Industry Session Presentations

Tracks:

**IS1.1** Breakthrough Technologies Driving Successful Energy Harvesting-Powered Products

**IS2.1** Power Electronics Standards

**IS3.1** High Power Industrial

**IS1.2** Evolving Alternative Energy to Mainstream Energy

**IS2.2** Emerging Technologies of Power Transmission

**IS3.2** Marketing and Business

**IS1.3** Latest Advances in Nanotechnology Applications

**IS2.3** Key Issues in Vehicle Power Electronics

**IS3.3** Controls and Passive Components

**IS1.4** Energy Storage and the Power Converters that Control Energy Storage

**IS2.4** Wide Band Gap Devices

**IS1.5** 3D Packaging for Power Electronics

**IS2.5** How are Magnetics Catching Up To SiC & GaN?

**IS1.1** Breakthrough Technologies Driving Successful – Energy Harvesting-Powered Products – Session Chair(s): Arnold Alderman, Anagenesis; Steve Grady, Cymbet

IS1-1-1 Energy Harvesting Market Requirements, Economics and Technology Drivers; Steve Grady – Cymbet

IS1-1-2 Latest Advancements in Energy Harvesting Transducers; Henrik Zessin – Fraunhofer Institute

IS1-1-3 Small Footprint High Efficiency Designs for Energy Conversion; Brian Shaffer – Linear Technology

IS1-1-4 Low Power Wireless Technologies; Roman Budek – NXP

IS1-1-5 Sub-microamp Microcontroller and Wireless Transceivers, Protocols, Network Architectures; Mark Buccini – Texas Instruments
IS1-6 Successful commercial Energy Harvesting Deployments in Wearables, Industrial Controls, Transportation, Medicine, Handhelds, Fitness and Building Controls; Dr. Harry Zervos – IDTechEX

IS2.1 Power Electronics Standards – Session Chair(s): Peter Wilson, University of Southampton

IS2-1-1 Standards for Power Electronic Components and Systems; Dr. Peter R. Wilson – University of Southampton

IS2-1-2 Recommended Practices of Modulating Current in High Brightness LEDs for Mitigating Health Risks to Viewers; Professor Brad Lehman – Northeastern University

IS2-1-3 STANDARDS ACTIVITIES FOR: Transformers and Inductors Used in Electronic Power Conversion Equipment; Dr. Matt Willkowski

IS2-1-4 Standards in Marine Power Systems Professor; Roger Dugal – University of South Carolina

IS2-1-5 An Introduction to Revision 1.3 of the PMBus™ Specification; Mike Jones, Travis Summerlin – Texas Instruments Linear Technology

IS2-1-6 Grid Interconnection Standards for Distributed Resources and Microgrids; Dr. Liuchen Chang – University of New Brunswick, Dr. Sudip K. Mazumder – University of Illinois

IS2-1-7 Power Semiconductor Modules; Dr. Krishna Shenai – Argonne National Laboratory

IS3.1 High Power Industrial – Session Chair: Krishna Shenai, Argonne National Laboratories

IS3-1-1 New Techniques for Wide Band Gap High-Power Semiconductor Device Characterization; Alan Wadsworth – Agilent

IS3-1-2 Advanced T-type NPC- 3 level modules: A New Possibility with RB-IGBT’s; Nitesh Satheesh – Fuji Electric Corp of America

IS3-1-3 Advancements in AC Power Capacitor Manufacturing Techniques Solve Traditional Industry Application Problems; John Houdek – Allied Industrial Marketing, Inc.

IS3-1-4 Low cost 120kW Non Isolated Medical Power Supply; Korneel Wijnands – Prodrive B.V.

IS3-1-5 How A New Power Stack Communication System Improves IGBT Reliability and Shortens Development Time; Albert Charpentier – AgileSwitch, LLC
IS3-1-6 Linear Motors for Mass Transit Systems, their Merits, Controls and Drive Aspects; Dr. Konrad Woronowicz, Dr. Alireza Safaee – Bombardier Transportation

IS3-1-7 Power Quality A Power Electronics Perspective; W. Dunford – University of British Columbia

IS1.2 Evolving Alternative Energy to Mainstream Energy – Session Chair(s): Chavonne Yee, ABB Power-One; John McManus, Lincoln

IS1-2-1 Solar, Today and Tomorrow: Status of Utility PV in the US Market; Michael Barker – Solarbuzz

IS1-2-2 Increased Use of Renewable Energy Sources in Wireless Communication Networks; Dr. Alexis Kwasinski – The University of Texas at Austin

IS1-2-3 Residential Solar Finance 101: Accessing Capital Markets to Grow Your Business; Mike Pope – Clean Power Finance

IS1-2-4 Live Smarter; Willard MacDonald – Vivant, Inc.

IS2.2 Emerging Technologies of Power Transmission – Session Chair(s): Dr. River Li; Dr. Nan Chen

IS2-2-1 Grid Connected Converters: Challenges and Future Trends; Dr. Hector Zelaya de la Parra – ABB Sweden Ltd., Corporate Research

IS2-2-2 STATCOM with Multilevel Converter for AC Transmission Systems; Dr. Martin Pieschel – Siemens AG, Germany

IS2-2-3 PE Converters and Technical Challenges for MV DC Technologies – DC Interlink from Decentralized Energy Sources to HVDC Transmission; Dr. Daniel Aggeler / Dr. Francisco Canales – ABB Switzerland Ltd., Corporate Research

IS2-2-4 HV SiC 10kV MOSFET and 15-20kV IGBT Enabled Active Grid Infrastructure; Dr. Subhashish Bhattacharya – North Carolina State University (NCSU)

IS3.2 Marketing and Business – Session Chairs: Ada Cheng, AdaClock; Mohan Mankikar, Micro-Tech Consultants

IS3-2-1 Defining the “current” market trend for your products?; Carl Blake – Consultant to Transphorm
IS3-2-2 A Comprehensive Assessment of the Indian Power Electronics Market; Dhaval Dalal and Ram Kumar – Innovatech

IS3-2-3 PSiP & PwrSoC: Taking Stock of the Trials and Triumphs of Adoption that Lie Ahead; Arnold Alderman – Anagenesis Inc

IS3-2-4 How Preferred Suppliers Meet or Exceed a Customer’s Expectation; Randhir Malik – IBM

IS1.3 Latest Advances in Nanotechnology Applications – Session Chair(s): Kevin Parmerter, Mouser Electronics; Chuck Mullett, ON Semiconductor

IS1-3-1 Overview of Recent Patent Activity in Nanotech-Enabled Power Systems; Jeffrey Rosedale – Baker & Hostetler LLP

IS1-3-2 Tailored Single Wall Carbon Nanotube Materials for Transparent Conductive Film Applications; Ricardo Prada Silvy – SouthWest NanoTechnologies

IS1-3-3 Science and Application of Nanosilver Chip-Bonding Material; Guo-Quan Lu – Virginia Tech

IS1-3-4 Nano-Devices for Enhanced Thermal Energy Storage, Cooling and Sensing; Debjyoti Banerjee – Texas A&M University

IS1-3-5 Enhanced Power Systems Through Nanotechnology; Dale Teeters – University of Tulsa

IS1-3-6 Future electronics: Photonics and plasmonics at the nanoscale; Robert Magnusson – University of Texas at Arlington

IS1-3-7 PSMA Nanotechnology Education Program; J. Michael Rice – Aerolearn, Inc

Top of Page

IS2.3 Key Issues in Vehicle Power Electronics – Session Chair(s): Ralph Taylor, Delphi

IS2-3-1 Cooling For EV and HEV applications; Dr. Sukhvinder Kang – Aavid Thermalloy

IS2-3-2 Joining Materials for High Reliability Power Electronics in Electric Drive Vehicles; Dr. Patrick McCluskey – University of Maryland

IS2-3-3 Key Issues in Vehicle Power Electronics; Jay Sandige – Positronics and Michael Wingard – Amphenol

IS2-3-4 Planar Magnetics, an Ideal Technology for Automotive Electrification; Jim Marinos – Payton Group
IS2-3-5 Developments in Stationary and Dynamic Wireless Charging Applications; Dr. Omer Onar – Oak Ridge National Laboratory

IS2-3-6 Wide Bandgap (WBG) Power Devices for High Density Power Converters – Excitement and Reality; Dr. Krishna Shenai – Argonne National Laboratory

IS2-3-7 GaN Power Electronics for Automotive Applications; Karim Boutros – HRL Laboratories

IS3.3 Controls and Passive Components – Session Chair: Jim Spangler, Spangler Prototype

IS3-3-1 Aluminum Extrusion Design and the Role it Plays in High Performance Cooling Solutions for Power Electronics; Alex Chen – Sapa Extrusion North America

IS3-3-2 Robust Interleaved CCM PFC Controller for Industrial Application; Wen Chien – Fairchild Semiconductor

IS3-3-3 Tripling the Power of PoE – Opening New Opportunities and Creating New Challenges; Mr. Antoun – Akros Silicon

IS3-3-4 Power Supply Efficiency Estimation in PFM mode for Light-load Applications; Amod Vaze – Texas Instruments

IS3-3-5 Behind the Spec of Power Inductors; Alexander Gerfer – Wurth Elecronics

IS3-3-6 MADMIX: The Standard For Measuring SMPS Inductors; Mike Wens – MinDCet NV

IS3-3-7 Improved COT Controller with Emulated ESR and DC Correction; Shahin Maloyan – Exar

IS1.4 Energy Storage and the Power Converters that Control Energy Storage – Session Chair: Dusty Becker, Emerson; Ed Herbert, Independent Inventor

IS1-4-1 The Role of Energy Storage in Power Management; Edward Herbert – PSMA Energy Efficiency Committee

IS1-4-2 Batteries and Their Control; Melaku Mihret – Xtreme Power

IS1-4-3 Ultracapacitors and Frequency Regulation; Bryce Gregory – Ioxus, Inc.

IS1-4-4 Other Energy Storage Devices; Laszlo Lakatos-Hayward – HYXOS Innovations

IS1-4-5 Defining the Needs for Energy Storage and its Control for Zero-Net-Energy Buildings; Brian Patterson – Emerge Alliance
**IS1-4-6 Energy Storage and its Control in “The Smart Grid.”; Joe Matamoros – STEM**

**IS2.4 Wide Band Gap Devices – Session Chair: Dennis Stephens, Continental**

**IS2-4-1 Wide Band Gap (WBG) Power Devices for High-Density Power Converters – Excitement and Reality; Dr. Krishna Shenai – Argonne National Laboratory**

**IS2-4-2 Moving Beyond Qualification to Verify the Long-Term Reliability of GaN Devices; Carl Blake – Transphorm**

**IS2-4-3 GaN: Raising the Bar for Power Conversion Performance; David Reusch – Efficient Power Conversion**

**IS2-4-4 GaAs-based Power Stages for Granular Power; Greg J. Miller, Robert Conner – Sarda Technologies**

**IS2-4-5 Normally-Off GaN-on-Si Bi-Directional Automobile Battery-to-Grid 6.6kW Charger Switching at 500kHz; Brian Hughes – HRL Laboratories**

**IS2-4-6 Next-Generation Power SiC Devices for High-Volume Applications – Trench; Schottky Barrier Diode and Trench MOSFET, David Doan – Rohm Semiconductor**

**IS1.5 3D Packaging for Power Electronics – Session Chair(s): Ernie Parker, Crane Aerospace & Electronics; Brain Narveson, Narveson Consulting**

**IS1-5-1 Increase Power Density and Performance Using 3D Packaging; Ernie Parker and Brian Narveson – PSMA Packaging Committee**

**IS1-5-2 Power Packaging Considerations for High End Servers; Rick Fishbune – IBM Corporation**

**IS1-5-3 Integrated Power Conversion with Thin-Film Magnetic Core Inductors; Dr. Noah Sturcken – Ferric Semiconductor**

**IS1-5-4 Printed Interfacial Interconnects in High Power Modules; Doug Hopkins – NC State**

**IS1-5-5 The “Power” of 3D Printing; Peter Resca – Astrodyne Inc**

**IS1-5-6 Integration of Cooling Function into 3-D Power Module Packaging; Zhenxian Liang – ORNL**

**IS1-5-7 Three-Dimensional Packaging for Wide Bandgap Based Discrete and Multi-Chip Power Packages; Brandon Passmore – Arkansas Power Electronics International, Inc**
IS2.5 How are Magnetics Catching Up To SiC & GaN? – Session Chair: Steve Carlsen, Raytheon; Edward Herbert, Independent Inventor

IS2-5-1 Frequency, Where We are Today, and Where We Need to Go; Dan Jitaru – Rompower

IS2-5-2 Gecko Magnetics; Jonas Muehlethaler – Gecko-Simulations AG

IS2-5-3 Demands for High-efficiency Magnetics in GaN Power Electronics; YiFeng Wu – Transphorm

IS2-5-4 SiC Devices and their impact on Switching Characteristics; Ranbir Singh – GeneSiC Semiconductor, Inc.

IS2-5-5 Magnetic Core Materials in HF Applications; Jonas Muehlethaler – Gecko-Simulations AG

IS2-5-6 Windings for High Frequency; Dr. Charles Sullivan – Dartmouth College

IS2-5-7 Magnetics for Solid State Transformer; Dr. Subhashish Bhattacharya – North Carolina State University