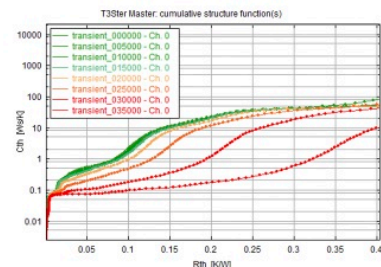


## New in Thermal Characterization Power Tester 1500A For High Power Electronics Component Reliability & Failure Analysis Testing

- Combines power cycling with **non-destructive** transient thermal measurement methods
- For MOSFET, IGBT and generic two-pole devices
- Current, voltage and die temperature sensing in real time
- Structure Function capability identifies changes / failures in package structure such as delamination, cracks in substrate, wire bond degradation etc
- Industrial test solution with touch screen interface and advanced options for sharing sample results.
- Shorter testing time - up to x10 faster



Learn more at Booth 418 or online: [www.mentor.com/powertester-1500a](http://www.mentor.com/powertester-1500a)



Mentor's **T3Ster®** range of highly accurate Thermal Characterization solutions for semiconductor component testing for reliability, quality or thermal performance assesement can be use in the following applications: **packaged ICs, LED lighting** (full Thermal & Radiometric Characterization), **Power Electronics** in addition to Thermal Interface Material (TIM) Characterization

# Mentor Graphics®

— Mechanical Analysis

Contact:

e: [sales\\_info@mentor.com](mailto:sales_info@mentor.com)

t: 1-800-547-3000

**[www.mentor.com/mechanical](http://www.mentor.com/mechanical)**

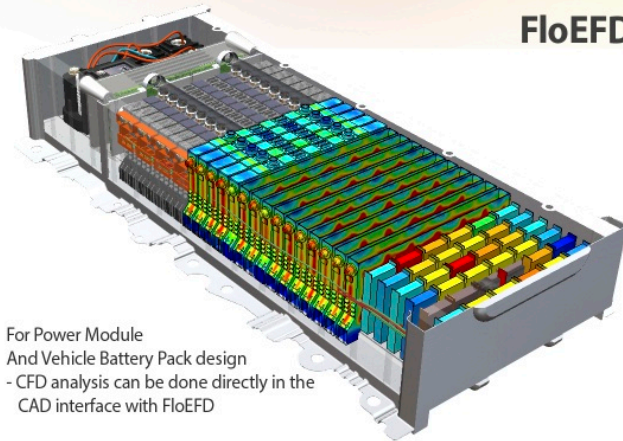


# Component to System level thermal design in power electronics applications: **1D & 3D Computational Fluid Dynamics Software**

# Mentor Graphics®

— Mechanical Analysis

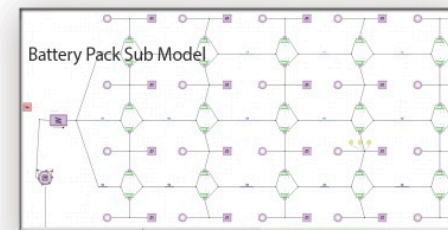
## FloEFD™ - fully CAD Embedded CFD for CATIA, NX and CREO



For Power Module  
And Vehicle Battery Pack design  
- CFD analysis can be done directly in the  
CAD interface with FloEFD

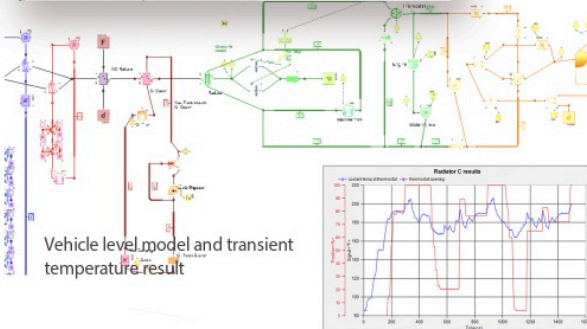
- Perform analysis directly in native CAD environment
- Rapid robust **automated meshing** technology
- Design engineer oriented to suit engineers in product development to expert level
- Advanced parametric study capabilities and goal setting to enable evaluation of more design iterations in less time.
- Improve development time by reducing CFD overheads in geometry preparation, meshing and translation to separate software tools

*Find out more at iTEC 2014 booth 418 or online at [www.mentor.com/mechanical](http://www.mentor.com/mechanical)*



## Flowmaster® - 1D fluid dynamics for system level fluid flow prediction and thermal management studies

- Perform component selection and sizing studies for systems e.g coolant pump selection, Heat Exchanger sizing
- Fast transient analysis and heat transfer modeling e.g drive cycle thermal management of hybrid/electric vehicle, pressure surge prediction
- Rapid parametric batch simulations for exploring "what-if" scenarios"
- Understand multiple fluid circuit interactions and control influences on system performance



## Interested Power Electronics Component Reliability Testing and Failure Analysis

- Please turnover to learn about new non-destructive Thermal Characterization test solutions from Mentor Graphics



# Mentor Graphics®

— Mechanical Analysis

Contact:

e: [sales\\_info@mentor.com](mailto:sales_info@mentor.com)

t: 1-800-547-3000

# [www.mentor.com/mechanical](http://www.mentor.com/mechanical)



