



2025 SDEMPED

15th Edition of the IEEE International Symposium on
**Diagnostics for Electrical Machines,
Power Electronics and Drives**

Sponsored By:



SDEMPED 2025

SCHEDULE-AT-A-GLANCE

Monday

8:00 AM	Registration Open
8:30 AM	8:30 AM - Welcome Ceremony 9:00 AM - 10:00 AM Keynote Speaker Kevin Yosh In Heritage IV
10:00 AM	Coffee Break In Foyer
10:30 AM	Tutorial 1: Harish Krishnamoorthy - Heritage I Tutorial 2: JiangBiao He - Heritage II
1:00 PM	Lunch
2:00 PM	Keynote Speaker 2: Yateendra Deshpande Keynote Speaker 3: Babak Fahimi In Heritage IV
4:00 PM	Coffee Break Foyer
4:30 PM	Tutorial 3: Luowei Wen - Heritage IV
5:30 PM	Keynote 4: Uday Deshpande In Heritage IV
6:00 PM	International Steering Committee Meeting In Tate

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Tuesday

8:00 AM	Registration Open
8:30 AM	Memorial Session - Roque Osornio-Rios Heritage IV
10:30 AM	Coffee Break
11:00 AM	Special Session Heritage IV
1:00 PM	Committee Lunch - Heritage III Lunch - Heritage IV
2:00 PM	Technical Track 1 - Heritage I Technical Track 2 - Heritage II
4:00 PM	Coffee Break
4:40 PM	Technical Track 3 - Heritage I Technical Track 4 - Heritage II
7:00 PM	Gala Dinner Best Paper Awards In Heritage IV

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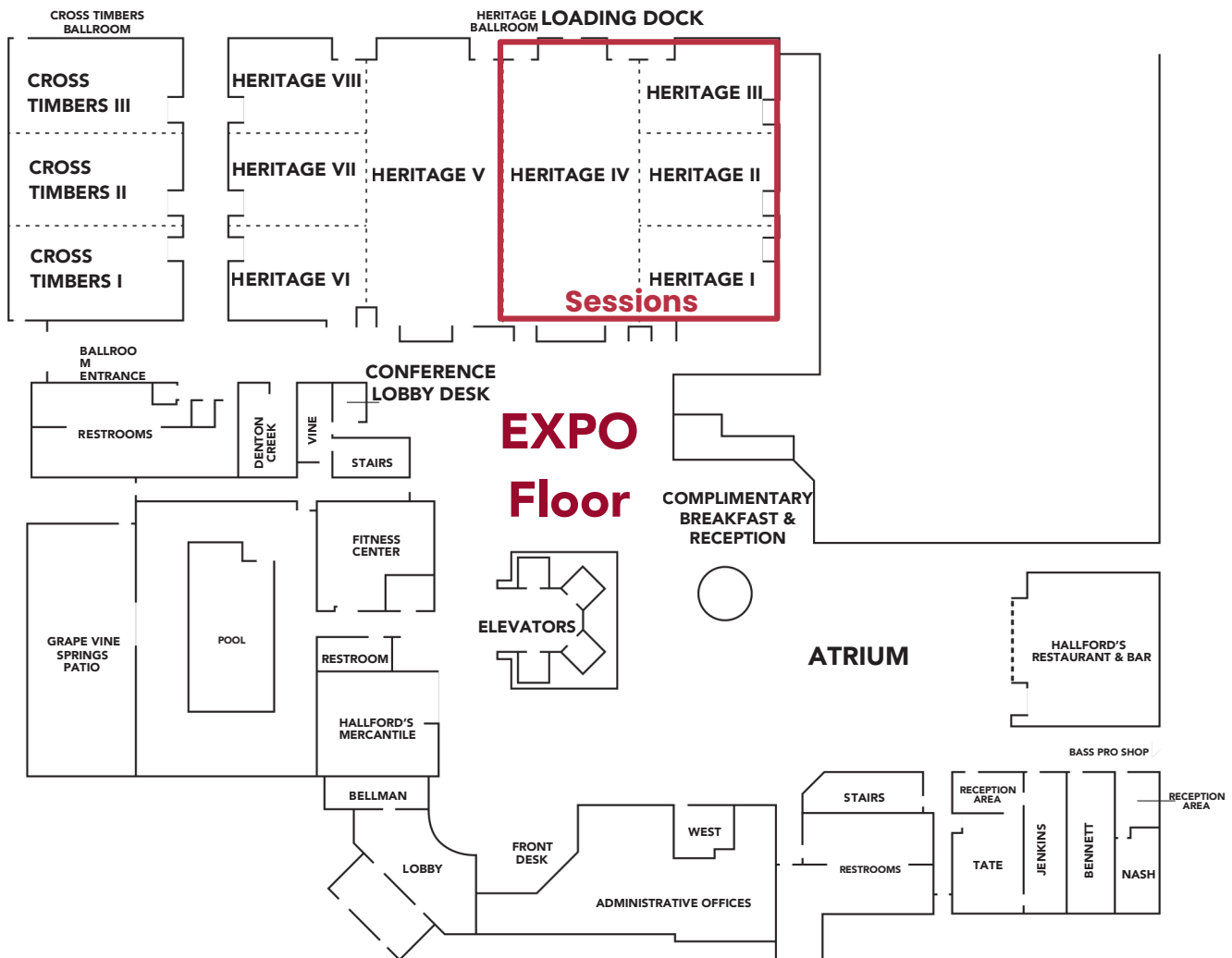
Wednesday

8:00 AM	Registration Open
8:30 AM	Technical Track 5 - Heritage I Technical Track 6 - Heritage II
10:30 AM	Coffee Break
11:00 AM	Technical Track 7 - Heritage I Technical Track 8 - Heritage II
12:40 PM	Lunch
1:30 PM	Technical Track 9 - Heritage I Technical Track 10 - Heritage II
2:50 PM	Closing Ceremony & Demo Awards In Heritage IV
3:00 PM	Siemens Plant Tour
5:00 PM	Fort Worth Stockyards

SDEMPED 2025

FLOORPLAN

FIRST FLOOR



SDEMPED 2025

WELCOME LETTER

On behalf of the SDEMPED 2025 Organizing Committee, we would like to welcome you to 15th edition of the IEEE International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives 2025.

This is the 27th year since the first SDEMPED was established as the only international symposium entirely devoted to the diagnostics of electrical machines, power electronics and drives. SDEMPED is now a regular biennial event. Since it was created in 1997, very successful editions have been held during the past 10 years in Cargèse (France) in 2009, Bologna (Italy) in 2011, Valencia (Spain) in 2013, Guarda (Portugal) in 2015, Tinos (Greece) in 2017, and Toulouse (France) in 2019. The IEEE SDEMPED 2021 (virtual event) and a successful 2023 in Chania (Greece).

IEEE SDEMPED 2025 is going to be held in Dallas (USA). The SDEMPED 2025 Organizing Committee wishes you a very successful, pleasant and outstanding symposium.

Let's make this an enjoyable and rewarding event!



General Chair
Dr. Ali Bazzi

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KEYNOTES

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Babak Fahimi

Professor
Distinguished Chair of Engineering
University of Texas at Dallas

IEEE SDEMPED 2025

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International
Symposium on
Diagnostics for
Electrical Machines,
Power Electronics and
Drives



Keynote Title

**Motor Whisperer: On the Art of
Condition Monitoring in Electric
Machinery**

Speaker Bio

Dr. Babak Fahimi received his Ph.D. in Electrical Engineering from Texas A&M University in 1999. After three years in industry, he joined Missouri S&T as an assistant professor, and since 2010 has been a professor at the University of Texas at Dallas, where he founded the power and energy concentration and holds the Distinguished Chair of Engineering.

He has authored over 400 publications, holds 24 U.S. patents (with 6 pending), and has received major honors including the IEEE R.M. Bass Award, SAE Ralph Teetor Award, and IEEE C. Veinott Award. A Fulbright Scholar in 2011 and 2023, he is an IEEE Fellow recognized for his contributions to AC motor drives. He has supervised 36 Ph.D. and 24 M.S. students, with many now in leading academic and industry roles.

More Information | IEEE.SDEMPED.org

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Yateendra Deshpande

Founder of Conifer

IEEE SDEMPED 2025

15th Edition of the IEEE International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives



Keynote Title

Traction drives: Challenges and Opportunities in Software Diagnostics

Speaker Bio

Yateendra Deshpande is the founder of Conifer, a company developing cutting-edge electric powertrains for mopeds, motorcycles, power equipment, and industrial applications. Previously, he led motor design at Lucid Motors, where he helped bring the Lucid Air powertrain to production, contributing to both hardware and motor control software.

He also worked on special projects at Apple after completing his Ph.D. in electric motor design from Texas A&M University, following earlier degrees from IIT Madras. An inventor with numerous patents and publications, Yateendra's expertise spans motor control, sensorless operation, and novel motor topologies—blending deep technical insight with product-focused innovation.

More Information | IEEE.SDEMPED.org

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Uday Deshpande

CEO/CTO
D&V Electronics, USA

IEEE SDEMPED 2025

15th Edition of the IEEE International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives



Keynote Title

"Managing" Faults and Failures – A personal view over 30yrs

Speaker Bio

Dr. Uday Deshpande is the CEO/CTO of D&V Electronics, a provider of specialized test equipment for automotive, military, and EV applications. He previously held global engineering leadership roles at CNH Industrial, Ingersoll Rand, General Atomics, and Black & Decker. His work spans electric power steering, drivetrains, aircraft launch systems, and electrified agricultural equipment. His expertise lies in electrical and electromechanical systems.

Dr. Deshpande serves on the IEEE IAS Committee and the IEEE PELS TC3 committee, and he is a former Associate Editor of IEEE Transactions on Power Electronics. He holds a B.Tech. from IIT Kharagpur and MS and PhD degrees from the University of Kentucky, all in Electrical Engineering. He is a Senior Member of IEEE with multiple patents and publications.

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Kevin Yost

AFRL/RQQE
Electrical Systems Branch

IEEE SDEMPED 2025

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Drives



Keynote Title

Past, Present, and Future of Electrified Aircraft

Speaker Bio

Mr. Kevin Yost has worked in the Air Force Research Laboratory's Power & Control division on electric power generating systems for 21 years. Mr. Yost leads in-house experimental research in generator hardware performance and parameter characterization.

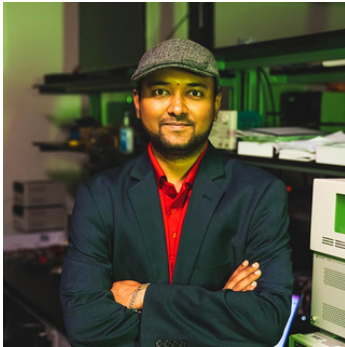
He also supports extensive external programs involving integrated motor and generator design for challenging, emergent Air Force needs. These emerging requirements include Megawatt-class military aircraft, affordable power generation solutions, and electrified aircraft propulsion. He is a Senior Member of IEEE.

SDEMPED 2025

TUTORIALS

Power Converters with Prognostic Health Monitoring (PHM) at the Edge

Speaker



Harish Krishnamoorthy
Associate Professor
ECE Department
University of Houston

About the Speaker

Dr. Harish S. Krishnamoorthy (Senior Member, IEEE) is an Associate Professor in the ECE department at the University of Houston. He received his B.Tech. from NIT Tiruchirappalli (2008) and Ph.D. from Texas A&M University (2015). He has industry experience at GE Energy, Schlumberger, Ford, and Google.

Dr. Krishnamoorthy has authored ~120 refereed papers and holds 3 U.S. patents. He is on the organizing committee of major IEEE conferences including INTELEC (General Chair, 2025), APEC, ECCE, and SDEMPED. He serves as an Associate Editor for IEEE Transactions on Power Electronics and is a UH Faculty Senate representative.

His honors include the NSF CAREER Award, IEEE PELS Young Professional Service Award, and NIT Trichy Young Achiever Award (all in 2023), as well as UH awards for research and teaching excellence. His research focuses on power conversion systems, energy transition, and reliability diagnostics. He has delivered nearly 50 invited talks worldwide.

Abstract

A key challenge with most existing power conversion infrastructure is the difficulty of assessing its health and adjusting its performance in real time without disrupting operations. To enhance dynamic performance and improve resiliency, there is a growing focus on mission profile-oriented design methods that seamlessly integrate data-driven approaches with onboard power hardware. These methods facilitate system monitoring, dynamic adaptation, and prognostic health management (PHM). By enabling real-time identification of aging or failing hardware, they help prevent premature decommissioning and extend operational life. Additionally, they empower system operators to make informed maintenance and repair decisions in the field while allowing supply chain teams to optimize logistics and inventory.

Fault-Tolerant Power Converters for Safety-Critical Applications

Speaker



Jiangbiao He

Associate Professor
University of
Tennessee

About the Speaker

Dr. Jiangbiao He is an Associate Professor in Electrical Engineering at the University of Tennessee, Knoxville. Previously, he was an Associate Professor at the University of Kentucky. He has worked in multiple industry R&D centers before joined academia, most recently as a Lead Engineer at GE Global Research, NY.

He received the Ph.D. degree in electrical engineering from Marquette University, WI. His research interests include advanced power electronics and motor-drive systems for emerging applications, especially in transportation electrification. He has authored and co-authored over 150 technical articles and 10 patents. He is the recipient of several achievement awards, including the 2018 Whitney Technical Excellence Award at GE Global Research, the 2019 AWS Outstanding Young Member Achievement Award recognized by the IEEE Industry Applications Society, and the 2023 Faculty Excellence in Research award at the University of Kentucky.

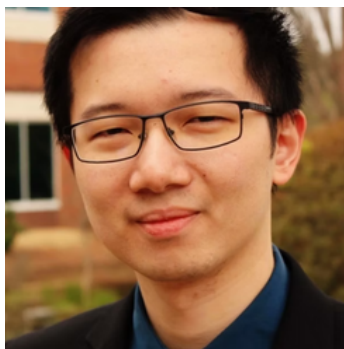
Abstract

With power electronic converters being utilized in more and more safety-critical applications such as transportation electrifications, autonomous fault-tolerant operation becomes increasingly more important to avoid significant downtime cost and catastrophic failures. Particularly, in medium-voltage or high-voltage applications, multilevel power converters are generally employed, but their reliability and fault tolerance have become a growing concern due to the utilization of a large number of semiconductor switches. In this tutorial, we will introduce fundamental design and control techniques of fault-tolerant power converters, especially focusing on Silicon Carbide (SiC) multilevel converters. Unlike conventional fault-tolerant power converters which simply rely on adding redundant power modules or circuits at the cost of efficiency and power density, a new fault-tolerant power converter concept will be introduced in which the redundant circuits contribute to significant performance improvement in both normal operation and post-fault operation.

More Information | [IEEE.SDEMPED.org](https://www.ieee.org/conferences/publishing/SDEMPED)

Reliability Assessment and Condition Monitoring of IGBT/SiC through Highly Integrated Gate Driver

Speaker



Luowei Wen

Applications
Engineer
Texas Instruments

About the Speaker

Dr. Luowei Wen is an Applications Engineer at Texas Instruments Inc. in Dallas, TX, where he focuses on development and application of programmable isolated gate drivers for high-power systems, especially EV traction inverters. He received the B.S. degree from Zhejiang University (2014), the M.S. degree from New York University (2017), and the Ph.D. degree from North Carolina State University (2023), all in electrical engineering. His research interests include programmable gate driver design and application, EV traction drive, wide bandgap device modeling and application, and EMI modeling.

Abstract

This tutorial presents the reliability assessment and condition monitoring of IGBT/SiC through highly integrated gate driver. Firstly, IGBT/SiC Reliability assessment is provided covering an overview of IGBT/SiC reliability, standard reliability test, and precursors for IGBT/SiC health monitor. Secondly, condition monitoring features of IGBT/SiC are integrated into gate driver, including precursor measurement to monitor the IGBT/SiC health and fault detection to protect the IGBT/SiC from malfunctions. This tutorial's learning outcomes are as follows:

- Overview of IGBT/SiC reliability assessment and standard reliability tests.
- Review of precursors for IGBT/SiC health monitor, including V_{gth} , R_{dson} , and Temp.
- Integration and implementation of IGBT/SiC precursors within gate driver.
- Fault detection and protection for IGBT/SiC (DESAT, OC) through gate driver.

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TECHNICAL TRACKS

Technical Track Schedule

Tuesday, August 26, 2025 |

2:00PM - 4:00PM

TT1 - Condition Monitoring of Induction Machines - 1

Location: Room Heritage 1

Session Chairs: Emmanuel Agamloh and Luowei Wen

2:00 | Detection of broken rotor bars in induction motors under oscillating load through bidimensional entropy and time-frequency maps [000043]

Juan Jose SAUCEDO-DORANTES, David A. Elvira-Ortiz, Arturo Y Jaen-Cuellar, Rene J. Romero-Troncoso. Presented by: EDr. Israel Zamudio-Ramirez

2:20 | A Novel Methodology for the Reliable Detection of Static and Dynamic Eccentricity in Induction Motors via Frequency Isolation in the Stray Flux [000054]

Zihao Song, Konstantinos N. Gyftakis, Bertrand Morin, Jonathan C. Mayo-Maldonado, Ioannis Arvanitakis, Panagiotis A. Panagiotou

2:40 | Wireless Sensor-embedded Leakage Flux and Vibration Measurement for Diagnosis of Electrical and Mechanical Faults in Induction Motors [000067]

Byambasuren Battulga, Muhammad Faizan Shaikh, Jae Wook Chun, Sung Bong Park, Sangwook Shim, Sang Bin Lee

3:00 | Multiphysics model for induction machine bearing fault diagnosis by stator current analysis [000020]

Stéphanie Moloverya Kavugho, Gauthier Ngandu Kalalan, Bovic Kilundu, Lanto Rasolofondraibe, Xavier Chiementin

3:20 | Induction Motor Bearing Fault Diagnosis with Machine Learning Enhanced Empirical Mode Decomposition [000081]

Obinna Vitus Onodugo, Emmanuel Agamloh

3:40 | Comparative Study of Two Analytical Methods for Computing the Mutual Inductance Matrix in Induction Machines [000025]

Carla Terrón Santiago, Sandra Delfa-Baena, Jordi Burriel-Valencia, Angel Sapena-Bano, Martin Riera-Guasp

Technical Track Schedule

Tuesday, August 26, 2025 |
2:00PM - 4:00PM

TT2 - Fault Diagnostics and Fault Tolerance in Motor Drives

Location: Room Heritage 2

Session Chairs: Weiqiang Chen and Harish Krishnamoorthy

2:00 | **Power Switches Short-Circuit Faults Tolerant Converter for a Four-Phase Switched Reluctance Motor Drive [000073]**
D. S. B. Fonseca, Antonio J. Marques Cardoso

2:20 | **Fault Signature Sensitivity based on Residues for Interturn Short Circuit fault in PMSMse [000021]**
Matteo Deponti, Angelo Boceda, Mingwei Zhao, Roberto Perini, Giovanni Maria Foglia

2:40 | **A Hybrid Fault Detection and Identification Method for Current Sensor Faults in PMSM Drives [000071]**
Shaya Abou Jawdeh, Pengwei Li, Ali Bazzi

3:00 | **Open Circuit and Short Circuit Fault Diagnosis Method for 5-Level Hybrid T-Type ANPC-FC Inverter Using Artificial Neural Networks [000065]**
Uiliam Kutrolli, Pengwei Li, Ali Bazzi

3:20 | **Rotor Inter-turn Faults in an Industrial Synchronous Machine Caused by a Stator Ground Fault [000038]**
Jose Manuel Guerrero Granados, Ruben Pascual-Jimenez, Sang Bin Lee, Carlos A. Platero

3:40 | **Eccentricity Fault Diagnostic in Hexagon- and Double-Delta-Connected Symmetrical Six-Phase Induction Motors [000072]**
Hugo R. P. Antunes, D. S. B. Fonseca, Antonio J. Marques Cardoso

Technical Track Schedule

Tuesday, August 26, 2025 |

4:30PM - 6:30PM

TT3 - Condition Monitoring of Synchronous Machines

Location: Room Heritage 1

Session Chairs: Antonio J. Marques Cardoso, Carla Terron Santiago

4:30 | A Universal Diagnostic Strategy for Direct-Drive Permanent Magnet Generator Faults by Novel Sensing of Stator and Rotor Magnetic Fields [000075]

Giorgos Skarmoutsos, Panagiotis Panagiotou, Konstantinos Gyftakis, Markus Mueller

4:50 | Electromagnetomechanical Analysis and Harmonic Generation of DOL PM Motors Suffering from Low Severity Interturn Short Circuit Faults [000033]

Konstantinos Gyftakis, Christos-Emmanouil Apanomeritakis, Daniel Morinigo Sotelo, Jorge Bonet Jara, Tomas Garcia-Calva, Joan Pons-Llinares

5:10 | Thyristor Rectifier-Embedded Identification of Field Winding, Damper Bar, and Eccentricity Faults in Wound Field Synchronous Machines [000011]

Sungwoo Choe, Muhammad Faizan Shaikh, Namhyuk Byun, Kyunghoon Kim, Kyeongyeol Kim, Anyuan Chen, Arne Nysveen, Hossein Ehya, Sang Bin Lee

5:30 | Interturn Fault Detection in Permanent Magnet Synchronous Machines via Instantaneous Symmetrical Component Currents [000005]

Jesús Mauricio Pérez García, Vanesa Valiño, Aritz Iturregi, Jose Manuel Guerrero Granados

5:50 | Detailed Digital Model for Behaviour Analysis and Synthetic Data Generation of a Permanent Magnet Synchronous Generator [000007]

Jesús Mauricio Pérez García, Jose Manuel Guerrero Granados, Eugenio Perea Olabarria, Ainhoa Pujana Goitia, Aitor Blázquez-Campanon, Pablo Eguia

6:10 | Analysis and Diagnosis of ITSC in Dual Rotor Air-Cored PMSG- Parallel Connected Stator Coils [000052]

Nikolaos Gkiolekas, Alexandros Sergakis, Markus Mueller, Konstantinos Gyftakis

Technical Track Schedule

Tuesday, August 26, 2025 |

4:30PM - 6:30PM

TT4 - Performance, Degradation and Ageing of Materials

Location: Room Heritage 2

Session Chairs: Thomas Wolbank

4:30 | Fuel cell performance prediction under variable conditions based on Extended Kalman Filter and Random Forests [000023]

Serigne Daouda Pene, Antoine Picot, Nicolas Savy, Amine Jaafar, Christophe Turpin, Fabrice Gamboa

4:50 | Comparison of Parameters for Characterization of Insulation Material Ageing During Lifetime Based on Voltage and Temperature [000083]

Ali Qerkini, Markus Vogelsberger, Thomas Wolbank

5:10 | A Comparative Study of Dielectric Strength between MV Underground Cable and MMEI Cable for Envisaged Wide-Body All-Electric Aircraft [000045]

Md Asifur Rahman, Saikat Chowdhury, Mona Ghassemi

5:30 | Design of experiments methodology applied to satellites lithium batteries aging modeling [000030]

Lorenzo Chapel, Antoine Picot, Fabien Lacressonniere, Didier Loup, Pascal Maussion

5:50 | Impedance Sweep Frequency Response Analysis for the In-Situ Inspection of Induction Motors with Distributed Stator Winding [000058]

Edward Stone, Jose E. Ruiz-Sarrio, Andrew Mills, Jose Antonino Daviu, Alexis Lambourne, Panagiotis Panagiotou

6:10 | High-Frequency Numerical Modelling for Impedance Frequency Response in Electrical Machine Stator Coils - A Comparative Study [000069]

Jose E. Ruiz-Sarrio, Edward Stone, Andrew Mills, Jose Antonino Daviu, Alexis Lambourne, Panagiotis Panagiotou

Technical Track Schedule

Wednesday, August 27, 2025 |

8:30AM - 10:30AM

TT5 - Machine AI and statistical learning methods for fault detection in electrical machines and drives

Location: Room Heritage 1

Session Chairs: Luca Zarri and Jie Zhang

8:30 | Predictive Fault Diagnosis Inter-Turn Short Circuit PM Motor based on Machine Learning Algorithms for Elevator Applications [000059]

Vasileios Vlachou, Theoklitos Karakatsanis, Dimitrios Efsthathiou

8:50 | Classification of Induction Motor Rotor Faults Using Graph Convolutional Neural Networks and Non-Intrusive Condition Monitoring Signals [000074]

Dimosthenis Plavos, Nikitas Tsinnas, Lazaros Sai Sofikitis, Zihao Song, Tiantai Deng, Panagiotis Panagiotou

9:10 | A Neuro-Fuzzy Approach for Broken Rotor Bar Fault Prediction in Induction Motors via Current Spectrum Analysis [000037]

Hadi Raja, Toomas Vaimann, Bilal Asad, Ants Kallaste, Muhammad Usman Sardar

9:30 | Machine Learning-Based Detection of Inter-Turn Short-Circuit Faults in Synchronous Machines Using Stray Flux Time-Domain Analysis [000031]

Mouad Talbaoui, Younes Azzoug, Sébastien Ramel, Remus Pusca, Eric Lefevre, Raphael Romary

9:50 | Convolutional Neural Networks and Thresholding Approaches for Single and Multi-Sensor Detection of Partial Discharges in Electrical Machine Stators [000018]

Andreas Rauscher, Julian Braun, Rainer Hiemer, Marcelo Lobo Heldwein, Christian Endisch

10:10 | Beta-Variational Autoencoder for Intern-Turn Short Circuit Fault Diagnosis in Dual Three-Phase Synchronous Motors [000076]

ANTONIO FEMIA, Gabriele Antonino Cagliari, Giacomo Sala, Gabriele Rizzoli, Yasser Gritili, Luca Zarri, Angelo Tani

Technical Track Schedule

Wednesday, August 27, 2025 |
8:30AM - 10:30AM

TT6 – Condition Monitoring and Fault tolerance in Power Electronics

Location: Room Heritage 2

Session Chairs: Giacomo Scelba

8:30 | Online Diagnosis of Open-Circuit Switching Faults in Multiport Solid-State Transformers

[000082]

Xin Gao, Jiangbiao He

8:50 | Parameter Estimation of a 5-Level Hybrid ANPC Using Ant Colony Algorithm

[000080]

Yi Luo, Pengwei Li, Uiliam Kutrolli, Ali Bazzi

9:10 | Robust Current Sensor Fault Tolerant Control of an Interleaved DC-DC Converter Based on EDSMO with MFPC

[000053]

Muhammad Salman, Irfan Sami, Sejir Khojet El Khil, Chiara Boccaletti

9:30 | Detection and Identification of Switching Faults in Boost Converters Using an HSVG Sensing Circuit

[000079]
Pengwei Li, Yi Luo, Ali Bazzi

9:50 | Machine Learning (ML)-Based Fault Detection Strategy for Power Switches in Electric Mobility

[000077]

Youngkeun Kim, Han-Shin Youn, Yeonho Jeong

10:10 | Experimental Investigation of Parallel-Connected SiC Power Devices during Active Short Circuit Events

[000061]

Antonio Giuseppe Eni, Tommaso Scimone, Luigi Danilo Tornello, Giacomo Scelba, Vittorio Giuffrida, Benedetto Amata, Mario Cacciato, Angelo Giuseppe Sciacca, Rosario Scollo

Technical Track Schedule

Wednesday, August 27, 2025 |
11:00AM - 12:40PM

TT7 - Condition Monitoring of Induction Machines - 2

Location: Room Heritage 1

Session Chairs: Konstantinos N. Gyftakis and Sang-Bin Lee

11:00 | Wideband Frequency Diagnosis for High-Sensitivity Turn-Insulation Degradation Estimation in Inverter-Fed Machines [000022]

Muhammad Usman Sardar, Toomas Vaimann, Lauri Kütt, Bilal Asad, Ants Kallaste, Hadi Raja

11:20 | Induction motor Low Frequency Torque Oscillation diagnostics through Circuit Breaker acquisitions [000057]

Marcello Minervini, Lorenzo Mantione, Lucia Frosini, Paolo Giangrande, Francesca Muzio

11:40 | Impact of inaccurate motor data on bearing current simulations [000032]

Diogo Sampaio Cesar Souza, Marco Túlio Alves Êvo, José Carlos Leão Veloso Silva, Francisco Raphael Ribeiro Bacellar, Hélder de Paula

12:00 | Multiple Principle Component Statistics for Bearing Condition Monitoring [000026]

Stefan Rakuff, Marius Rutkevicius, Rajib Mikail, Felix Sutton

12:20 | Determination of Motor Capacitances for Bearing Current and EMI Analysis in Variable Speed Drives [000016]

Felix Schulte, Matej Kontić, Martin Pfost

Technical Track Schedule

Wednesday, August 27, 2025 |
11:00AM - 12:40PM

TT8 - Fault Diagnostics and Fault Tolerance in Motor Drives - 2

Location: Room Heritage 2

Session Chairs: Davide S. B. Fonseca, Yaser Chulaee

11:00 | Thermal and Electrical Performance of Multilayer, Multifunctional Electrical Insulated Cylindrical and Cuboid Cables in Wide Body All-Electric Aircraft [000066]
Anoy Saha, Mona Ghassemi

11:20 | A Switchable 100% Stator Ground Fault Detection, Location, and Fault Resistance Estimation Method for Permanent Magnet Synchronous Machines [000024]
Jesús Mauricio Pérez García, Jose Manuel Guerrero Granados, Vanesa Valiño, Carlos Platero, Eugenio Perea Olabarria, Pablo Eguia

11:40 | The Impact of Inter-Turn Short Circuit Location Change on the Diagnostics Efficiency of a Multipole Switched Reluctance Motors [000056]
Mariusz Korkosz, Jan Prokop, Piotr Bogusz, Piotr Zasowski, Marcello Minervini

12:00 | Evaluation of the Applicability of Frequency Response Analysis to Rotating Electric Machines [000010]
Seungmin Shin, Hojun Lee, Changhoon Song, David Talavera, Carlos A. Platero, Sang Bin Lee

12:20 | Proposal for acceleration levels for antifriction bearings [000006]
Lucas Selonke Klaas

Technical Track Schedule

Wednesday, August 27, 2025 |
1:30PM - 2:50PM

TT9 –Condition Monitoring and Fault Tolerance
in Power Electronics and Storage

Location: Room Heritage 1

Session Chairs: Weiqiang Chen

1:30 | **Ground Fault Detection and Location Method for AC/DC/DC Converters with Supercapacitor Systems** [000008]

Aitor Blázquez-Campanon, Jose Manuel Guerrero Granados, Aritz Iturregi, Gustavo Navarro, Jorge Nájera, Marene Larruskain

1:50 | **DC Dielectric Strength Evaluation of Motor Winding Insulation for Aerospace Applications** [000041]

Easir Arafat, Farzana Islam, Mona Ghassemi

2:10 | **Comparison of Electric Field Suppression Techniques in (U)WBG Power Modules Under Unipolar and Bipolar Square Voltages at Varying High Frequencies** [000036]

Pujan Adhikari, Mona Ghassemi

2:30 | **A Novel Method for Fault Detection and Location in Supercapacitor Cells** [000015]

Aitor Blázquez-Campanon, Jose Manuel Guerrero Granados, Aritz Iturregi, Gustavo Navarro, Eduardo Rausell, Marene Larruskain

Wednesday, August 27, 2025 |
1:30PM - 2:50PM

TT10 - AI and Signal Processing Techniques for Fault
Detection in Electrical Machines and Drives

Location: Room Heritage 2

Session Chairs: Liwei Zhou, Yaser Chulaee

1:30 | **Simulation-to-Reality Domain Adaptation for Motor Fault Detection** [000044]

Dai-Yan Ji, Bingnan Wang, Hiroshi Inoue, Makoto Kanemaru

1:50 | **Early Anomaly Detection in Wind Turbine Generators Using SCADA Data** [000049]

Fazlur Rahman Bin Karim, Nanhong Liu, Jie Zhang

2:10 | **Application of Signal Decomposition Methods for Axial Flux PMSM Demagnetization Feature Extraction and Fault Diagnosis** [000028]

Konstantinos Koutrakos, Apostolos Lamprokostopoulos, Epameinondas Mitronikas

2:30 | **Reinforcement Learning-Based Fault-Tolerant Control for Open Switch Fault Diagnosis in Dual Active Bridge DC-DC Converters** [000060]

Seunggyu Roh (Video Recorded) **Withdrawn**

SDEMPED 2025

SPECIAL SESSIONS

Special Session Schedule

Tuesday, August 26, 2025 |
8:30AM - 10:30AM

Memorial Session ROQUE OSORNIO-RIOS

Location: Room Heritage 4

Session Chairs: Jose A. Antonio-Daviu and Israel Zamudio Ramirez

8:30 | Sound Analysis for Speed Estimation of Induction Motors under Non-stationary Conditions [000035]

Tomas Garcia-Calva, Konstantinos Gytakis, Daniel Morinigo-Sotelo

9:50 | Synchronous Machine Salient Pole FRA Signature Modelling via Hybrid Methodology [000062]

Jose E. Ruiz-Sarrio, Jose Manuel Guerrero Granados, Carlos Platero, Jose Antonino Daviu

8:50 | Misalignment diagnosis in induction motors by analyzing the stray flux magnitude trajectory [000048]

Carlos A. Alvarez-Ugalde, Jonathan Cureno Osornio, Israel Zamudio, Dunai Larisa, Jose Antonino Daviu

10:10 | Bearing Fault Analysis in Synchronous Reluctance Motor through the Analysis of Statistical Indicators [000064]

Angela Navarro, Jose E. Ruiz-Sarrio, Israel Zamudio-Ramirez, Vicente Biot-Monterde, Jose Antonino Daviu

9:10 | A novel visualization methodology for characterizing magnetic flux sensors in induction motors: discrimination properties insights [000050]

Luis Morales Velazquez, Geovanni Díaz Saldaña, Arturo Jaen, Jose E. Ruiz-Sarrio, Dunai Larisa, Jose Antonino Daviu

9:30 | Stray Flux Signal Analysis for Bearing Fault Detection in Induction Motors: A Chaos-Based Approach [000051]

Gerardo Avalos Almazan, Gloria Sarahi Aguayo-Tapia, Jose Rangel-Magdaleno, Jose Antonino Daviu, Jose E. Ruiz-Sarrio, Dunai Larisa

Special Session Schedule

Tuesday, August 26, 2025 |
11:00AM - 1:00PM

FEM-based Condition Monitoring and Diagnostics of Electrical Machines

Location: Room Heritage 4

Session Chairs: Konstantinos N. Gyftakis

11:00 | A Comparative Investigation of Stator Fault Diagnostics in Induction Motors by Multivariable Monitoring and Finite Element Simulations [000055]

Zihao Song, Bertrand Morin, Raja Toqeer, Jonathan Mayo-Maldonado, Konstantinos Gyftakis, Panagiotis Panagiotou

11:20 | Convolutional & Spiking Neural Networks for the Efficient Classification of Rotor Faults in Induction Motors via Stator Current and Stray Flux Signals [000070]

Haihang Xia, Xinyu Zhao, Zihao Song, Lazaros Sai Sofikitis, Yuqin Zhao, Panagiotis Panagiotou

11:40 | Multiple core computation-based hybrid FEM–Analytical Model of Induction Motor for Fault Diagnostics [000029]

Carla Terron-Santiago, Jordi Burriel-Valencia, Angel Sapena-Bano, Javier Martinez-Roman, Martin Riera-Guasp

12:00 | Analysis and Diagnosis of Inter-Turn Short Circuit Faults in Dual Rotor Air-Cored PMSG - Series Connected Stator Coils [000034]

Alexandros Sergakis, Nikolaos Gkiolekas, Markus Mueller, Konstantinos Gyftakis

12:20 | A Non-Invasive Method for the Estimation of Inter-Turn Short-circuit Currents in Induction Motors [000012]

Jorge Bonet Jara, Lorenzo Mantione, Lucia Frosini, Joan Pons-Llinares **[Recording]**

12:40 | Comparative Analysis of Complete Demagnetization in Permanent Magnet Synchronous Motor Topologies [000027]

Raymond Birasa, Claudia Martis, Doha Kamal Mohamed Idris **Withdrawn**

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STUDENT DEMOS

Student Demo Schedule

Wednesday, August 27, 2025 |
11:00AM - 12:00PM

Location: Heritage Foyer

(1) Title: Online Diagnosis of Open-Circuit Switch Faults in Multiport DC Solid-State Transformers

Student: Xin Gao

Advisor: Jiangbiao He

Affiliation: University of Tennessee

(2) Title: Comparison of a Hybrid CHB Inverter Using Si, SiC, and GaN Power Devices

Student: Yi Luo, Pengwei Li, Uiliam Kutrolli

Advisor: Ali Bazzi

Affiliation: University of Connecticut

(3) Title: A Single Phase 5-Level ANPC Converter with Fault Tolerance and Self-Healing Configurations

Student: Pengwei Li

Advisor: Ali Bazzi

Affiliation: University of Connecticut

(4) Title: Combining Machine Learning and Magnetic Flux Measurement for Enhanced Motor Fault Detection

Student: Obinna Vitus Onodugo

Advisor: Emmanuel B. Agamloh

Affiliation: Baylor University

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EXHIBITS

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EXHIBIT FLOOR PLAN

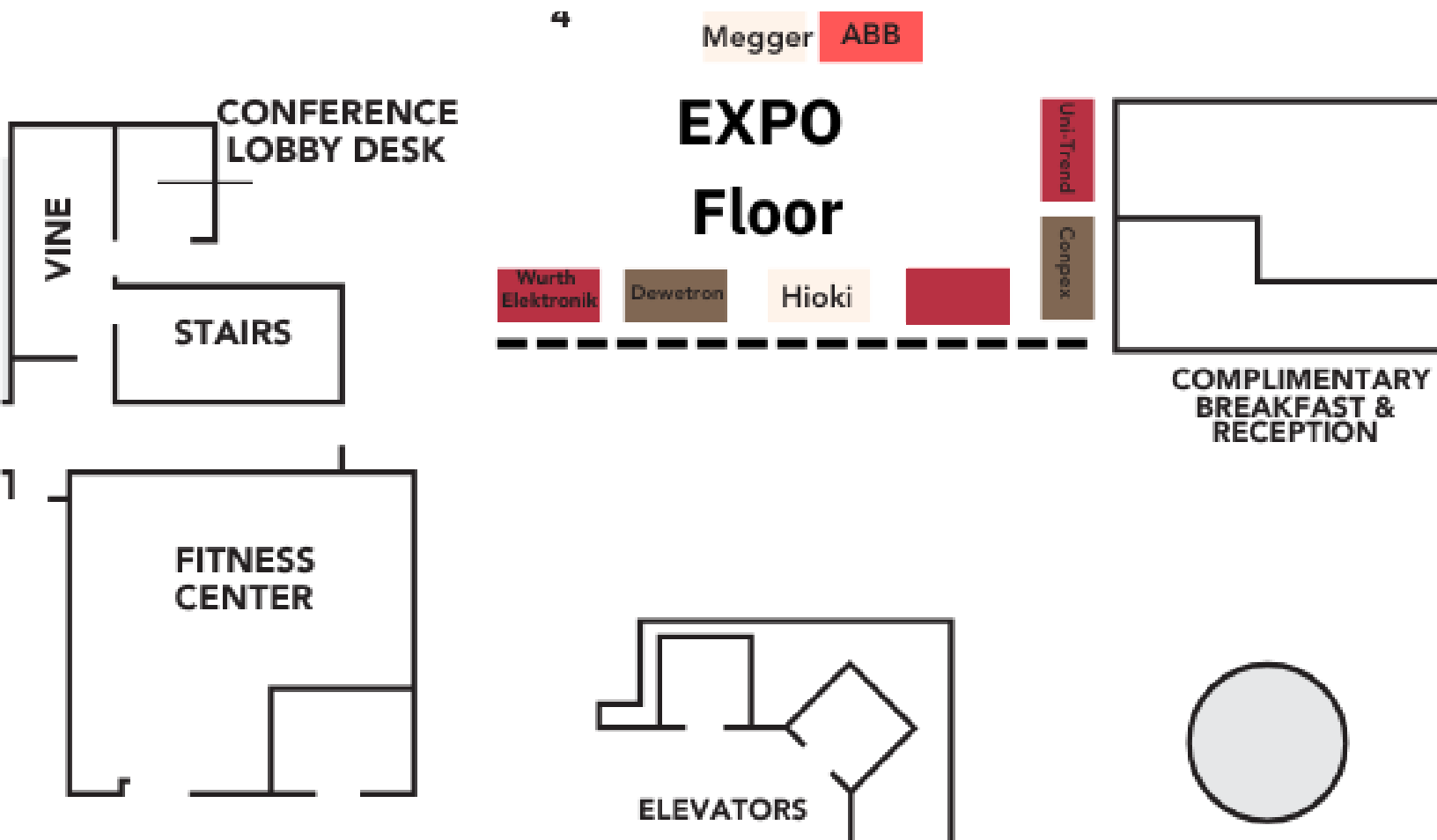


Exhibit Directory

Booth 1 - Megger

Booth 2 - ABB

Booth 3 - Uni-Trend

Booth 4 - CONPEX

Booth 5 -

Booth 6 - Hioki

Booth 7 - Dewetron

Booth 8 - Würth Elektronik

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ABB

Booth # 2 new.abb.com/us

The U.S. represents ABB's largest single growth market, which is why we've invested more than \$14 billion here since 2010. In addition to plant expansions, ABB has dramatically expanded its US operations with acquisitions including Baldor (motors), Thomas & Betts (low-voltage products), and General Electric Industrial Solutions (electrification products).



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Bronze Exhibitors

UNI-T

Booth # 3

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Booth # 4 <https://engineering.uconn.edu>

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