

ECCE 2023 Expo In Pictures





WORLDWIDE
AMERICAN
POWER

COMPISED
POWER IN THE LOOP TEST



www.egstonpower.com



Conversion

Advanced Energy Solutions

- Improved System Costs
- Increased Power Density
- Lowest ESR & ESL
- Increased Life & Efficiency
- 135°C Options Available
- Proven Power Ring

Performance Test Kits



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TAIWAN

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Your P... Semiconductor Applications



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SAVE HOURS WITH READY-TO-USE CAD DATA



The Electronics CAD Hub

COMPLETE TAIWAN SEMICONDUCTOR DESIGN LIBRARY

- PCB FOOTPRINTS
- SCHEMATIC SYMBOLS
- 3D MODELS
- SPICE MODELS

www.taiwansemi.com

www.snapEDA.com

CURRENT

Center for Ultra-wide-area Resilient
Electric Energy Transmission Networks

actuation

About UTK EECS

- UTK EECS Department >300 Graduate Students
- CURRENT - NSF/DOE-sponsored Engineering Research Center in power systems and power electronics >50 faculty
- PoTenTIAL - Graduate research training in wide bandgap power electronics
- Oak Ridge National Laboratory Advanced power electronics and electric machines for electric vehicles and utility applications
- Resilient power systems with high penetration of renewable energy

current.uts.edu

PoTenTIAL

CURRENT

Center for Ultra-wide-area Resilient Electric Energy Transmission Networks

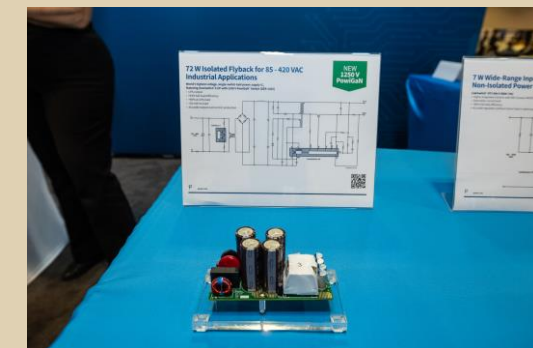
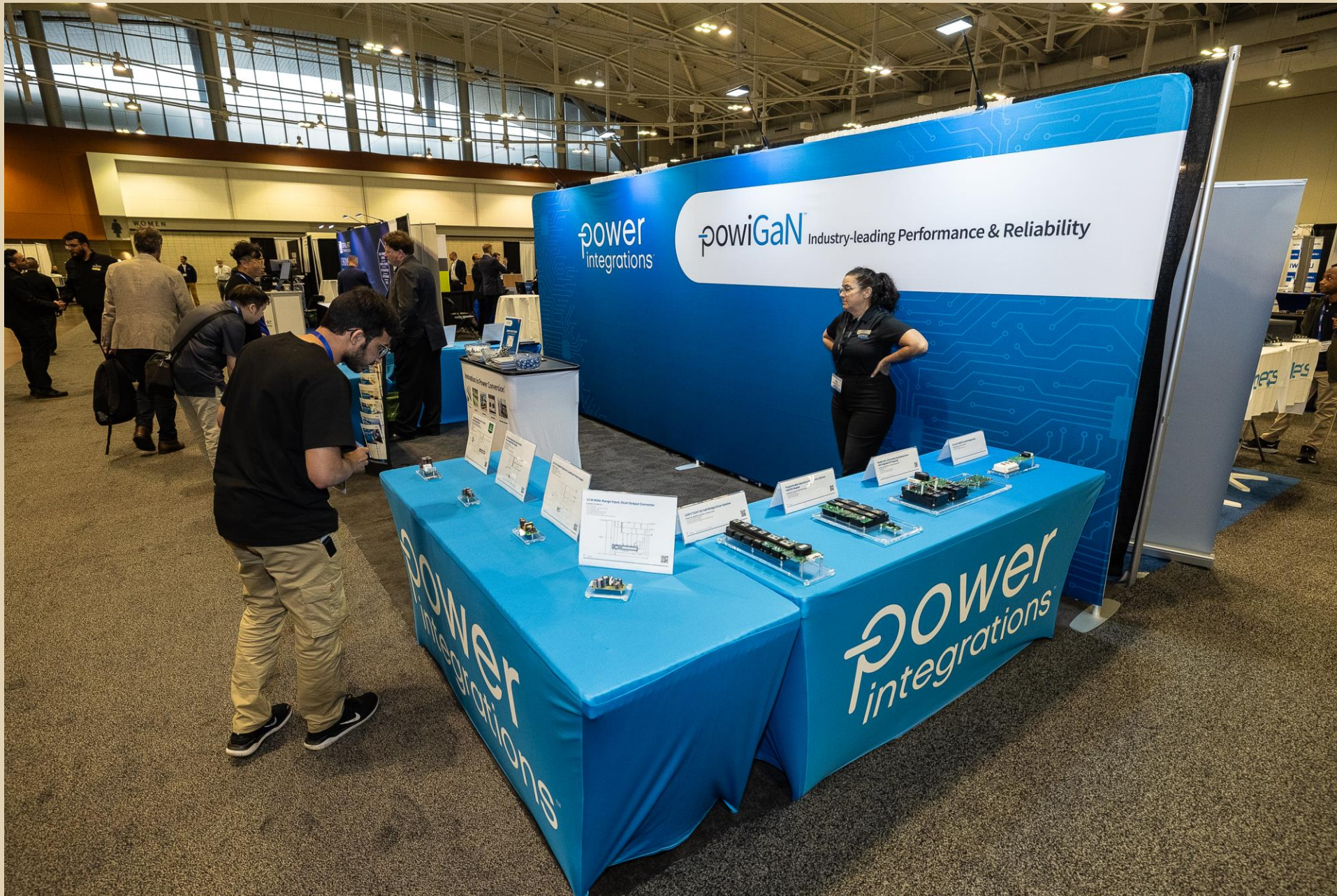
Exhibition table featuring technical diagrams, circuit boards, and components. A large circular diagram with concentric rings and radial lines is prominent. Text on the table includes "FACT SHEET" and "TICKLE".

Vertical banner with the CURRENT logo and text: "CENTER FOR ULTRA-WIDE-AREA RESILIENT ELECTRIC ENERGY TRANSMISSION NETWORKS".

Person wearing a black polo shirt with the CURRENT logo and a lanyard. The shirt also features the text "CURRENT" and "CENTER FOR ULTRA-WIDE-AREA RESILIENT ELECTRIC ENERGY TRANSMISSION NETWORKS".

WOMEN

Large Book



**New Exhibitor at ECCE 2023*

CPES

Center for Power Electronics Systems



watts to megawatts...

Application Areas	
Vehicular Power Converter Systems	Power Management for Computers & Telecommunications
Point-of-Load Conversion	AC and DC Power Systems
Technology Areas	
Power Electronics Components	High Density Integration
EMI & Power Quality	Modeling and Control
Power Conversion Topologies and Architectures	High-Power Electronics

CPES Principal Plus Members drive research directions through our Mini-Consortium Program

Power Management Consortium (PMC)

High Density Integration (HDI)

Wide Band Gap (WBG) Power Converters and Systems (WBPCS)

Ultra Light Integrated Multi-Phase Grid Drive System

Associate Members

Principal Members

VT VIRGINIA TECH

Recent CPES Projects

- Substation in a Cable for Advanced Low Cost Transmission (SCALE)
- High Power Density, 10kV SiC-MOSFET Based Modular, Scalable Power Converter for Electric Vehicle Applications
- 20kV GaN Switch Technology Demonstrated in High Voltage Medium Bus
- Wide Band Gap (WBG) Power Converters and Systems (WBPCS)
- Ultra Light Integrated Multi-Phase Grid Drive System

VIRGINIA TECH CPES



WOMEN

FR SYST



**New Exhibitor at ECCE 2023*



**New Exhibitor at ECCE 2023*

MAGNEFORCE SOFTWARE SYSTEMS INC.



WINDING DATA
MATERIAL DATA
GEOMETRY DATA
DRIVE TOPOLOGY
LOAD CONDITIONS



MAGNEFORCE
FEA SIMULATORS

TORQUE PROFILE
COGGING TORQUE
IRON & CORE LOSS
DEMAGNETIZATION
THERMAL MODELING
POWER & EFFICIENCY
VOLTAGE WAVEFORMS
TRANSIENT RESPONSE
CURRENT WAVEFORMS
MACHINE PARAMETERS
STEADY STATE ANALYSIS



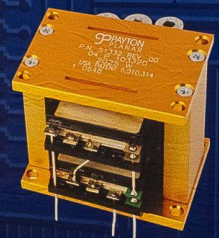




*New Exhibitor at ECCE 2023

PAYTON PLANAR MAGNETICS

global leader of Planar Magnetics Technology



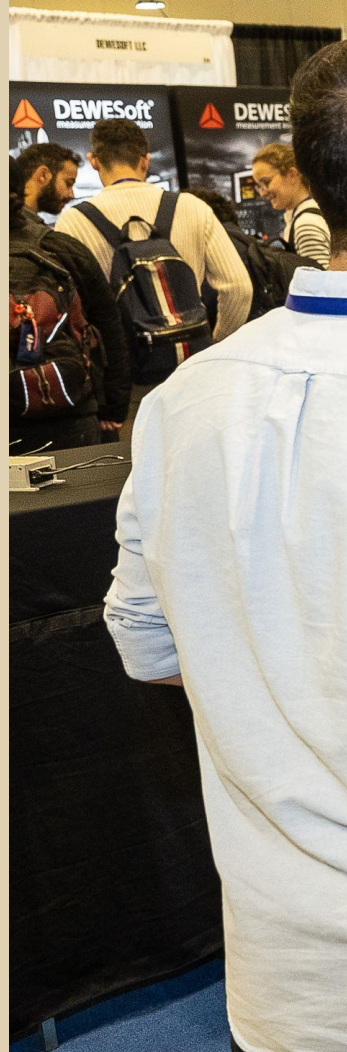
INDUSTRIAL



MEDICAL



DEFENSE



TELEDYNE LECROY

334



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Bringing the breakthrough advantages of Silicon Carbide out of the laboratory and into the global power electronics industry

BENEFITS OF SiC TECHNOLOGY:

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Round-trip efficiency gain for EVs

300%
Improvement in short-circuit ruggedness

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WITH INNOVATIVE MATERIALS AND MANUFACTURING

 **NoMIS Power**

Cut your time-to-market with NoMIS Power's world-leading SiC device and packaging design



Time to a qualified team, with proven processes, and an experienced team



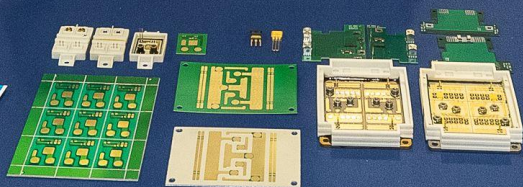
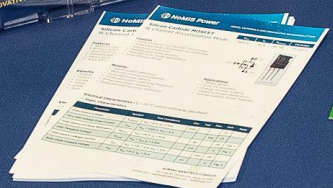
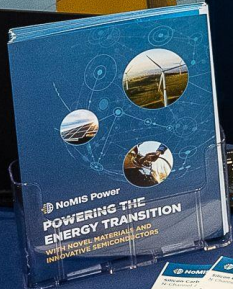
Unique development capabilities for high voltage and high temperature applications



Tap into SiC expertise and know-how that stands out among a very limited global talent pool

Tap into our unique expertise
nomispower.com

Our design and process recipes have been experimentally verified through 30+ lots at multiple fabrication facilities.

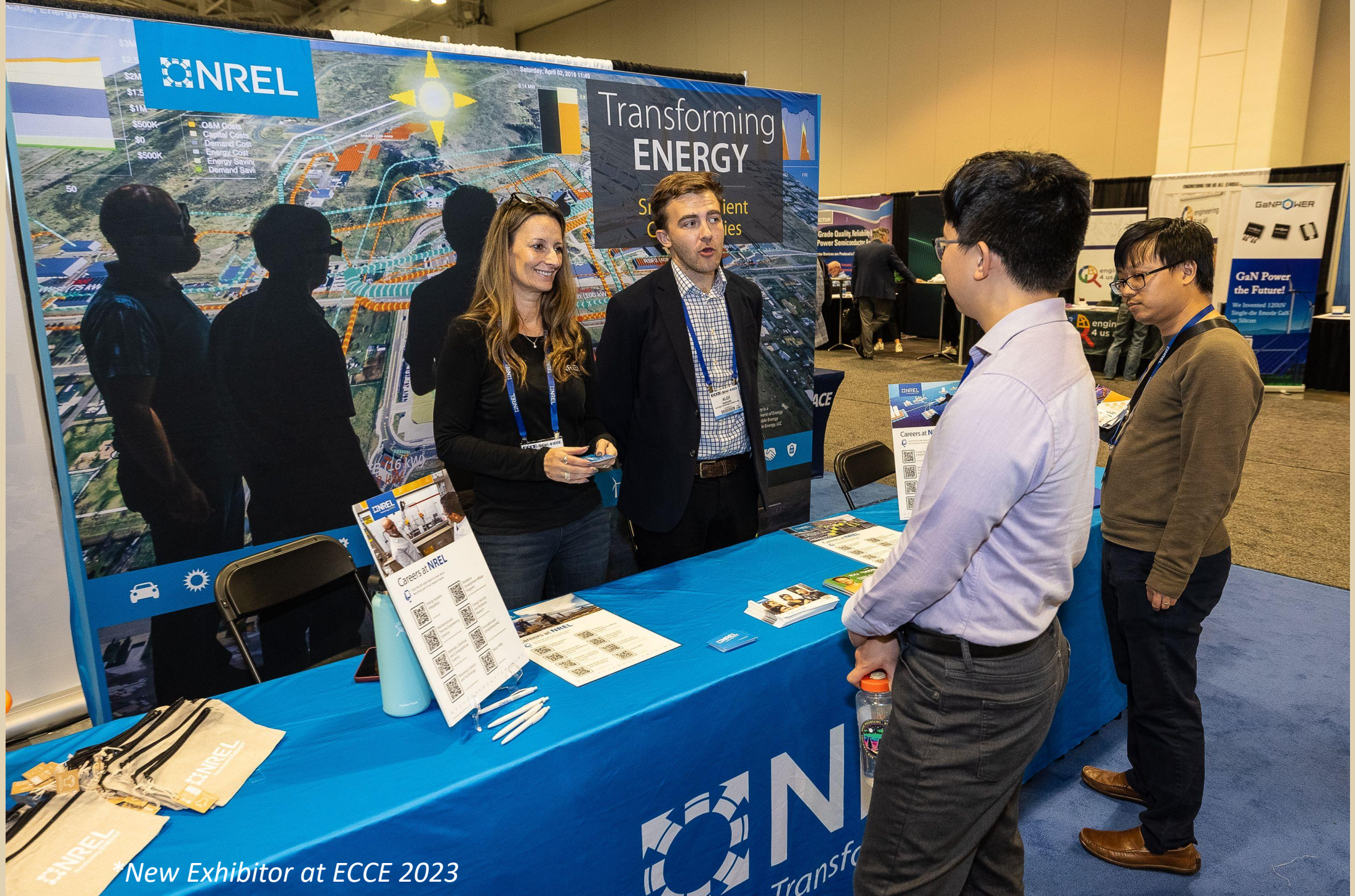


***New Exhibitor at ECCE 2023**



**New Exhibitor at ECCE 2023*

COMSOL



NREL

Transforming
ENERGY

Smart
Grid
Solutions

- Q&M Costs
- Capital Costs
- Demand Cost
- Energy Cost
- Energy Saving
- Demand Savin

Saturday, April 02, 2016 11:45

*New Exhibitor at ECCE 2023



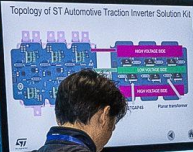
SiC Power Conversion

25kW Dual Active Bridge DC/DC converter for DC fast charging applications

- Major trends in high-power converters for charging station design
- 25 kW Dual Active Bridge reference design
- Dual Active Bridge (DAB) topology
- Deliverables for Customers

SiC Traction Inverter

Topology of ST Automotive Traction Inverter Solution Kit



Our Tech starts with you

Our technology starts with You
STMicroelectronics

PICOTEST
OMICRON LAB





dSPACE

Our experience brings
e-mobility to the road.



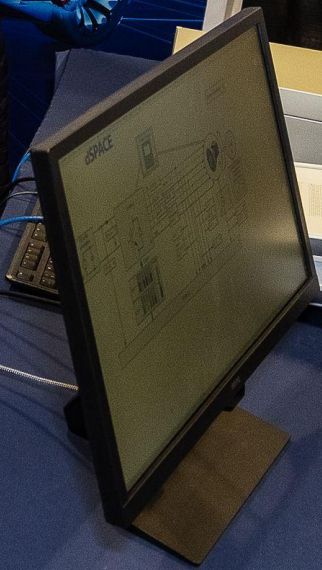
...ATION AND VALIDATION

dSPACE

...ATION AND VALIDATION

dSPA

VALID...
...R IN SIMULATION



WOM



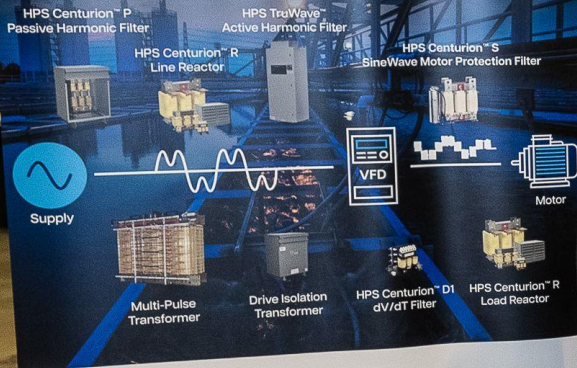
ANDREW
...
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**New Exhibitor at ECCE 2023*

hammond POWER SOLUTIONS

HPS Solutions For POWER QUALITY



Active Harmonic Filter
HPS TruWave™
Solution for harmonic mitigation and power factor correction

Passive Harmonic Filter
HPS Centurion™ P
Mitigates harmonic currents caused by non-linear loads

dV/dT Filter
HPS Centurion™ D1
Minimizes the damaging peak voltage that can occur along the motor cables and within the motor windings

Drive Isolation Transformer
Meets the demands of AC and DC variable speed drives and provides the required voltage change

Line and Load Reactor
HPS Centurion™ R
Delivers protection for your motors and drives

SineWave Motor Protection Filter
HPS Centurion™ S
Converts a VFD pulse width modulated output into a nearly perfect sinusoidal waveform

Multi-Pulse Transformer
Designed specifically for inherent harmonics, voltage distortion and other unique characteristics associated with drive systems

ENERGIZING OUR WORLD
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Empowering Power Quality: HPS PQ SOLUTIONS





CENTRE FOR DEVELOPMENT OF
ADVANCED COMPUTING (CDAC)

WACHSPOWER SOFTWARE SYSTEMS INC.

STATE UNIVERSITY

CHPE

High Performance Power Electronics

ROB
Senior Researcher
CHPE

2 MW 1-MHA Integrated Modular Motor Drive for Turbo Electric Aircraft

- Motor Drive for high efficiency and high power
- High efficiency and high power
- High efficiency and high power

High Performance Power Electronics

CHPE
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Power Electronics Control

- » Electric Vehicles
- » Solar Inverters
- » Battery Systems
- » FACTS and HVDC
- » PM, BLDC, and Induction Motors

MathWorks
MATLAB



CINREL

JOEL
MATLAB

CINREL
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MATLAB



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American Standards

SUPPORT
Vertically Integrated
Product Traceability
Established in 1962

HBK
HOTTINGER BRÜEL & KJÆR

DOUG
Product Development

Test and measurement expertise across all domains

Mechanical Sound and Vibration Electrical

Strain measurement
Force and load measurement
Mechanical and electric measurement
Engineering software for reliability, durability and performance
Power efficiency and loss analysis

HBK
HOTTINGER BRÜEL & KJÆR

HBM
Brüel & Kjær

CDIVE testing

HBK
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EVOLUTION IN ELECTRIC PROPULSION

HEX
INTEGRATED MOTOR

WORLD
Driving Bare Die

FOR KEEB
TIA



IPI Intronics Power Inc.

AC/DC, DC/DC CONVERTERS

POWER SUPPLIES

IPI Intronics Power Inc.

DC-DC Converters, AC/DC Converters, CRT Connection Devices, Isolation Amplifiers, Function Modules, Custom Power Supplies, Analog Devices, Legacy Products

IPI Intronics Power

MPPT25 MAXIMUM POWER POINT TRACKING SOLAR BATTERY CHARGE CONTROLLER

FEATURES

- AUTOMATIC TRACKING OF SOLAR PANEL MAXIMUM POWER POINT
- TWO OR THREE STAGE CHARGING (SELECTABLE)
- HIGH ENERGY CONVERSION EFFICIENCY (94-97%)
- TRACKING OF MPPT TO WITHIN 2%
- TEMPERATURE COMPENSATED
- LCD DISPLAY AND LED STATUS INDICATORS
- USER ADJUSTABLE SET POINTS
- 12V OR 24V SYSTEM CAPABILITY (SELECTABLE)
- 25 AMP OUTPUT RATING
- MAXIMUM PANEL INPUT VOLTAGE 80 VDC
- MAXIMUM BATTERY VOLTAGE 65 VDC
- 25 AMP AUXILIARY LOAD OUTPUT
- REVERSE CONNECTION PROTECTION
- OUTPUT CURRENT AUTOMATICALLY LIMITED TO 27 AMPS

WWW.INTRONICSPOWER.COM
781-551-5511

Exhibition table with various electronic components, brochures, and a solar panel graphic.

**New Exhibitor at ECCE 2023*



WAFIOS MACHINERY CORPORATION

242

WAFIOS

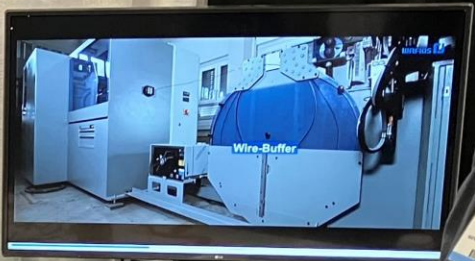
Innovative Machinery for Powertrain Components



Auto Flux Coils



WAFIOS



Wire-Buffer

WAFIOS electrifies...
SIMON
WAFIOS MACHINERY CORPORATION
PRODUCTION

WAFIOS electrifies...
MICHAEL
WAFIOS MACHINERY CORPORATION
PRODUCTION

**New Exhibitor at ECCE 2023*



REALT
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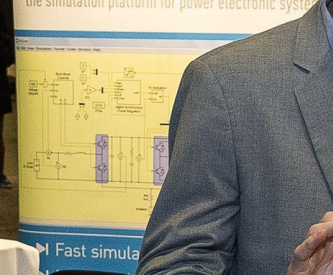
PIERRE
 BOISSINEAULT
 REALT
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OPB666
 DSP Controller Board
 REALT

Easily Bring
 Power Electronics
 Models to Real-
 Time Simulation



pleggs
the simulation platform for power electronic systems



Fast simulation

Simplifying Complex

lets your model switch in

RT Box
versatile real-time platform

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HITACHI
Inspire the Next

Hitachi Energy

이엘코어텍 EM CORETECH

EMCoretech has developed the world's first IC(EMI) capable of blocking electromagnetic waves and has the latest to develop Active EMI Filter modules.

VISION

- 01 Reducing electromagnetic noise by 50%
- 02 Reducing the size and weight of EMI filter by 50%
- 03 Reducing electromagnetic incidents by 50%

EM Filter

Comparison of power device radiation tests on active and passive EMI filter.

Item	Active EMI Filter	Passive EMI Filter
1. Noise Reduction	50%	10%
2. Size Reduction	50%	10%
3. Weight Reduction	50%	10%
4. Incident Reduction	50%	10%
5. Power Loss	Low	High
6. Efficiency	High	Low

Man in a dark suit and glasses, wearing a Hitachi Energy lanyard, standing behind the booth.

Man in a white polo shirt with Hitachi Energy logo and glasses, wearing a Hitachi Energy lanyard, standing behind the booth.

HITACHI
Inspire the Next
Hitachi Energy

Group of people, including a man in a grey hoodie and a woman with a red backpack, interacting at the booth.

RT BOX
The real-time platform

plexim

Hardware-in-the-loop (HIL)
Rapid control prototyping
Full integration
Scalable

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measurement innovation

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DUCTS ARE...
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measurement innovation



WINSOURCE ELECTRONICS



Empowering Energy Conversion Innovations Direct Components Source from Pacific Asia, Cost Reduction & Easy Creation.

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3 Years Warranty

Electronic components you purchase 3 Years Warranty. We guarantee quality.

23 Years Experience

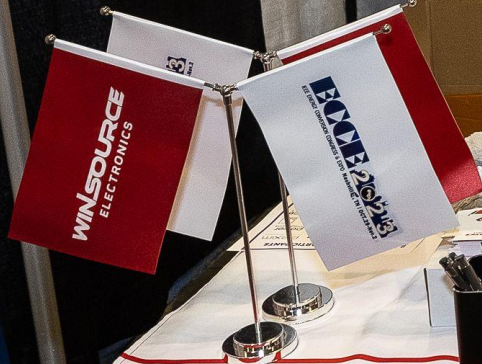
Electronic components you purchase 23 Years Experience. We guarantee quality.

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Semiconductors
Sensor

crete semiconductors
connectors



*New Exhibitor at ECCE 2023

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Thanks
for
visiting
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com

ECCE 2023

IEEE ENERGY CONVERSION CONGRESS & EXPO Nashville, TN | OCT.29-Nov.2

EXPO HALL

Expo Hall Hours

Monday	4:00pm - 7:30pm
Tuesday	10:30am - 5:00pm

Expo Schedule of Events

Expo Hall Reception	
Monday	9:00am to 3:30pm
Poster Sessions	
POSTER SESSION I Monday	9:30AM-11:00AM
POSTER SESSION II Tuesday	10:30AM-12:00PM
POSTER SESSION III Tuesday	2:30PM-4:00PM
Expo Lunch	
Tuesday	12:00PM-2:30PM
Student Demonstrations	
Open - Monday	10:00AM - 2:00PM
Judging - Tuesday	1:30PM - 5:00PM
Student Job Fair	
Tuesday	9:30AM-11:00AM

Thank you to our sponsors!



Exhibitor Directory

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Kudos To RNA Associates For this Successful Exhibition!