

# ICEM 2026 Preliminary Program

## ***Oral Session 1***

### **Design and Thermal Management of High-Specific-Power Electrical Machines**

Date: Monday, 07 September 2026

Time: 14:00–15:40

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| 14:00 | ICEM26-000497<br><br>Thermal Investigation and Validation of Litz Wire Hollow Conductors for Electrical Machines<br><br>Folke Schwinning, Jana Ihrens, Thorsten Alexander Kern                                                                                             |
| 14:20 | ICEM26-000367<br><br>Performance of Liquid-Cooled Hollow Conductors for High Torque Density Electric Motors<br><br>Lino Di Leonardo, Edoardo Sech, Daniele Di Gregorio, Francesco Tripaldi, Samuele Nizzardo, Antonio Rossi, Alberto Benato, Anna Stoppato, Nicola Bianchi |
| 14:40 | ICEM26-000291<br><br>Experimental determination of thermal contact conductance between laminated cores and housings in electrical machines<br><br>Tobias Heidrich, Andreas Möckel                                                                                          |
| 15:00 | ICEM26-000065<br><br>Direct Liquid Cooling Technology Development for Traction Motors<br><br>Pratik Bisale, Hüseyin Canseven, Juha Pyrhönen, Lassi Aarniovuori, Dong Liu, Juho Montonen                                                                                    |
| 15:20 | ICEM26-000585<br><br>Impact of Cooling Channel Shape on the Performance of Hollow Hairpin Windings<br><br>Hüseyin Canseven, Pratik Bisale, Ilya Petrov, Lassi Aarniovuori, Juho Montonen, Juha Pyrhönen                                                                    |

## **Oral Session 2**

### **Next-Generation Electrified Transport: Advances in Electric Drive System**

Date: Monday, 07 September 2026

Time: 14:00–15:40

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| 14:00 | ICEM26-000268<br><br>Range-Selected Multi-Objective Optimization for Outer-Rotor Flat-Wire In-Wheel Machines With AC Loss Correction<br><br>Haolin Li, Zhongze Wu, Wei Hua                                                                |
| 14:20 | ICEM26-000592<br><br>Optimization and Comparison of 3-D Flux PMSMs Based on an Equivalent 2-D Finite Element Method<br><br>Juri Tessaro, Alexander Smith, Juntao Shi, Shota Hirose, Zhaokai Li, Matteo Felice Iacchetti                   |
| 14:40 | ICEM26-000269<br><br>A Deep Learning Based Magnetic Field Surrogate Modeling Method for Interior Permanent Magnet Machine in EVs<br><br>Wentao Zhang, Zhongze Wu, Wei Hua                                                                 |
| 15:00 | ICEM26-000369<br><br>Impact of Zero Sequence Currents on Unbalanced Magnetic Force in Dual Three-Phase PMSMs with Modular Star-Delta Windings<br><br>Yuwen XU, Mehdi Baghdadi, Shun Cai, Libin Cui                                        |
| 15:20 | ICEM26-000233<br><br>Performance and Mechanical Integrity of a Printed Circuit Board-Based Brushless Excitation System for Electrically Excited Synchronous Machines<br><br>Andreas Baehr, Lukas Elbracht, Felix Burkard, Nejila Parspour |

### **Oral Session 3**

#### **Design Issues (Optimization, Modeling and Simulation) 1**

Date: Monday 07 September 2026

Time: 14:00–15:40

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| 14:00 | ICEM26-000469<br><br>Quasi-3D Finite-Element Analysis of Eddy Currents in the Segmented Permanent Magnets of Permanent-Magnet Synchronous Machines<br><br>Herbert De Gersem, Cecilia Pagnozzi do Nascimento, Karsten Müller, Andreas Wanke, Yves Burkhardt |
| 14:20 | ICEM26-000238<br><br>Comparative Study for Demagnetization of an Axial Flux PMSM using 3D and Quasi-3D models<br><br>Rutger Gysen, Mohamed Ibrahim, Peter Sergeant                                                                                         |
| 14:40 | ICEM26-000113<br><br>Slip Coupler Static Finite Element Harmonic Analysis for Wind Turbine Applications<br><br>Ryno Gerber, Maarten Kamper                                                                                                                 |
| 15:00 | ICEM26-000650<br><br>Impedance Calculation of Windings at High Frequencies Using 3-D Full-Wave Finite Element Models<br><br>Themistoklis D. Kefalas, Antero Marjamäki, Lari Skyttä, Joonas Vesa, Timo Tarhasaari, Paavo Rasilo                             |
| 15:20 | ICEM26-000020<br><br>Copper Conductor Fusion Modelling in Electrical Machines Under Fault Currents<br><br>Hadi Naderiallaf, Kuldeep Singh, Muhammad Khowja, Gaurang Vakil, Michele Degano, Christopher Gerada                                              |

## **Oral Session 4**

### **Electrical Drives 1**

Date: Monday 07 September 2026

Time: 14:00–15:40

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| 14:00 | ICEM26-000438<br><br>A Comparative Study between Network Analysis and Modal Analysis for Predicting the Wave Propagation in Hairpin Windings under Common-Mode Excitation<br><br>Cara-Nastasja Behrendt, Allan de Barros, Bernd Ponick                                             |
| 14:20 | ICEM26-000587<br><br>Switching Frequency Signal Injection Sensorless Control for Synchronous Motors via Flux Linkage Demodulation<br><br>Federico Centi, Andrea Credo, Floran Martin, Eleftherios Kontodinas, Marko Hinkkanen                                                      |
| 14:40 | ICEM26-000415<br><br>Robust Inductance Estimation for SPMSM Drives from Unperturbed Operational Data with Informed Monte Carlo Uncertainty Assessment<br><br>Elia Brescia, Luigi Pio Savastio, Nicola Saltarelli, Angelo Carrieri, Giuseppe Leonardo Cascella, Francesco Cupertino |
| 15:00 | ICEM26-000010<br><br>A Hybrid Adaptive Observer for Rotor Current Estimation in Six-Phase Induction Motors<br><br>João Serra, Rafaela Bento, Fernando Bento, Antonio J. Marques Cardoso                                                                                            |
| 15:20 | ICEM26-000561<br><br>Position-Dependent Current Optimization for Synchronous Reluctance Machines<br><br>Samar Alhaj Hassan, Vincent Lechappe, Romain Delpoux, Xavier Brun                                                                                                          |

## **Oral Session 5**

### **Diagnostics and Condition Monitoring 1**

Date: Monday, 07 September 2026

Time: 14:00–15:40

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| 14:00 | <p>ICEM26-000394</p> <p>A Systematic Detection, Segregation, and Quantification of Spectral Components in a Grid and Inverter-fed Induction Motor Spectra</p> <p>Mehroz Fatima, Toomas Vaimann, Bilal Asad, Ants Kallaste, Muhammad Usman Naseer, Sumeet Khalid, Waqas Sarwar</p> |
| 14:20 | <p>ICEM26-000089</p> <p>Stray flux based Identification of Rotor Faults for VFD-fed Induction Motors under Speed and Load Transients</p> <p>Suhong Jeong, Muhammad Faizan Shaikh, Seungmin Shin, Jose E. Ruiz-Sarrio, Jose Antonino Daviu, Sang Bin Lee</p>                       |
| 14:40 | <p>ICEM26-000200</p> <p>The Impact of Loading On the Detectability of Rotor Electrical Faults by Harmonic Isolation</p> <p>Zihao Song, Ioannis Arvanitakis, Jonathan Mayo-Maldonado, Konstantinos Gyftakis, Zi-Qiang Zhu, Panagiotis Panagiotou</p>                               |
| 15:00 | <p>ICEM26-000550</p> <p>Evaluation of Insulation System Degradation Caused by High-Frequency Stress in Hairpin Windings</p> <p>Sebastian Lengsfeld, Katharina Thiemann, Matthias Kalla, Marco Jung</p>                                                                            |
| 15:20 | <p>ICEM26-000457</p> <p>Bimodal Flux–Vibration Analysis for Reliable Bearing Fault Detection in Induction Motors</p> <p>Gerardo Avalos Almazan, Gloria Sarahi Aguayo-Tapia, Jose Rangel-Magdaleno, Jose Antonino Daviu, Jose E. Ruiz-Sarrio, Dunai Larisa</p>                     |

## **Oral Session 6**

### **Electrical Machines and Drives for Sustainable Transportation 1**

Date: Monday, 07 September 2026

Time: 14:00–15:40

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| 14:00 | ICEM26-000086<br><br>Design and Performance Analysis of a Wound-Field Brushless Exciter for 125 kW Aircraft Integrated Starter Generator<br><br>Tuan Nguyen, Tae-Kyoung Bang, Thi-Ly Vu, Jae-beom Kang, Hyeong-Jin Kim, Ji-Young Lee |
| 14:20 | ICEM26-000198<br><br>Design of HRE-free Traction Motors Considering a Mixed Fault-Reaction Strategy<br><br>Jamie Washington, Steven Jordan, Silvio Vaschetto, Gianmario Pellegrino, Gustavo Garbelini de Menezes, Simone Ferrari     |
| 14:40 | ICEM26-000553<br><br>Preliminary Design of EESMs using the (x,b) Plane<br><br>Federica Graffeo, Silvio Vaschetto, Gianmario Pellegrino, Edoardo Lagorio, Simone Ferrari                                                              |
| 15:00 | ICEM26-000406<br><br>Design and Comprehensive Comparison of CFRP-Wrapped IPM Motors for Electric Vehicle Traction<br><br>Ryoma Zuki, Kenji Nakamura, Hideaki Goto, Takaki Itaya, Akeshi Takahashi                                    |
| 15:20 | ICEM26-000247<br><br>Fail Safe Steering System for the Autonomous Electric Off-Road Mobile Machinery<br><br>Mostafa Elhofy, Mikko Huova, Tatiana Minav                                                                               |

## **Poster Session 1**

Date: Monday, 07 September 2026

Time: 15:40–16:40

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| ICEM26-000131<br>Magneto-Mechanical Assessment of Hot Isostatic Pressed Multi-Material Structures with Application to High-Speed Rotors for Synchronous Reluctance Machine<br>Maksim Sitnikov, Julien Taurines, Anouar Belahcen                            |
| ICEM26-000156<br>Design and Measurement Analysis of an Additively Manufactured Synchronous Reluctance Motor<br>Marius Behrendt, Michael Haase, Bernd Ponick                                                                                                |
| ICEM26-000353<br>Design of a Permanent Magnet Transverse Flux Machine Featuring a Additively Manufactured Claw-type FeSi3 Stator<br>Tomas Paveza, Michal Freisleben, Roman Pechanek                                                                        |
| ICEM26-000160<br>Numerical Investigation of Gas-Liquid Two-Phase Flow and Heat Transfer Characteristics in Fully Immersed Cryogenic Pump Motors<br>zhenglin li, Yuanzhi Zhang, Yang Nie, Fulang Liu, Dawei Li, Ronghai Qu, Yi Cheng, Hao Chen, Linshan Jin |
| ICEM26-000288<br>Selection and Analysis of Superconducting Machine Concepts with Stationary Cryogenic Windings for Electric Aircraft Applications<br>Pratik Bisale, Dong Liu, Lassi Aarniovuori, Juha Pyrhönen                                             |
| ICEM26-000033<br>A Simple Sine <sup>2</sup> Half-wave Radial Force Shaping Strategy for NVH Improvement in Switched Reluctance Motors<br>Barrie Mecrow, Jiashuai Li, Xu Deng                                                                               |
| ICEM26-000333<br>Numerical and Experimental Analysis of Direct Oil Cooling Mechanisms in EV Traction Motors<br>Ioannis Alonistiotis, Athanasios Sarigiannidis, Antonios Kladas, Joseph Rosenfeld, Ioannis Karathanassis, Manolis Gavaises                  |
| ICEM26-000612<br>Experimental Study of Effective Oil Percentage in the Airgap of an Oil-Jet-Cooled Electrical Machine<br>Xuebei Zhang, Zeyuan Xu, Fengyu Zhang, Chris Gerada, David Gerada                                                                 |
| ICEM26-000032<br>Dielectric Dissipation Factor Measurement on Rotating Machine Complete Windings – A Use Case Collection<br>Fabian Öttl, Michael Krueger, Tomasz Bednarczyk                                                                                |

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| <p>ICEM26-000267</p> <p>Parameter and Topology Optimization for Interior Permanent Magnet Synchronous Motor with Mixed Discrete and Continuous Variables Using Deep Reinforcement Learning and CMA-ES</p> <p>Hiroki Kohari, Hidenori Sasaki, Daisuke Nakagawa, Tomoya Ueda, Masanori Watahiki</p> |
| <p>ICEM26-000287</p> <p>Finite-Control-Set Model Predictive Control Strategy for Five-Phase Series-End Winding Drives</p> <p>Pedro de Lucas Garcia-Garcia, Rafael Lara López, Juan Carrillo-Rios, Raúl Sánchez-González, Ignacio González-Prieto, Mario Duran</p>                                 |
| <p>ICEM26-000487</p> <p>Control of an Open-End Winding Six-Phase Induction Motor Drive Using a Floating Capacitor Bridge</p> <p>Michele Mengoni, Gabriele Rizzoli, Luca Zarri, Angelo Tani</p>                                                                                                    |
| <p>ICEM26-000545</p> <p>Modeling and Analysis of a High-Power-Density Fault-Tolerant Dual-Star Five-Phase Generator</p> <p>Parfait Sanni, Thierry Lubin, Smail Mezani, Ehsan Jamshidpour</p>                                                                                                      |
| <p>ICEM26-000464</p> <p>Analytical Design Framework for Synchronous Reluctance Motors for Urban Air Mobility</p> <p>Francesco Tripaldi, Nicola Bianchi</p>                                                                                                                                        |
| <p>ICEM26-000575</p> <p>Air-Cooled In-Wheel Motors with a Novel Rotary-Fin Structure for Motorcycles</p> <p>Tetsuya Suto, Akeshi Takahashi</p>                                                                                                                                                    |
| <p>ICEM26-000419</p> <p>Transfer Learning – Based Diagnosis of Rotor Cage Bars and Stator Windings Using Unipolar Flux Signal</p> <p>Mateusz Krzysztofiak, Jakub Zielonka, Maciej Skowron, Maciej Sulowicz</p>                                                                                    |
| <p>ICEM26-000102</p> <p>Reinforcement Learning-based Operating Point Selection for Torque Control of Permanent Magnet Synchronous Motors</p> <p>Maximilian Schenke</p>                                                                                                                            |
| <p>ICEM26-000589</p> <p>Experimental Investigation of Oil Spray Cooling for Electric Machine End Windings</p> <p>Payam Shams Ghahfarokhi, Antonio J. Marques Cardoso, Paavo Rasilo</p>                                                                                                            |
| <p>ICEM26-000446</p> <p>A New Hybrid Permanent Magnet Spoke-type Rotor with Arc-Shaped Ferrite Magnets</p> <p>Akbar Mohammadi Ajamloo, Frederik Desmet, Joachim Druant, Steven Vanhee, Mohamed Ibrahim, Peter Sergeant</p>                                                                        |
| <p>ICEM26-000519</p> <p>Comparative Study on Data-Driven Surrogate Models for Permanent Magnet Motors</p> <p>Xiubo Jiang, Xu Qiushi, Hengliang Zhang, Wei Hua</p>                                                                                                                                 |

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| <p>ICEM26-000309</p> <p>Analysis and Design of a Spoke-Type Axial-Flux Permanent-Magnet Machine with Ferrite Magnets for Direct-Drive Applications</p> <p>Rujian Guo, Wilfried Hofmann</p>                                                                                                |
| <p>ICEM26-000317</p> <p>Experimental Investigation and Loss Analysis of a Permanent Magnet Synchronous Motor with Distributed Tooth-Coil Winding</p> <p>Daniel Dieterich, Katrin Schake, Marco Garbe, Sven Urschel</p>                                                                    |
| <p>ICEM26-000344</p> <p>Benefits of Adopting Bridge-less Rotor with Carbon Fiber Reinforcement in High-Speed IPM Motors</p> <p>Lino Di Leonardo, Ludovico Ortombina, Nicola Bianchi, Fabio Tinazzi, Andrea Credo, Federico Centi, Francesco Parasiliti, Giuseppe Fabri, Marco Villani</p> |
| <p>ICEM26-000468</p> <p>Design of a Synchronous Condenser for Maintenance of Bus Voltage Stability</p> <p>Michael Murray-Smith, Karen Garner</p>                                                                                                                                          |
| <p>ICEM26-000507</p> <p>Experimental High-Speed Characterisation and Performance Evaluation of a Synchronous Reluctance Machine with Mechanical Limit Analysis</p> <p>Nijan Yogal, Andreas Zörnig</p>                                                                                     |
| <p>ICEM26-000622</p> <p>Thermal Feasibility of a High Speed Solid Rotor Induction Machine Using LPTN and CFD Method</p> <p>Tokzhan Toleukaiyr, Felipe Ortiz-Bustos, Aki Grönman, Pia Lindh, Teemu Turunen-Saaresti, Janne Nerg</p>                                                        |
| <p>ICEM26-000670</p> <p>Optimization of a Slitted-Rotor Core Synchronous Reluctance Motor with an Auxiliary Stator Capacitive Winding</p> <p>Mbika Muteba, Samuel Adjei-Frimpong</p>                                                                                                      |
| <p>ICEM26-000079</p> <p>Impact of Axial Magnetic Flux Density on the Acoustic Behavior of Rotor Skewed PMSMs</p> <p>Sijie Ni, Karine Degrendele, Lucas Podvin</p>                                                                                                                         |
| <p>ICEM26-000134</p> <p>Design, Optimization and Experimental Investigation of Small-Scale Multiphase Axial-Flux Machines with Asymmetric Magnetic Circuit</p> <p>Felix Pöschl, Tobias Zaiczek, Tobias Schillinger, Thomas Schuhmann, Ralf Tautenhahn</p>                                 |
| <p>ICEM26-000272</p> <p>Parameter Estimation of Electric Machines Using The Equivalent Circuit Method: A Review</p> <p>Polina Legzdina, Roman Pechanek</p>                                                                                                                                |

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| ICEM26-000359                                                                                                                                            |
| A Hybrid Approach for Efficiency Map Generation of a Small Induction Motor                                                                               |
| Martin Světlík, Jakub Rosendorf, Lassi Aarniovuori, Martin Mach, Jan Barta, Gerd Bramerdorfer                                                            |
| ICEM26-000383                                                                                                                                            |
| Rotor design challenges for the dual-stator axial flux electrical machine topology                                                                       |
| Gyorgy Kulcsar, Robert Kulcsar, Ioan-Claudiu Cotovanu, Matei Salomie, Abderrahmane Rebhaoui, Bogdan Butnariu, Ioan Deac, Valerian Vigier, Maximilian Ruf |
| ICEM26-000409                                                                                                                                            |
| An Accurate Hybrid Analytical Model for Strand-Level Winding Loss Prediction in Surface-Mounted PM Machines Considering Magnetic Saturation              |
| Wenting Wang, Tianjie Zou, Hao Yin, Dmitry Golovanov, Lijian Wu, David Gerada, Michele Degano, Chris Gerada                                              |
| ICEM26-000528                                                                                                                                            |
| Optimization Design of Interior Permanent Magnet Motors Considering Inductance Variations                                                                |
| Chunbing Wang, Ze Jiang, Jianxin Shen, Huan Yang, Lijia Yang, Xiaoyan Huang                                                                              |
| ICEM26-000551                                                                                                                                            |
| A Multi-Objective Bayesian Optimization for Machine Design with Constraints on Designs                                                                   |
| Lukáš Adam, Jan Laksar, Polina Legzdina, Haitao Zhu, Vaclav Šmídl, Zdeněk Peroutka                                                                       |
| ICEM26-000598                                                                                                                                            |
| Energy Consumption Estimation of Pump System with VFD for Reverse Osmosis Desalination                                                                   |
| Levon Gevorgov, José Luis Domínguez-García, Lluís Trilla                                                                                                 |
| ICEM26-000637                                                                                                                                            |
| Saturation effects in Axial Flux Electrically Excited Synchronous Machines                                                                               |
| Christian Du-Bar, Sonja Karin Tidblad Lundmark, Per Forsberg                                                                                             |
| ICEM26-000683                                                                                                                                            |
| A Novel Oil-Flooded Stator Cooling Topology Without Air-Gap Oil-separating sleeve                                                                        |
| Jinyan Lin, Haiyang Fang, Hantao Shen, Fulang Liu, Dawei Li, Ronghai Qu                                                                                  |
| ICEM26-000225                                                                                                                                            |
| Design Modification of Hydraulic-Magnetic Actuator for Enhanced Torque Generation                                                                        |
| Trung Duong, Fabian Frech, Arda Tueysuez, Matthias Biskoping                                                                                             |
| ICEM26-000278                                                                                                                                            |
| Experimental Verification of Orthogonal-Core-Type Variable Inductor with Soft Magnetic Composites and Feasibility Study for Reactive Power Compensator   |
| Hayato Hatakeyama, Kenji Nakamura, Kenji Arimatsu                                                                                                        |
| ICEM26-000279                                                                                                                                            |
| Optimization of Slot Geometry and Amplitude Index in a Multi-Turn Toroidal Resolver Using the Magnetic Equivalent Circuit Method                         |
| Fateme Zare, Salman Abdi Jalebi                                                                                                                          |

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| <p>ICEM26-000122</p> <p>Coil Immersion Oil Cooling Technology for Improving Continuous Output</p> <p>Takaki Itaya, Akihito Toya, Hideaki Goto, Akeshi Takahashi</p>                                                                                               |
| <p>ICEM26-000621</p> <p>Circuit Modeling of Nanocrystalline Transformers under Square-Wave Excitation</p> <p>Vittorio Bertolini, Michele Quercio, Lorenzo Sabino, Marco Stella, Antonio Faba, Francesco Riganti Fulginei, Fabio Crescimbeni, Ermanno Cardelli</p> |
| <p>ICEM26-000663</p> <p>Closed-Loop Thermal Boosting Control for Accelerated Calorimetric Loss Measurements of Electric Machines</p> <p>Jasper Nonneman, Ilya T'Jollyn, Jeroen De Kooning, Michel De Paepe</p>                                                    |
| <p>ICEM26-000044</p> <p>Electromechanical torque ripple minimization for SynRel machines based on adaptive cancellation scheme</p> <p>Samar Alhaj Hassan, Romain Delpoux, Vincent Lechappe, Xavier Brun, Maxime Grosso</p>                                        |
| <p>ICEM26-000098</p> <p>Control and Optimization of a Wound Rotor Synchronous Machine-Based Integrated Charger for Electric Vehicles</p> <p>Malik Qamar Abbas, Gabriele Rizzoli, Michele Mengoni, Luca Vancini, Luca Zarri, Angelo Tani</p>                       |
| <p>ICEM26-000289</p> <p>Control Strategies to Reduce Torque Pulsation in Electrically Excited Synchronous Machines</p> <p>Leander Eschenmann, Jonas Jansen, Christian Nörenberg, Bernd Ponick</p>                                                                 |
| <p>ICEM26-000380</p> <p>Hyperparameter Optimization for Differentiable Predictive Torque Control of Permanent Magnet Synchronous Motors</p> <p>Ali Hassan Ali Abdelwanis, Oliver Wallscheid</p>                                                                   |
| <p>ICEM26-000659</p> <p>Real-Time DC-Link Fault Detection in Induction Motor Drives</p> <p>Rafaela Bento, João Serra, Fernando Bento, Antonio J. Marques Cardoso</p>                                                                                              |
| <p>ICEM26-000675</p> <p>Comparative Analysis of a Bearingless Permanent Magnet Synchronous Machine Fed by ANPC Three-Level and Two-Level Inverter</p> <p>Maximilian Weigelt, Fabian Lorenz, Thomas Schuhmann</p>                                                  |
| <p>ICEM26-000129</p> <p>Detection of Shaft Misalignment in Synchronous Reluctance Machines by Utilizing its Signatures in Current and Vibration Spectra</p> <p>Epameinondas Mitronikas, Konstantinos Ptochos, Konstantinos Koutrakos</p>                          |

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| ICEM26-000285                                                                                                                                          |
| Zero-shot Unsupervised Anomaly Detection in Induction Motor Bearings Using Stator Current and Time-Series Foundation Models                            |
| Luigi Gianpio Di Maggio, Jose Antonino Daviu, Jose E. Ruiz-Sarrio                                                                                      |
| ICEM26-000315                                                                                                                                          |
| Airgap and stray fluxes diagnostics for early detection of rotor winding faults in hydroelectric generators                                            |
| Simon Bernier, Kamal Al-Haddad, Arezki Merkhoul, Olivier Kokoko                                                                                        |
| ICEM26-000424                                                                                                                                          |
| A Novel ITSC Fault Detection and Severity Evaluation Method for Doubly Fed Induction Generators Based on Recursive Estimation of Electrical Parameters |
| Ben-Hur Montel, Mateus Giesbrecht                                                                                                                      |
| ICEM26-000679                                                                                                                                          |
| Robust Rotor Fault Diagnosis in Induction Motors Using Stray-Flux Spectral Power Integration and Median-Based Statistics                               |
| Leonardo Burgos, Carlos Madariaga, Jose E. Ruiz-Sarrio, César Gallardo, Juan Tapia, Jose Antonino Daviu                                                |
| ICEM26-000564                                                                                                                                          |
| Comparative Evaluation of PM-Assisted Reluctance and Spoke-Type Rotors for Axial-Flux Motor                                                            |
| Nan Guo, Xiaoze Pei, Xianwu Zeng                                                                                                                       |
| ICEM26-000576                                                                                                                                          |
| Benchmarking REE-and-Magnet-Free Traction Electric Machines Against PMSM for EV Applications                                                           |
| Meng-Ju Hsieh, Emma Arfa Grunditz, Torbjörn Thiringer, Joachim Lindström, Rishabh Raj, Marcelo Silva                                                   |
| ICEM26-000671                                                                                                                                          |
| Accelerated Multi-Physics Design Optimization Framework for EV Traction Motors Based on Ensemble Surrogate Modeling with Active Learning               |
| Robin Wilson, Praveen Kumar, Ayman EL-Refaie                                                                                                           |
| ICEM26-000655                                                                                                                                          |
| First approaches to retrofitting small wind turbine AFPM generators for active rectification                                                           |
| Marek Tarasiewicz, Adrien Prevost, Benoit Delinchant, Kostas Latoufis                                                                                  |

## **Oral Session 7**

### **Towards Sustainable Electrical Machines: From Materials and Design to Circularity and Life-Cycle Impact**

Date: Monday, 07 September 2026

Time: 16:40–18:20

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| 16:40 | ICEM26-000150<br><br>Evaluation of Expandable Slot Liners for Reversible, Adhesive-Free Magnet Fixation in Electric Motors<br><br>Roman Hahn, Simon Stauber, Tobias Zürrlein, Anja Preitschaft, Thorsten Ihne, Jörg Franke, Florian Risch |
| 17:00 | ICEM26-000461<br><br>A Voxel Based MEC Method to Simulate the Recyclable Soft Magnetic Materials of the Future<br><br>Adrian Schäfer, Parisa Rezapour, Mojgan Zare, Mathias Liewald, Nejila Parspour                                      |
| 17:20 | ICEM26-000110<br><br>Beyond Wet Processes: Sustainable Insulation Materials and End-of-Life Strategies for Electrical Machines<br><br>Umair Paracha, Richard McMahon, Sul Ademi                                                           |
| 17:40 | ICEM26-000112<br><br>Recovery potential of Rare Earth Elements from Permanent Magnet Synchronous Motors<br><br>Andrija Jeknić, Roman Manko, Selma Čorović, Alen Alić, Danijel Rodić, Urban Rupnik, Mario Vukotić, Damijan Miljavec        |
| 18:00 | ICEM26-000632<br><br>Traction to Turbine: A Circular Economy Approach to Decentralized Wind Energy in Sub-Saharan Africa<br><br>Oreoluwa Olubamiwa, Stefan Botha, Nkosinathi Gule, Udochukwu Akuru                                        |

## **Oral Session 8**

### **Rotating Machines 1**

Date: Monday, 07 September 2026

Time: 16:40–18:20

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| 16:40 | ICEM26-000418<br><br>Design and Analysis of a Ribless Synchronous Reluctance Machine with Dovetail Mortise-Tenon Joints<br><br>Junhao Li, Chen Zhang, Mingyang Bao, Jifeng Cao, Yawei Wang, Ronghai Qu, Nicola Bianchi                     |
| 17:00 | ICEM26-000053<br><br>Stator MMF Harmonic Selective Elimination for Pole-Frequency Vibration Suppression in Fractional-Slot PMSMs<br><br>Miao Wang, Haiyang Fang, Hao Hu, Dawei Li, Ronghai Qu                                              |
| 17:20 | ICEM26-000172<br><br>The development of the 100kW fully superconducting axial flux motor: HTS rotor design, charging, and testing.<br><br>Roshan Parajuli, Alexander Shchukin, Ercan Ertekin, Weijia Yuan, Min Zhang, Hengpei Liao         |
| 17:40 | ICEM26-000427<br><br>Analytical Calculation of Winding Eddy Current Losses using a Magnetic Equivalent Circuit<br><br>Antonio Fiorito, Oğuz Korman, Mauro Di Nardo, Michele Degano, Tianjie Zou, Christopher Gerada, Mukhammed Murataliyev |
| 18:00 | ICEM26-000532<br><br>Performance Evaluation of a PM Assisted-Synchronous Reluctance Machine with a Gouged-Rotor Core Design for Electric Vehicles<br><br>Mbika Muteba                                                                      |

## **Oral Session 9**

### **Design Issues (Optimization, Modeling and Simulation) 2**

Date: Monday, 07 September 2026

Time: 16:40–18:20

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| 16:40 | ICEM26-000341<br><br>Stator Tooth Arc Oriented Optimization for Low-Pole Ratio Permanent Magnet Vernier Motors Based on a Generalized Analytical Model<br><br>Yiyang Xu, Hao Chen, Xin Gu, Tingna Shi                                                          |
| 17:00 | ICEM26-000358<br><br>2D Equivalent Network Modeling of Axial Flux Permanent Magnet Devices<br><br>Claudia Simonelli, Nicolò Gori, Luca Sani, Rocco Rizzo, Hao Chen                                                                                             |
| 17:20 | ICEM26-000619<br><br>Multi-objective Optimization of Modular Permanent Magnet Synchronous Machines Considering Module-specific Geometric Parameters<br><br>Joaquín Andrés Valenzuela Herrera, Julio Jara, Werner Jara, Alvaro Hoffer, Javier Riedemann         |
| 17:40 | ICEM26-000163<br><br>System-Level Geometric and Control Co-optimization with Stator Pole Tapering for High-Precision Switched Reluctance Motor Drives<br><br>Aristotelis Tzouvaras, Nikolaos Fesakis, Athanasios Karlis                                        |
| 18:00 | ICEM26-000668<br><br>Multi-Objective Design Optimization of Rotor Slot Geometry in Dual-Cage Induction Motors Considering Hybrid Bar Materials for Electric Vehicles<br><br>Felipe Santacruz, Carlos Madariaga, Juan Tapia, Konstantin Vostrov, César Gallardo |

## **Oral Session 10**

### **Electrical Drives 2**

Date: Monday, 07 September 2026

Time: 16:40–18:20

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| 16:40 | ICEM26-000228<br><br>Active Compensation of Radial Mode 2p Vibration using Harmonic Current Injection within a Permanent Magnet Synchronous Machine<br><br>Meike Jopert, Jonas Jansen, Sebastian Klappert, Axel Mertens                                |
| 17:00 | ICEM26-000136<br><br>Rotor Position Estimation for a Wound Rotor Synchronous Machine Using Gradient Observers With and Without Flux Estimation<br><br>Ahmad Akrad, Rabia Sehab, Chenyun Wu, Javier Ojeda                                               |
| 17:20 | ICEM26-000275<br><br>Comparison of Zero-Sequence Current Mitigation Strategies in Dual-Inverter Open-End Winding PMSM Drives with Common DC-Link<br><br>Emanuele Fedele, Luca Di Cristo, Bernard Steyaert, Matthias Preindl, Santolo Meo, Renato Rizzo |
| 17:40 | ICEM26-000039<br><br>Vibration Suppression Method for Three-Mass Electric Drive System Based on Identified System Response<br><br>Xiaofeng Xu, Panagiotis Kakosimos, Luca Peretti                                                                      |
| 18:00 | ICEM26-000330<br><br>Control Framework for Active Harmonic Damping Considering Converter - PM Machine Coupling<br><br>Antonios Sideris, Athanasios Sarigiannidis, Antonios Kladas                                                                      |

## **Oral Session 11**

### **Diagnostics and Condition Monitoring 2**

Date: Monday, 07 September 2026

Time: 16:40–18:20

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| 16:40 | ICEM26-000453<br><br>A Review on Electrical Submersible Pump Failures and Diagnosis Methods in Deep Water Wells<br><br>V́ctor Ballest́n-Bernad, Jorge Bonet Jara, Joan Pons-Llinares                                                                                       |
| 17:00 | ICEM26-000530<br><br>Inter-Turn Short Circuit Fault Diagnosis in a C-GEN Axial-Flux PMSG Using a Single Circumferential Search Coil<br><br>Alexandros Sergakis, Nikolaos Gkiolekas, Markus Mueller, Konstantinos Gyftakis                                                  |
| 17:20 | ICEM26-000428<br><br>High-Frequency Impedance Parametric Modeling and Partial Discharge Validation for RUL Estimation of Thermally Aged Stator Insulation<br><br>Muhammad Usman Sardar, Toomas Vaimann, Lauri Ktt, Bilal Asad, Ants Kallaste, Hujun Peng, Simon Steentjes |
| 17:40 | ICEM26-000674<br><br>Lifetime modeling of round and flat enameled wires used in low-voltage motors under multiple stress factors<br><br>David Malec, Kim Long Tran, Pascal Maussion                                                                                        |
| 18:00 | ICEM26-000488<br><br>Unbalance and Misalignment Fault Diagnosis in Induction Motors Under Oscillating Load Using Vibration Orbit-Orientation Variance<br><br>Jose Pablo Pacheco Guerrero, Israel Zamudio, Larisa Dunai, Jose Antonino Daviu                                |

## **Oral Session 12**

### **Electrical Machines and Drives for Renewable Energy Generation 1**

Date: Monday, 07 September 2026

Time: 16:40–18:20

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| 16:40 | ICEM26-000284<br><br>Designing for Trapezoidal Electromotive Force in Multi-Megawatt Scale Direct-Drive Wind Turbine Generators<br><br>Fergus Hall, Alasdair McDonald                                              |
| 17:00 | ICEM26-000147<br><br>Performance Assessment of a 5-MW Dual-Speed Direct Grid-Connected Wind Generator<br><br>Ryno Gerber, Maarten Kamper                                                                           |
| 17:20 | ICEM26-000104<br><br>Development of a High-Speed Permanent-Magnet Electrical Machine for Fuel Cell Air Compressor Application<br><br>Yingjian Xing, Lin Tao, Mengying Shu, Chaojie Liu, Xizhen Huang, Jiecheng Chi |
| 17:40 | ICEM26-000387<br><br>A Comparative Analysis of Permanent Magnet Synchronous Generator Topologies for Small-Scale Wind Turbines<br><br>Reynaldo Iracheta Cortez, Ana Karen López González, Joyce López Gómez        |
| 18:00 | ICEM26-000651<br><br>Design Optimization and Comparison of NdFeB and Ferrite Magnets in a PCB Stator AFPM Generator<br><br>Haris Abrar, Rong-Jie Wang, Maarten Kamper                                              |

### **Oral Session 13**

#### **Additive Manufacturing of Electrical Machines**

Date: Tuesday, 08 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000075<br><br>Electrical Conductivity of AA1350 Produced by Additive Manufacturing for Electrical Machine Applications<br><br>Alexander Goodall, Felicity Freeman, Nick Simpson, Anna Ermakova, George Maddison                           |
| 08:50 | ICEM26-000494<br><br>Alternative Solid-Transposed Conductor Geometries enabled by Additive Manufacturing<br><br>Nick Simpson, Philip Mellor, Dominic North, Richard Pollock                                                                      |
| 09:10 | ICEM26-000493<br><br>Contoured Air-gap Topology: A Promising Strategy for Enhancing Axial Flux Machine Performance<br><br>Muhammad Usman Naseer, Ants Kallaste, Bilal Asad, Shahid Hussain, Martin Sarap, Toomas Vaimann                         |
| 09:30 | ICEM26-000508<br><br>Additive manufacturing of NdFeB bonded magnets via desktop-scale Fused Granulate Fabrication<br><br>Waqas Ahmed Sarwar, Hans Tiismus, Ants Kallaste, Joosep Link, Toomas Vaimann, Mehroz Fatima, Sumeet Khalid, Raivo Stern |
| 09:50 | ICEM26-000686<br><br>Axially Laminated Synchronous Reluctance Motor With Nonuniform Layer Thickness<br><br>Valerii Abramenko, Ilya Petrov, Tuomas Jokiaho, Jenni Pippuri-Mäkeläinen, Juha Pyrhönen                                               |

## **Oral Session 14**

### **Multi-Physics Data-Driven Design for Advanced Propulsion Machine Drives**

Date: Tuesday, 08 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000332<br><br>Electromagnetic-Thermal Analysis of Dual-Stator Permanent magnet Motors for Humanoid Robot Joint Applications Based on the Lumped Parameter Thermal Network Method<br><br>Aohua Wang, Tianran He, Hanqin Hu, Wei Li |
| 08:50 | ICEM26-000194<br><br>Thermal Rise Calculation of Variable-section Centralized Flat-wire Winding PMSM based on Lumped Parameter Thermal Network<br><br>Jing Ou, Yanyun Liu, Haida Xue, Chenyi Yang, Yingzhen Liu, Dawei Liang, Dianguo Xu |
| 09:10 | ICEM26-000092<br><br>Multi-Objective Optimization and Comparison of High-Torque Direct-Drives and High-Speed Geared Drives for High-Performance Electric Vehicles<br><br>Maximilian Clauer, Jens Hoffmann, David Bauer, Nejila Parspour  |
| 09:30 | ICEM26-000236<br><br>Temperature Prediction of Hairpin Winding Conductor Layers Using a Computationally Efficient Hybrid Multiphysics Model<br><br>Ali Zarghani, Peter Sergeant, Ivo Couckuyt, Mohamed Ibrahim                           |
| 09:50 | ICEM26-000556<br><br>Data-Driven Multi-physics and Multi-Objective Optimization for High-Speed Aviation Electric Machines: A Review<br><br>xingqi Iyu, Yang Xiao, meng xia, Ruichi Wang, Harold Ruiz                                     |

## **Oral Session 15**

### **Rotating Machines 2**

Date: Tuesday, 08 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000379<br><br>Inaccuracy in Pulse-Width-Modulated Power Measurement and its Effect on Motor Loss Determination<br><br>Matias Tiihonen, Hannu Kärkkäinen, Lassi Aarniovuori, Markku Niemelä, Radu Bojoi, Aldo Boglietti |
| 08:50 | ICEM26-000199<br><br>Development of Highly Reliable Rotor Structure of Electric Motor for Electrified Aircraft<br><br>Zhi Wang, Ryo Ueta, Ryoichi Takahata, Junnosuke Nakatsugawa, Naoyuki Oohata, Sota Kimura                |
| 09:10 | ICEM26-000407<br><br>Implications of the GENTPJ-Modified Saturation Function for Power System Dynamics<br><br>Quincy Wang, Song Wang                                                                                          |
| 09:30 | ICEM26-000047<br><br>A Fast Design Method of Maximizing Torque Weight Density for Axial Flux Segmented Wound Field Flux Switching Motor<br><br>Yudai Koishi, Hiroki Goto                                                      |
| 09:50 | ICEM26-000429<br><br>Performance Comparison of Rare-Earth-Free Machine Topologies and Permanent Magnet Synchronous Machine<br><br>Eric Danese, David Melly, Stephan Kenzelmann, Samuel Chevailler                             |

## **Oral Session 16**

### **Design Issues (Optimization, Modeling and Simulation) 3**

Date: Tuesday, 08 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000484<br><br>Parametric data-driven system-level model of 3-phase PMSMs used for performance analysis<br><br>Sebastian Ciceo, Salomé Ferru, Andrey Hesse, Maria Raluca Raia                                                  |
| 08:50 | ICEM26-000513<br><br>Per-Phase Equivalent Circuit Model for Steady-State Performance Simulation of Line-Start Synchronous Reluctance Motors<br><br>Fernando J. T. E. Ferreira                                                        |
| 09:10 | ICEM26-000342<br><br>Dynamic Analysis of Magnetic Gear – SR Motor Drive System based on Reluctance Network Analysis and Its Experimental Validation<br><br>Sogo Nohara, Keigo Iwaki, Kenji Nakamura                                  |
| 09:30 | ICEM26-000586<br><br>Mechanical and Electromagnetic Tradeoffs in High-Speed Synchronous Reluctance Motors<br><br>Andrea Credo, Federico Centi, Giuseppe Fabri, Marco Villani, Francesco Parasiliti, Lino Di Leonardo, Nicola Bianchi |
| 09:50 | ICEM26-000662<br><br>EMC_Based Geometric Scaling Method for Axial Flux Permanent Magnet Motors<br><br>Min Woo Jang, Chan-Woo Kim, Seong-Won Jeong, Min-Ro Park, Soo-Hwan Park                                                        |

## **Oral Session 17**

### **Electrical Drives 3**

Date: Tuesday, 08 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000613<br><br>High-Performance Sensorless Control for High-Speed PMSM with Current Source Inverters<br><br>Nail Tosun, Devinda Molligoda, Xu Deng, Barrie Mecrow                                                    |
| 08:50 | ICEM26-000542<br><br>Experimental Validation of a Generalized Overlap-Time Compensation Method for CSI-Fed Induction Motor Drives<br><br>Salvatore Morello Baganella, Luigi Danilo Tornello, Giacomo Scelba, Antonio Testa |
| 09:10 | ICEM26-000540<br><br>Assessment of a Sine-Wave Filter for a GaN-based ANPC Motor Drive<br><br>Angelo Di Cataldo, Luigi Danilo Tornello, Giacomo Scelba, Shafiq Odhano, Andrea Cavagnino, Mario Cacciato                    |
| 09:30 | ICEM26-000676<br><br>Model Predictive Pulse Pattern Control for Multilevel Cascaded H-Bridge Medium Voltage Drives<br><br>Ioannis Tsoumas, David Boillat, Krzysztof Kóska                                                  |
| 09:50 | ICEM26-000158<br><br>Dual Control Design for Velocity Tracking Implemented on Dual-Drive Systems Under Friction Variations<br><br>Shafaq Gul, Frederik De Belie, Ruben De Croo                                             |

## **Oral Session 18**

### **Diagnostics and Condition Monitoring 3**

Date: Tuesday, 08 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000019<br><br>PDIV and PDEV of PEEK-Insulated Hairpin Wires under AC and PWM Excitations for Automotive and Aerospace Applications<br><br>Hadi Naderiallaf, Michele Degano, David Gerada, Tao Yang, Christopher Gerada                |
| 08:50 | ICEM26-000013<br><br>Early Detection of Intermittent Stator Ground Faults in High Impedance Grounded Generators<br><br>Nader Safari-Shad, Adama Sawadogo, James Jensen, Mason Kobliska                                                       |
| 09:10 | ICEM26-000187<br><br>Fault-Tolerant Operation of PMSM-Based Elevator Systems Using Intelligent Condition Monitoring<br><br>Vasileios Vlachou, Theoklitos Karakatsanis, Antonios Kladas                                                       |
| 09:30 | ICEM26-000370<br><br>Torque-Based Analysis of Demagnetization Faults in Permanent Magnet Synchronous Machines: Analytical and Finite Element Approaches<br><br>Ahmed Belkhadir, Remus Pusca, Raphael Romary, Driss Belkhayat, Youssef Zidani |
| 09:50 | ICEM26-000346<br><br>Detection of Rotor Faults in Synchronous Machines: Review of Online Methods, Applications and Trends<br><br>Hossein Ehya, Arne Nysveen, Bilal Akin, Jose Antonino Daviu                                                 |

## **Poster Session 2**

Date: Tuesday, 08 September 2026

Time: 10:10–11:10

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| ICEM26-000533<br>Torque Optimization of Interior Permanent Magnet Synchronous Motors Based on Active Learning and XGBoost Surrogate Model<br>bowei Chen, Tianxiong Lu, Yilin Ma, Jianzhi Zhu, Huan Yang, Rongxiang Zhao |
| ICEM26-000051<br>Geometry of Additively Manufactured Specimens for Electrical Property Characterisation<br>Anna Ermakova, Nick Simpson                                                                                  |
| ICEM26-000444<br>Eddy Current Loss Reduction in Additively Manufactured FeSi Parts using Space Filling Curves<br>Mauro Di Nardo, Gianvito Gallicchio, Francesco Cupertino, Elena Bassoli, Stefano Nuzzo                 |
| ICEM26-000397<br>Modeling High Temperature Superconducting Electrical Machines Using the Volume Integral Equations<br>Hocine Menana                                                                                     |
| ICEM26-000430<br>Control-Oriented Equivalent Circuit Modeling of Air-Core Superconducting Synchronous Motors<br>Mingzhe Sang, Hongye Zhang, Mark Husband, Sebastián Neira, TAO XU, Markus Mueller                       |
| ICEM26-000666<br>Analysis of IPMSM for Direct-Drive Compressor Considering Temperature-Gradient in Axial Direction<br>YoungJu Seo, Jae-Yoon Kim, Chan-Woo Kim, Seo-Hyun Hong, Soo-Hwan Park                             |
| ICEM26-000654<br>Analytical Determination of Optimal Harmonic Current Ratio for Torque Ripple Minimization in Switched Reluctance Motors<br>Muhammad Fabio, Shou Qiu, Kyohei Kiyota                                     |
| ICEM26-000058<br>CFD-based Conjugate Heat-Transfer Analysis of an Stator-Immersed Oil-Cooled Electric Motor with Hairpin Windings<br>Steven Vanhee, Jasper Nonneman, Michel De Paepe, Fabrice Boon                      |
| ICEM26-000374<br>E-Winding Lab - A Comprehensive AC Winding Design Platform for Both Stranded and Hairpin Windings<br>Mingyang Bao, Hailin Huang, Tianjie Zou, Mengmeng Cui, Michele Degano, Chris Gerada               |

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| ICEM26-000396                                                                                                                                                                                                  |
| Study on Performance Improvement of Dual Axial Gap Induction Motor by Structural Modification<br>Issei Yamamoto, Naoya Soda, Daisuke Wakabayashi, Mohachiro Oka, Masato Enokizono, Mitsuru Takai, Kozo Okamoto |
| ICEM26-000378                                                                                                                                                                                                  |
| Control-Oriented Nonlinear Modeling of Dual Three-Phase PMSMs with Saturation and Loss Effects<br>Reda Alili, Gregoire Le Goff, Maurice Fadel, Dany Prieto, Mathias Tientcheu Yamdeu                           |
| ICEM26-000531                                                                                                                                                                                                  |
| Enhanced Model Predictive Control for Six-Phase Induction Motors Using Virtual Voltage Vectors in Three-Level Inverters<br>João Serra, Joao Dinis, Fernando Bento, Antonio J. Marques Cardoso                  |
| ICEM26-000638                                                                                                                                                                                                  |
| Systematic Evaluation of Slot–Pole Combinations in Multi-Phase Permanent Magnet Synchronous Motors for High Power Traction Applications<br>Yucel Demir, Metin Aydin                                            |
| ICEM26-000495                                                                                                                                                                                                  |
| Multiphysics Design Optimization of High-Speed Induction Machines for Aircraft Applications<br>Abdelhak Mekahlia, Christophe Viguier, Sergi Riba, Xavier Longère                                               |
| ICEM26-000226                                                                                                                                                                                                  |
| Application-oriented Fault Identification on Rotating Machines Using Frequency Response Analysis<br>Sandra Ploetz, Stephanie Uhrig, Fabian Öttl, Michael Kühnegger                                             |
| ICEM26-000652                                                                                                                                                                                                  |
| Design Approach of Continuous and Semi-Continuous Hairpin Winding in Traction Motor Applications<br>Shaohong Zhu, Krzysztof Paciura                                                                            |
| ICEM26-000381                                                                                                                                                                                                  |
| Port-Hamiltonian based modeling of nonlinear synchronous machines without electrical excitation<br>Christoph Hackl                                                                                             |
| ICEM26-000408                                                                                                                                                                                                  |
| Torque Ripple Suppression in Synchronous Machine Drives by Frequency-Adaptive PIR Current Control<br>Niklas Monzen, Pascal Seitter, Christoph Hackl                                                            |
| ICEM26-000182                                                                                                                                                                                                  |
| A Motorette-Based Experimental Comparison of Air Cooling Concepts with Water-Mist Enhancement<br>Samuel Estenlund, Lei Wang, Viktor Josefsson, Conny Högmark                                                   |
| ICEM26-000382                                                                                                                                                                                                  |
| Comparative Evaluation of Furan-Based DP Estimation Models for Power Transformers<br>Hernan Alonso Bravo Vaquero, Hernan Alonso Bravo Urrea, Diego Fernando Garcia                                             |

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| ICEM26-000018                                                                                                                                                                                     |
| Analysis of Flux Modulation Effect in AFPM YASA Machine Having Stator Dummy Slots<br>Kaibo Wang, Lingyun Shao, Zhuoran Zhang, Zhongze Wu, Wei Hua, Wentao Zhang                                   |
| ICEM26-000197                                                                                                                                                                                     |
| The Optimization of Key Cooling Structures in Oil-Cooled Hairpin-Winding PM Motors<br>Xu Qiushi, Xiubo Jiang, Hengliang Zhang, Wei Hua                                                            |
| ICEM26-000015                                                                                                                                                                                     |
| Efficiency Improvement of Memory Motor with Spoke-based Inversed Triangle Magnet<br>Ryonosuke Otsuka, Yuki Hidaka                                                                                 |
| ICEM26-000054                                                                                                                                                                                     |
| A Start-up of a Slotless Single Phase Brushless DC Motor<br>Mario Vukotić, Urban Rupnik, Alen Alić, Andrija Jeknić, Roman Manko, Selma Čorović, Damijan Miljavec                                  |
| ICEM26-000271                                                                                                                                                                                     |
| A Multi-Pole Transverse-Flux-type Switched Reluctance Motor Utilizing Soft Magnetic Composite<br>Ayaka Nagatsuji, Hayato Iwasaki, Ayumi Nagai, Kenji Nakamura, Takuya Takashita, Naofumi Takatori |
| ICEM26-000398                                                                                                                                                                                     |
| Comparative Study of the Dual three-phase PMA-SynRMs with Different Winding Configurations under Fault-Tolerant Operation<br>Yeming Zheng, Yawei Wang, Yinjie He, Dayi Li, Ronghai Qu             |
| ICEM26-000580                                                                                                                                                                                     |
| Impact of Strand Number and Shape on the Slot AC Resistance due to Skin Effect in Electrical Machines<br>Giorgos Skarmoutsos, Edward Stone, Panagiotis Panagiotou                                 |
| ICEM26-000069                                                                                                                                                                                     |
| Analytical Modeling of Spatio-Temporal Air-Gap Flux Density in Wound-Rotor Synchronous Machines<br>Angelo Ferreri, Jamal Alsawalhi                                                                |
| ICEM26-000094                                                                                                                                                                                     |
| Reduction of Permanent Magnet Usage in Flux-Modulated-type Magnetic Gears by 3D Trapezoidal Magnets<br>Takanori Sumi, Akira Kudo, Kenji Nakamura                                                  |
| ICEM26-000152                                                                                                                                                                                     |
| Nonlinear Model Recovery Anti-Windup Control of Non-Salient Pole Permanent Magnet Synchronous Motor<br>Maxime Béchu, Matthew Turner, Pedro Jesus Rodriguez Ayerbe, Giorgio Valmorbida             |
| ICEM26-000306                                                                                                                                                                                     |
| Part I: Performance Investigation of Asymmetric V- and U-Shape PMSM Rotors for Traction Applications<br>Jacob Nilsson, Andreas Carlsson, Christian Sandström                                      |

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| <p>ICEM26-000308</p> <p>Part II: Efficiency and Cost Investigation of Asymmetric V- and U-Shape PMSM Rotors for Traction Applications</p> <p>Jacob Nilsson, Andreas Carlsson, Christian Sandström</p>              |
| <p>ICEM26-000312</p> <p>Analytical Optimization for Concentrated Winding Machines for Marine Application</p> <p>Giada Sala, Claudio Bianchini, Michael Galea, Ambra Torreggiani</p>                                |
| <p>ICEM26-000340</p> <p>Generic Stator Tooth Shaping for Reducing Vibration Force in SPM and IPM Machines</p> <p>Shiyun Li, Zi-Qiang Zhu, Dinghua Zhang, Yue Liu, Hui Wu, Ruiren Luo</p>                           |
| <p>ICEM26-000350</p> <p>The usability of various numerical methods for calculating transient heat transfer in PMSMs using LPTN</p> <p>Lukas Sobotka, Roman Pechanek, Martin Skalicky, Lukas Veg</p>                |
| <p>ICEM26-000388</p> <p>An AI-Assisted Method for PMSM Sizing</p> <p>Réda FATMI, Laurent Gerbaud, Quentin Debray, Sylvain Perez, Guy Jerome, Vincent Imard</p>                                                     |
| <p>ICEM26-000509</p> <p>Step-skewing in Squirrel Cage Induction Motors and its Influence on Machine Performance</p> <p>Matteo Olivo, Alberto Tassarolo</p>                                                         |
| <p>ICEM26-000684</p> <p>A Fast Design Approach for Wound-Field Synchronous Motors for Heavy Electrical Vehicles</p> <p>Henrik Grop, Adam Walker, Fengyu Zhang, Christopher Gerada, Erik Nordlund, Stefan Wicki</p> |
| <p>ICEM26-000629</p> <p>A Radial–Axial (RAXIAL) Flux PMSM Concept For A Compact Prosthetic Actuator</p> <p>Md Monirul Kadir, Reiko Raute, Cedric Caruana</p>                                                       |
| <p>ICEM26-000243</p> <p>Heat Transfer Enhancement in an In-Wheel Electric Machine Used in Micromobility Applications</p> <p>Ali Sadeghianjahromi, Yaohui Gai, Richard McMahon</p>                                  |
| <p>ICEM26-000273</p> <p>A direct iron loss measurement bench for electrical machine stator yokes for validation of iron loss models</p> <p>Alexandre Giraud, Arnaud Cariou, Sergi Riba, Franck Vangraefschep</p>   |
| <p>ICEM26-000640</p> <p>Impact from Winding Loss and Inverter Switching Frequency on Insulation Temperature and Lifetime in Hairpin Windings</p> <p>Emil Lind, Sandra Eriksson</p>                                 |

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| <p>ICEM26-000025</p> <p>Fault-Tolerant Control of PMSM Drives Based on Hall Transition-Sequence Diagnosis and Adaptive Notch Filtering</p> <p>Jiye Zhang, Ruiqing Ma, Yue Li, Ling Luo, Yichen Cui</p>                                                                     |
| <p>ICEM26-000045</p> <p>Improved Angle-Dependent Field-Oriented Current Control for Electric Motors</p> <p>Stefan Haehnlein, Jan Philipp Degel, Lars Boschert, Philipp Mueller, Christian Kloeffer, Martin Doppelbauer</p>                                                 |
| <p>ICEM26-000322</p> <p>Sensorless Direct Torque Control of IPMSM in Block Commutation at Low Speed</p> <p>Philipp Schmidt, Norbert Klaes, Georg Möhlenkamp</p>                                                                                                            |
| <p>ICEM26-000326</p> <p>Experimental Investigations of Model Free Predictive Control For PMSM Drives Using Different Voltage Vector Application Strategies</p> <p>Ahmad Darabi, Chunyan Lai</p>                                                                            |
| <p>ICEM26-000459</p> <p>Oversampling Switching-Frequency-Constrained Finite-Control-Set Reinforcement Learning-based Torque Control for Synchronous Machine Drives</p> <p>Mario Pena, Oliver Wallscheid, Darius Jakobeit</p>                                               |
| <p>ICEM26-000007</p> <p>Supervised Robust Deep Cluster Learning for Open Set Classification in the Context of Bearing Faults</p> <p>Michel Lehmann, Andreas Möckel</p>                                                                                                     |
| <p>ICEM26-000026</p> <p>Interpretable Physics-Informed Multimodal Deep Learning for Eccentricity-Severity Estimation of Induction Machines</p> <p>Hanqi Su, Dehong Liu, Hiroshi Inoue, Yebin Wang</p>                                                                      |
| <p>ICEM26-000028</p> <p>Experimental Investigation on the Effect of Inter-turn Short Circuit Fault on Vibration of a PMSM</p> <p>Amir Kermanizadeh, Pragasen Pillay</p>                                                                                                    |
| <p>ICEM26-000128</p> <p>Comparison of Vibration, Current and Stray flux for Shaft Misalignment and Mass Unbalance Fault Diagnosis in PMSM under Non-Stationary Load and Speed Conditions</p> <p>Konstantinos Koutrakos, Epameinondas Mitronikas, Christof Michenthaler</p> |
| <p>ICEM26-000262</p> <p>Simulation of a Commutator DC Motor for Fault Condition Monitoring</p> <p>Mbali Mayisela, David Dorrell</p>                                                                                                                                        |

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| <p>ICEM26-000451</p> <p>A Zero-Sequence Flux Approach for Detecting Inter-Turn Short-Circuit Faults in a Permanent Magnet Generator- Parallel Connected Stator Coils</p> <p>Nikolaos Gkiolekas, Alexandros Sergakis, Markus Mueller, Konstantinos Gyftakis</p> |
| <p>ICEM26-000604</p> <p>Thrust Bearing Wear Detection in Induction Motors Through Magnetizing Inductance Estimation from Voltage and Current Measurements</p> <p>Joan Pons-Llinares, Jorge Bonet Jara</p>                                                      |
| <p>ICEM26-000250</p> <p>High-Resolution Integrated Flux Sensing Array for Position Sensor Replacement in Synchronous Machines</p> <p>Felix Burkard, Stefan Mönch, Michael Saur, Lukas Maas</p>                                                                 |
| <p>ICEM26-000352</p> <p>Initial Design of a Variable Pole Induction Machine for EV Applications</p> <p>Mudassir Raza Siddiqi, Joachim Härsjö, Luca Peretti</p>                                                                                                 |
| <p>ICEM26-000439</p> <p>A fast and accurate boundary-coupled numerical strategy for computing AC losses</p> <p>Shuze Huang, Pedram Asef, Esmaeil Mohammadi</p>                                                                                                 |
| <p>ICEM26-000474</p> <p>A Study on Different Electric Machine Topologies for Auxiliary Applications, Part I: Comprehensive Benchmark</p> <p>Shafiqh Nategh, David Deurell, Joahn Åström</p>                                                                    |
| <p>ICEM26-000639</p> <p>Design Challenges of a High-Speed Wound Rotor Synchronous Machine for Electric Vehicle Application</p> <p>Luka Kostić, Žarko Koprivica, Marko Milošević, Mladen Terzic</p>                                                             |
| <p>ICEM26-000636</p> <p>Parasitic Capacitances Analysis in a Low-Speed PMSG with Optimized Asymmetric Geometry for Wind Power Applications</p> <p>Konstantin Vostrov, Felipe Ortiz-Bustos, Alvaro Hoffer, Matias Jimenez</p>                                   |

## **Oral Session 19**

### **Electrical Machines in Aeronautics: Stakes and Opportunities**

Date: Tuesday, 08 September 2026

Time: 11:10–12:50

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|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:10 | <p>ICEM26-000583</p> <p>Optimizing Torque-Dense Direct-Drive Axial Flux Machines Using Rare-Earth-Free Magnets for Aerospace Applications</p> <p>Lorenzo Orsini, Jonathan Godbehre, Mircea Popescu</p>                                      |
| 11:30 | <p>ICEM26-000477</p> <p>A fast and accurate boundary-coupled numerical strategy for computing AC losses</p> <p>Pons Alexis, Geuzaine Christophe, Küttler Sullivan, Théodore Cherrière, Benmamas Loucif, Guillaume Krebs, Mercier Adrien</p> |
| 11:50 | <p>ICEM26-000220</p> <p>Analytical Design Optimization of an Electro Mechanical System for Aircraft Electric Propulsion</p> <p>Ali Salloukh, Abdelmounaim Tounzi, Ngac Ky Nguyen, Dany Prieto, Mike McClelland</p>                          |
| 12:10 | <p>ICEM26-000489</p> <p>The Impact of SMC Density on Electromagnetic Performance: A Case Study of an Axial Flux Permanent Magnet Motor</p> <p>Taha El Hajji, Lars Sjöberg, Kristoffer Nilsson, Marcus Lenberg, Bruno Ricardo Marques</p>    |
| 12:30 | <p>ICEM26-000377</p> <p>Investigation of Halbach Arrays for Enhanced Torque Density in Aerospace Axial-Flux Machine</p> <p>Natalia Narozanska, Michele Degano, Chris Gerada</p>                                                             |

## **Oral Session 20**

### **Rotating Machines 3**

Date: Tuesday, 08 September 2026

Time: 11:10–12:50

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|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:10 | <p>ICEM26-000137</p> <p>A Novel Stator/Rotor Dual-Three-Phase Matrix-Torque-Component Machine with Asymmetric Winding for Direct-Drive System</p> <p>Jun Lin, Shaofeng JIA, Pengcheng Sun, Dongxu Yang, Deliang Liang</p>                                                      |
| 11:30 | <p>ICEM26-000448</p> <p>Grid Strengthening for High-IBR Island Systems Using a Flywheel-Assisted Synchronous Condenser: Experience from Madeira, Portugal</p> <p>Sergio Mendes, Guilherme Schulz, Aires Henriques, Joao Coelho</p>                                             |
| 11:50 | <p>ICEM26-000327</p> <p>Analysis and Design of a Doubly Fed Induction Generator with Fractional-Salient Pole Rotor for Variable-Speed Pumped Storage Applications</p> <p>Zeyuan Li, Jianyun Chai, Shanming Wang</p>                                                            |
| 12:10 | <p>ICEM26-000155</p> <p>Effects of Static Excitation Converter on Key Components of Large Salient-Pole Hydrogenerators</p> <p>Joël Pedneault-Desroches, Kamal Al-Haddad, Arezki Merkhoul</p>                                                                                   |
| 12:30 | <p>ICEM26-000485</p> <p>From Three-Phase to Dual Three-Phase Induction Motors: Inverse-gamma Modeling and Rotor Field-Oriented Control</p> <p>Bilal Mustafa, Valiyaveetil Sadanandan Nithin, Ahmed Hemeida, Nirangkush Das, Firdausa Ahmed, Floran Martin, Anouar Belahcen</p> |

## **Oral Session 21**

### **Design Issues (Optimization, Modeling and Simulation) 4**

Date: Tuesday, 08 September 2026

Time: 11:10–12:50

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| 11:10 | <p>ICEM26-000499</p> <p>Analytical Saturation Modeling and Optimal Control Reference Analysis of Isotropic Externally Excited Synchronous Machines</p> <p>Alessandro Capitanio, Giacomo Sala, Giovanni Franceschini, Davide Barater, Stefano Nuzzo</p> |
| 11:30 | <p>ICEM26-000365</p> <p>Design of PM-free High Speed Electrical Machine With High Power Density Focus</p> <p>Jakub Rosendorf, Jakub Súkeník, Petr Lošák, Martin Světlík, Marek Toman, Petr Chmelíček, Lassi Aarniovuori, Jan Barta</p>                 |
| 11:50 | <p>ICEM26-000449</p> <p>Mechanical Design Considerations on the Solid Rotor of a Homopolar Inductor Alternator</p> <p>Laurenz Ziegler, Andreas Binder, Yves Burkhardt</p>                                                                              |
| 12:10 | <p>ICEM26-000146</p> <p>Reduced order model for force density calculation in the air gap of squirrel cage induction machines</p> <p>Marcel Heilmann, Richard Steckel, Daniel Keller, Max Schuler, Mercedes Herranz Gracia, Joachim Kempkes</p>         |
| 12:30 | <p>ICEM26-000368</p> <p>Integrated Multi-Fidelity Thermal Modeling of a High-Speed Electric Motor Using LPTN and CFD</p> <p>Jakub Súkeník, Marek Toman, Jakub Rosendorf, Petr Lošák, Ondřej Vítek, Petr Chmelíček, Lassi Aarniovuori, Jan Barta</p>    |

## **Oral Session 22**

### **Diagnostics and Condition Monitoring 4**

Date: Tuesday, 08 September 2026

Time: 11:10–12:50

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|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:10 | <p>ICEM26-000087</p> <p>Field and Damper Winding Testing for Brushless Synchronous Generators for Marine Applications</p> <p>Changhoon Song, Seungjun Cha, Muhammad Faizan Shaikh, Sungwoo Choe, Seungmin Shin, Jaewan Kim, Chanseung Yang, Chaewoong Lim, Sang Bin Lee</p>                                            |
| 11:30 | <p>ICEM26-000264</p> <p>The Effect of Rotor Magnetic Faults on the Operation of a Multi-channel Permanent Magnet Synchronous Machine</p> <p>Mariusz Korkosz, Krystyna Krzywdzińska-Kornak, Jan Prokop, Konstantinos Gyftakis</p>                                                                                       |
| 11:50 | <p>ICEM26-000436</p> <p>A Novel Control Scheme for Wind Turbine DFIG Drives with Robust Condition Monitoring Capability</p> <p>Panos Papageorgiou, Jose E. Ruiz-Sarrio, Panagiotis Panagiotou</p>                                                                                                                      |
| 12:10 | <p>ICEM26-000437</p> <p>Simplified Extended Kalman Filter Design for Torsional Vibrations Estimation in a PMSM Drive</p> <p>Matteo Deponti, Angelo Boceda, Roberto Perini, Giovanni Maria Foglia, Antonino Di Gerlando</p>                                                                                             |
| 12:30 | <p>ICEM26-000543</p> <p>Exploring the Use of Electronic Noses for the Detection of Misalignments in Electric Motors</p> <p>Jose Antonino Daviu, Israel Zamudio, Vicente Biot-Monterde, Carlos A. Alvarez-Ugalde, Jacobo Fernandez-Jardon, Ignacio A. García Menéndez, Santiago Vila-Dominguez, Eloy Fidalgo Blanco</p> |

### **Oral Session 23**

#### **Electrical Machines and Drives for Sustainable Transportation 2**

Date: Tuesday, 08 September 2026

Time: 11:10–12:50

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|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:10 | ICEM26-000361<br><br>Electromagnetic Model of an Axial Rotary Transformer for Wound Rotor Synchronous Machines Excitation<br><br>Nicolò Gori, Claudia Simonelli, Antonino Musolino, Luca Sani, Rocco Rizzo                                                  |
| 11:30 | ICEM26-000399<br><br>Effect of Switching Harmonics on AC Losses of Copper Clad Aluminum Hairpin Windings in Traction e-Motors<br><br>Brandon Finateri, Matteo Pizzuto, Bruce Williams, Afsaneh Edrisy, Narayan Kar                                          |
| 11:50 | ICEM26-000320<br><br>Investigation on a Permanent Magnet Free Electrically Assisted Synchronous Reluctance Machine<br><br>Marco Pastura, Francesco Tripaldi, Nicola Bianchi                                                                                 |
| 12:10 | ICEM26-000212<br><br>Comprehensive Comparison of Drive Cycle Optimized Synchronous and Switched Reluctance Machines for Electric Vehicles<br><br>Yuancong Gong, Nejila Parspour                                                                             |
| 12:30 | ICEM26-000393<br><br>Slot/Pole Selection for Light Rare-Earth PMaSynRM Traction Motor Drives: Design Tradeoffs and Electromagnetic Performance Evaluation<br><br>Buddhika De Silva Guruwatta Vidanalage, Hossain Mohammadi, Reza Nasirizarandi, Narayan Kar |

## **Oral Session 24**

### **Electrical Machines and Drives for Renewable Energy Generation 2**

Date: Tuesday, 08 September 2026

Time: 11:10–12:50

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|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:10 | ICEM26-000578<br><br>Design and Evaluation of a 5-MW Brushless Doubly-Fed Reluctance Wind Generator<br><br>Pieter Oosthuizen, Rong-Jie Wang, Maarten Kamper                                                          |
| 11:30 | ICEM26-000133<br><br>Comparison of Surface and Halbach PM Rotor Arrangements in Coreless Axial Flux Machines<br><br>Haris Abrar, Rong-Jie Wang, Maarten Kamper                                                       |
| 11:50 | ICEM26-000115<br><br>Analytical Approaches for Estimating the Peak Short-Circuit Current of Doubly Fed Induction Generators<br><br>Tim Frieß, Natalia Escobosa Pineda, Jutta Hanson                                  |
| 12:10 | ICEM26-000224<br><br>Performance Evaluation of Multi-Phase AFPM Generator Using Rare-Earth-Free Magnets<br><br>Mostafa Ahmadi Darmani, Ali Sadeghianjahromi, Myles Ing, Richard McMahon, Sul Ademi, Hugh-Peter Kelly |
| 12:30 | ICEM26-000618<br><br>Comparative Electromagnetic Analysis of Bar Cage and Nested-Loop Rotors in Brushless Doubly Fed Machines<br><br>Malihe Heidary, Salman Abdi Jalebi, Ehsan Abdi, Richard McMahon                 |

## **Oral Session 25**

### **Motor and Generator Windings - Design, Manufacturing, and Maintenance**

Date: Tuesday, 08 September 2026

Time: 14:00–15:40

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|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14:00 | ICEM26-000481<br><br>Uncertainty Analysis of Empirical AC Proximity Loss Methods for Low-Loss Windings<br><br>George Barnaby, Philip Mellor, Dominic North, Nick Simpson                                                                |
| 14:20 | ICEM26-000085<br><br>Magnetic Limitations of Polymer-Bonded Semi-Magnetic Slot Wedges for Electric Machines<br><br>Martin Enno Gerlach, Marvin Hengelsberg, Eva Bresemann                                                               |
| 14:40 | ICEM26-000511<br><br>Design of a Three-Flux-Level Winding for a Line-Start Synchronous Reluctance Motor to Improve Its Starting, Synchronization, and Efficiency<br><br>Fernando J. T. E. Ferreira, José Alberto, Pedro Guerreiro       |
| 15:00 | ICEM26-000181<br><br>Rectangular-Shaped Conductor Sizing: A Case Study on AC Power Losses Reduction<br><br>Zahoor Ahmad, Ants Kallaste, Muhammad Usman Naseer, Shahid Hussain, Sumeet Khalid, Toomas Vaimann                            |
| 15:20 | ICEM26-000347<br><br>Experimental Study on Line-Start Synchronous Reluctance Motor Performance Under Supply Voltage Unbalance for Star and Delta Connection Modes<br><br>Fernando J. T. E. Ferreira, José Alberto, Aníbal T. de Almeida |

## **Oral Session 26**

### **Advances in Electrical Machines and Drives for Aeronautic Applications**

Date: Tuesday, 08 September 2026

Time: 14:00–15:40

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|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14:00 | ICEM26-000425<br><br>Analytical Design Considerations for Coreless AFPM Motors for Aerospace Applications<br><br>Daniele De Gregorio, Nicola Bianchi                                                               |
| 14:20 | ICEM26-000027<br><br>Fault-Tolerant IPM Machine with Mixed-Layer Fractional-Slot Concentrated-Winding<br><br>Peiyang Zeng, Guangjin Li                                                                             |
| 14:40 | ICEM26-000420<br><br>Synchronous Reluctance Motor for Air Mobility Healthy and Faulty Operating Conditions<br><br>Nicola Bianchi, Ludovico Ortombina, Francesco Tripaldi                                           |
| 15:00 | ICEM26-000222<br><br>Investigation of Inter-Phase Short Circuit in Multi Three-Phase Electric Motor for Aircraft Propulsion<br><br>Ali Salloukh, Ngac Ky Nguyen, Abdelmounaim Tounzi, Dany Prieto, Mike McClelland |
| 15:20 | ICEM26-000221<br><br>Analytical Multiphysics Model of Surface Permanent Magnet Motors for Aircraft Propulsion<br><br>Ali Salloukh, Abdelmounaim Tounzi, Ngac Ky Nguyen, Dany Prieto, Mike McClelland               |

## **Oral Session 27**

### **Rotating Machines 4**

Date: Tuesday, 08 September 2026

Time: 14:00–15:40

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| 14:00 | ICEM26-000157<br><br>Analytical Modeling of a Novel Fully PCB-Based Electrically Excited Axial Flux Machine<br><br>Parisa Rezapour, Adrian Schäfer, Nejila Parspour                                                                         |
| 14:20 | ICEM26-000658<br><br>A Novel IPMSM with Unconventional Slot-pole Combination Featuring Low Torque Ripple Based on Multi-layer Winding Configurations<br><br>Jun Lin, Shaofeng JIA, Pengcheng Sun, Dongxu Yang, Yucheng Xu, Deliang Liang    |
| 14:40 | ICEM26-000090<br><br>Vibration Suppression Design of Mechanical-Variable-Flux Synchronous Machine<br><br>Tengze Zhang, Haiyang Fang, Qiang Zhang, Xinjie Wen, Dawei Li, Ronghai Qu                                                          |
| 15:00 | ICEM26-000491<br><br>Axially Segmented Parallel Hybrid VFM Enabling Unified Peak Reluctance and PM Torque<br><br>Anesu Charamba, Lesedi Masisi, Maged Ibrahim                                                                               |
| 15:20 | ICEM26-000338<br><br>Effect of Rotor Eccentricities on Noise and Vibration of SPM and IPM Synchronous Machines<br><br>Yu Qi, Yinzhaoh Zheng, Yangju Zou, Shiyun Li, Yue Liu, Xiao Chen, Geraint W. Jewell, Zi-Qiang Zhu, Ruiren Luo, Hui Wu |

## **Oral Session 28**

### **Design Issues (Optimization, Modeling and Simulation) 5**

Date: Tuesday, 08 September 2026

Time: 14:00–15:40

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| 14:00 | ICEM26-000570<br><br>Parameter and Topology Optimization of IPMSMs Using Multimodal Deep Learning Under Multiple Current Conditions<br><br>Hidenori Sasaki, Kazuhisa Iwata, Hajime Igarashi, Daisuke Nakagawa, Masanori Watahiki, Tomoya Ueda |
| 14:20 | ICEM26-000066<br><br>Design Optimization and Performance Analysis of Electrically Excited Synchronous Motor<br><br>Wei Peng, Johannes Kreher                                                                                                  |
| 14:40 | ICEM26-000049<br><br>Modeling and Design Optimization of Brushless Doubly-Fed Reluctance Generators<br><br>Pieter Oosthuizen, Rong-Jie Wang, Maarten Kamper                                                                                   |
| 15:00 | ICEM26-000512<br><br>A Scaling Framework for Efficient Design Optimization of IPMSM for EV Traction<br><br>Ji-Hyeon Lee, Soo-Hwan Park, Myung-Seop Lim                                                                                        |
| 15:20 | ICEM26-000061<br><br>Mitigation Strategies for Halbach Arrays Demagnetization in Radial-Flux Permanent Magnet Machines<br><br>Giuseppe Edoardo Antonio Porto, Lorenzo Fazzini, Jacopo Ferretti                                                |

## **Oral Session 29**

### **Thermal and Losses Issues (Magnetic and Insulation Materials) 1**

Date: Tuesday, 08 September 2026

Time: 14:00–15:40

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| 14:00 | ICEM26-000203<br><br>Modal Analysis of a Magneto-Dynamic Reduced Problem for Copper Losses Evaluation<br><br>Rémi Jardot, Guillaume Krebs, Anas Lahlou, Francis Roy, Claude Marchand                                                                                                                                                             |
| 14:20 | ICEM26-000362<br><br>Influence of Winding Turn Count on Insulation Lifetime Under Accelerated Thermal Aging<br><br>Yatai Ji, Israr Ullah, Antonis Theofanous, Vincenzo Madonna, Paolo Giangrande, Michael Galea                                                                                                                                  |
| 14:40 | ICEM26-000421<br><br>Comparative Study on Efficiency Maps and Losses Measured for Switched Reluctance Motors with Different Core Materials and Applied Voltages<br><br>Yuichiro Tanaka, Yohei Murase, Eiji Sato, Takashi Kosaka                                                                                                                  |
| 15:00 | ICEM26-000256<br><br>An Analytical Approach for the Design of Cooling Jackets of Electrical Machines<br><br>Michelangelo Raimondo, Luca Carpeggiani, Stefano Fontanesi, Davide Barater, Stefano Nuzzo                                                                                                                                            |
| 15:20 | ICEM26-000416<br><br>Epstein-to-Ring Discrepancies in Non-Oriented Electrical Steel: Effect of Self-Bonding and Welding for Electric Motor Stator and Rotor Cores<br><br>Viviana La Russa, Giampaolo Devito, Jaesung Choi, Gilsu Choi, Luigi Solimene, Simone Ferrari, Paolo Pescetto, Carlo Stefano Ragusa, Gianmario Pellegrino, Stefano Nuzzo |

### **Oral Session 30**

#### **Diagnostics and Condition Monitoring 5**

Date: Tuesday, 08 September 2026

Time: 14:00–15:40

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| 14:00 | ICEM26-000434<br><br>Automatic segmentation and identification of frequency characteristics on current and stray flux signals from electric traction motor<br><br>Geovanni Díaz Saldaña, Luis Morales Velazquez, Jose Antonino Daviu |
| 14:20 | ICEM26-000616<br><br>Model Parameter Identification for Induction Motor Fault Diagnosis<br><br>Moritz Benninger, Bingnan Wang, Hiroshi Inoue                                                                                         |
| 14:40 | ICEM26-000321<br><br>Non-Intrusive Diagnosis of Stator Inter-Turn Faults in Induction Motors Using Stray Flux Harmonics<br><br>Gabriel De Arruda, Wesley Souza, Marcelo Castoldi, Clayton Graciola, Alessandro Goedtel, Ruhan Souza  |
| 15:00 | ICEM26-000302<br><br>Time-Frequency PMSM mechanical fault diagnosis under different load conditions based on stray flux signals<br><br>Leonardo Duarte Milfon, Jose Enrique Ruiz Sarrio, Mateus Giesbrecht, Jose Antonino Daviu      |
| 15:20 | ICEM26-000213<br><br>A Novel CSNN Architecture for the Classification of Eccentricity Faults in Induction Motors<br><br>Xinyu Zhao, Haihang Xia, Zihao Song, Tiantai Deng, George Tsialiamanis, Panagiotis Panagiotou                |

## **Oral Session 31**

### **Digital Twins for Electrical Machines**

Date: Wednesday, 09 September 2026

Time: 14:00–15:40

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| 14:00 | ICEM26-000525<br><br>Hybrid Thermal Modeling for Real-Time Self-Learning Digital Twins of Pump Drives<br><br>Robin Köster, Sascha Neusüs, Boris Janjic                                                                                                                                                                                                  |
| 14:20 | ICEM26-000526<br><br>Multi-Parametric Thermal Reduced Order Model of a Canned Motor Pump for Real-Time Digital Twin<br><br>Sascha Neusüs, Robin Köster, Boris Janjic                                                                                                                                                                                    |
| 14:40 | ICEM26-000572<br><br>High-Fidelity model of an 800 V SiC-Based Powertrain Digital Twin<br><br>Amaia Lopez de Heredia Bermeo, Iago Martinez, Maitane Carrasco, Ion Iturbe, Fernando Garramiola                                                                                                                                                           |
| 15:00 | ICEM26-000056<br><br>Heat Flow Assessment with the Ecocycle Motor Digital Twin<br><br>Mario Vukotić, Urban Rupnik, Andrija Jeknić, Selma Čorović, Juzer Rangwala, Roman Manko, Alen Alić, Damijan Miljavec                                                                                                                                              |
| 15:20 | ICEM26-000101<br><br>Embedded Digital Twin for Optimal Control of EV PMSMs with Multiphysics Integration<br><br>Konstantinos Kostopoulos, Oriol Subirats Rillo, Daniel Montesinos, Sergiu Marciuc, Stephane Clenet, Julien Korecki, Thomas Henneron, Carles Oliet, Daniel Santos Serrano, Marcial Mosqueda Otero, Oriol Sanmarti Perona, Gyorgy Kulcsar |

### **Poster Session 3**

Date: Tuesday, 08 September 2026

Time: 15:40–16:40

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| ICEM26-000557                                                                                                                        |
| Health Monitoring and Fault Diagnosis of Large Hydrogenerators using CVAE-KAN and Stator Vibration Signals                           |
| Rony Ibrahim, Kamal Al-Haddad, Antoine Tahan, Arezki Merkhoul                                                                        |
| ICEM26-000174                                                                                                                        |
| Feasibility of Processing PEEK Insulation on Complex Prefabricated Electrical Machine Windings using Induction Heating               |
| Harrison Mogg-Walls, Nick Simpson, Mark Goudswaard                                                                                   |
| ICEM26-000297                                                                                                                        |
| Design Methodology for Additive Manufacturing of PMSM Stators: Compensating Sub-Optimal Magnetic Properties by Geometry Optimization |
| Michal Freisleben, Zdenek Frank, Tomas Paveza, Roman Pechanek                                                                        |
| ICEM26-000343                                                                                                                        |
| Present Status and Future Trends in Prototyping and Testing of Superconducting Electrical Machines                                   |
| Lorenzo Perilli, Luis Bucho, Nicholas Storti, João Filipe Pereira Fernandes, E Agamloh, Silvio Vaschetto                             |
| ICEM26-000364                                                                                                                        |
| Design of a Liquid Nitrogen Submerged High-Speed Motor                                                                               |
| Connor de Trafford, Yuchen Wang, Xiaoze Pei, Xianwu Zeng                                                                             |
| ICEM26-000490                                                                                                                        |
| Analysis of a Cryogenic Heat Load in a Fully Superconducting Wind Energy Generator                                                   |
| Jannis Sindram, Sebastian Lengsfeld, Nick Thoenelt, Lukas Hohmann, Sandeep Reddy Tukhani, Marco Jung                                 |
| ICEM26-000405                                                                                                                        |
| An Initiating Control Strategy for Continuous Conduction Mode of High-Speed Switched Reluctance Motors                               |
| Ryo Kokubu, Kyohei Kiyota                                                                                                            |
| ICEM26-000186                                                                                                                        |
| Manufacturing Influences on Wedge-Pins: A Comparative Study of Bending Characteristics for Direct Cooled Hairpin Windings            |
| Anja Preitschaft, Tobias Zürrlein, Simon Stauber, Roman Hahn, Thorsten Ihne, Jörg Franke, Florian Risch                              |

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| ICEM26-000188                                                                                                               |
| Mechanical Fixation of Wedge-Pins Using Expandable Slot Liners Enabling Advanced Cooling in Electrical Machines             |
| Simon Stauber, Roman Hahn, Tobias Zürrlein, Anja Preitschaft, Thorsten Ihne, Jörg Franke, Florian Risch                     |
| ICEM26-000034                                                                                                               |
| Robustness of Rewound Five-Phase Permanent-Magnet-Assisted Synchronous Reluctance Machines Under Large Air-Gap Eccentricity |
| Kotb Tawfiq, Peter Sergeant, Mohamed Ibrahim, Ehab Elsadaany                                                                |
| ICEM26-000185                                                                                                               |
| Parasitic magnetic coupling specific to multiphase squirrel cage induction machines                                         |
| Lucas Roux, Franck Scuiller, Florent Becker                                                                                 |
| ICEM26-000389                                                                                                               |
| A Robust IDA-PBC Strategy Based On Disturbances Observer For PMSM With Uncertainties                                        |
| Houssein Farhat, Azeddine Houari, Mohamed Fouad Benkhoris, Djamel Ziane, Emmanuel Frappé, Al Kassem Jebai                   |
| ICEM26-000441                                                                                                               |
| Energy-Efficient MTPA-Based Current Control of a Six-Phase Induction Generator Under Healthy and Faulty Conditions          |
| Marius Ouedraogo, Franck Betin, Yazidi Amine                                                                                |
| ICEM26-000014                                                                                                               |
| High-Frequency Common-Mode Voltage Diagnostics for Incipient Inter-Turn Short-Circuit Faults in Traction Motors             |
| Hujun Peng, Haokun Liu, Yue Yu, Nora Leuning, Simon Steentjes                                                               |
| ICEM26-000293                                                                                                               |
| AI-Driven Sensorless Predictive Maintenance of Induction Motors from Variable Speed Drive Signals                           |
| Ali TFAILY, Dilshad Surroop, Al Kassem Jebai, Sofiane Benberkane, Ahmad Awde, Omar Khanous                                  |
| ICEM26-000237                                                                                                               |
| Nonlinear current control for synchronous machines with LC filter                                                           |
| Pascal Seitter, Christoph Hackl                                                                                             |
| ICEM26-000048                                                                                                               |
| Life Cycle Sustainability Assessment of an Electric Motor for a Sport Utility Vehicle                                       |
| Flavio Calvi, Antonella Accardo, Gaia Gentilucci, Ezio Spessa                                                               |
| ICEM26-000165                                                                                                               |
| Experimental Validation of Demagnetization in a Ferrite Spoke-Type Synchronous Machine under Symmetric Short-Circuit        |
| Marcelo Silva, Mila Naghibian, Magnus Jansson, Sandra Eriksson                                                              |

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| <p>ICEM26-000214</p> <p>Design and Analysis of Consequent-Pole Vernier PM Machine Using Rotor Iron-Pole Shaping and Stator E-Type-Segment Modularization</p> <p>Zonghao Liu, Xianglin Li, Jinyang Li, Xiangyu Li, Zhiwei Xue, Kai Wang</p>                           |
| <p>ICEM26-000626</p> <p>Bidirectional Electro-Mechanical Interaction Effects in Electric Powertrains: a Comprehensive Modeling Approach</p> <p>Razie Ebrahimnejad, Giovanni Iarriccio, Alessandro Capitano, Marco Barbieri, Stefano Nuzzo, Giovanni Franceschini</p> |
| <p>ICEM26-000063</p> <p>Research on Dynamic Modeling and Vibration Suppression of a Flexible-Rotor PMSM Considering Electromechanical Coupling</p> <p>Ruichen Xie, Junjie Zou, Dawei Li, Ronghai Qu, Hantao Shen, Haiyang Fang</p>                                   |
| <p>ICEM26-000183</p> <p>Influence of Copper Coating on the Loss Characteristics of a High-Speed Solid Rotor Induction Machine</p> <p>Shoaib Ahmed, Lassi Aarniovuori, Janne Nerg, Jouni Ikäheimo, Ondřej Vítek, Jan Barta</p>                                        |
| <p>ICEM26-000294</p> <p>Design and Analysis of a Hybrid-Excitation Generator for Hydropower Applications</p> <p>Karlo Matić, Miroslav Petrinić, Damir Zarko</p>                                                                                                      |
| <p>ICEM26-000426</p> <p>Performance analysis and copper loss optimization of amorphous alloy motors</p> <p>Yixuan Song, Fan Rao, Wei Gao</p>                                                                                                                         |
| <p>ICEM26-000463</p> <p>Study of Unconventional Connections for Post-Fault Operations of Three and Five Phases PMSM Drives</p> <p>Erwann Accarie, Jean-Matthieu Bourgeot, Jean-Frederic Charpentier, Emmanuel Delaleau</p>                                           |
| <p>ICEM26-000623</p> <p>Effect of Cooling Air Inlet Temperature on Rotor Cooling and Windage Losses in a Turbo Generator</p> <p>Seyedehsan Rafiee, Teemu Turunen-Saaresti, Aki Grönman, Antti Uusitalo</p>                                                           |
| <p>ICEM26-000071</p> <p>Loss- and Thermal-Constrained Design of a PCB Stator Double-Rotor Axial-Flux Motor for Immersed Pump Applications</p> <p>Simone Sansoni, Alessia Fracassi, Marco Gubitosa, Işık Emir Altunkol, Elif Topaloğlu, Ozan Keysan</p>               |
| <p>ICEM26-000097</p> <p>A Novel Excess Loss Modeling Applicable to a Wide Range of Operating Conditions</p> <p>Kazuki Semba, Takashi Yamada, Tomohisa Sato, Hiroyuki Sano</p>                                                                                        |

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| <p>ICEM26-000124</p> <p>Acceleration Mechanisms and Adaptive Generation Control in Large-Scale Surrogate-Assisted Optimization</p> <p>Hiroyuki Sano, Koji Tani, Takashi Yamada, Kenta Kato, Shogo Aasahino</p>                                                             |
| <p>ICEM26-000371</p> <p>Next generation rotor cooling techniques of dual-stator axial flux electrical machines</p> <p>Sergiu Marciuc, Daniel Santos, Jordi Vera, Carles Olet, Ioan Deac, Abderrahmane Rebhaoui, Bogdan Butnariu, Ioan-Claudiu Cotovanu, Maximilian Ruf</p> |
| <p>ICEM26-000559</p> <p>Impacts of Rotor Sleeves on Stress Distribution and Deformation in Electrically Excited Synchronous Machines</p> <p>Ruonan Liu, Luca Boscaglia, Bowen Jiang, Yujing Liu</p>                                                                        |
| <p>ICEM26-000602</p> <p>e-NVH analysis of Induction motor refurbished to LSPMSM</p> <p>JAVED ALI, Reiko Raute, Cedric Caruana, Cyril Spiteri Staines</p>                                                                                                                   |
| <p>ICEM26-000645</p> <p>Extended Model for Dynamic Simulation of Line-Start Synchronous Reluctance Motors Considering Distributed Stator Winding Specifications</p> <p>Martim Furtado, Fernando Ferreira</p>                                                               |
| <p>ICEM26-000653</p> <p>Integral Modeling of the Magnetic Field in Ferromagnetic Materials for Electrical Machine Analysis</p> <p>Yazid Statra, Hocine Menana</p>                                                                                                          |
| <p>ICEM26-000656</p> <p>Analytical-Empirical Modeling of Heat Transfer from a Naturally Cooled Annular-Finned Electric Motor Housing</p> <p>Marek Toman, Jakub Súkeník, Radoslav Cipin, Ondřej Vítek, Ondrej Pavlasek, Jiri Klima</p>                                      |
| <p>ICEM26-000667</p> <p>Integrating Life-Cycle Sustainability Metrics into Multi-Objective Electric Machine Design Optimization</p> <p>Maykop Perez, Carlos Madariaga, César Gallardo, Juan Tapia</p>                                                                      |
| <p>ICEM26-000482</p> <p>High Thrust Density Parallel Segmented PM Linear Synchronous Motor</p> <p>Jasper Anttila, Aleksi Kytöviita, Rafal Jastrzebski</p>                                                                                                                  |
| <p>ICEM26-000103</p> <p>Thermal Analysis of Medium Sized Induction Machines with Water Jacket Cooling</p> <p>Felix Bloder, Bernhard Weilharter</p>                                                                                                                         |

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| ICEM26-000609                                                                                                                                                     |
| Preliminary Investigation of Electrophoretic Epoxy E-Coat Deposition: Suspension Characterization and Insulation Performance for Additively Manufactured Windings |
| Khizra Arif, Ants Kallaste, Sergei Bereznev, Toomas Vaimann, Ivar Kiitam, Ali Bhalli, Paul Taklaja, Hans Tiismus                                                  |
| ICEM26-000630                                                                                                                                                     |
| Bearing thermal modeling and lubrication method assessment for electric motors                                                                                    |
| Charles Nutakor, Tuomas Kuitunen, Juho Montonen, Jussi Sopanen                                                                                                    |
| ICEM26-000244                                                                                                                                                     |
| A New and Computationally Efficient Overmodulation Technique for Space Vector Modulation Driven Electrical Drives                                                 |
| Marco Bisesi, Claudio Nevoloso, Massimo Caruso, Gioacchino Scaglione, Antonino Oscar Di Tommaso, Rosario Miceli                                                   |
| ICEM26-000385                                                                                                                                                     |
| impact of current harmonics on field oriented control of permanent magnet synchronous machines in the field weakening area                                        |
| Lars Boschert, Jan Philipp Degel, Stefan Haehnlein, Dominik Krahe, Johannes Kolb, Christian Klöffer                                                               |
| ICEM26-000456                                                                                                                                                     |
| Self-Sensing Control of Highly Saturated PMSM at Operating Points with Identical Self-Inductances                                                                 |
| Viktor Willich, Axel Mertens                                                                                                                                      |
| ICEM26-000571                                                                                                                                                     |
| Design of Fractional-Order PID Controller to Active Magnetic Bearing Control                                                                                      |
| Feng Yi, Jian Li, Yang Lu, Zhouwei Wu, Haodong Li, Zixuan Zhang                                                                                                   |
| ICEM26-000600                                                                                                                                                     |
| High-Precision Discrete Mathematical Modeling and Internal Model Controller Design for IPMSMs Under Low Carrier-Ratio Conditions                                  |
| Mengjia Zhang, Jian Li, Yang Lu, Fei Du, Shuhuai Yang, Zhen Guo                                                                                                   |
| ICEM26-000009                                                                                                                                                     |
| Partial Discharge Behaviour and Accelerated Lifetime Model of an Induction Machine under Repetitive Impulsive Voltage                                             |
| Mohammed Elmezain, Fawzy Abdo, Mehmet Gulec, Peter Sergeant                                                                                                       |
| ICEM26-000117                                                                                                                                                     |
| Methodology Choice for Fuzzy-Based Vibration Fault Diagnosis of Collaborative Robots                                                                              |
| Siarhei Autsou, Olga Dunaeva, Mare Roosileht, Karolina Kudelina                                                                                                   |
| ICEM26-000120                                                                                                                                                     |
| Neural Network–Based Detection of Rolling Bearing Anomalies in a Closed-Loop Controlled PMSM                                                                      |
| Mateusz Krzysztofiak, Maciej Skowron                                                                                                                              |

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| <p>ICEM26-000201</p> <p>Graph-Based Machine Learning for Classification of Eccentricity Faults in Induction Motors</p> <p>George Tsialiamanis, Florence Clifford-Albrighton, Zihao Song, Antonios Karavitakis, Konstantinos Gyftakis, Panagiotis Panagiotou</p> |
| <p>ICEM26-000259</p> <p>Multi-Domain Feature Learning for Broken Rotor Bar Fault Diagnosis in Induction Motors</p> <p>Vasileios Vlachou, Theoklitos Karakatsanis, Dimitrios Efstathiou, Stavros Vologianidis, Zihao Song, Panagiotis Panagiotou</p>             |
| <p>ICEM26-000334</p> <p>Time–Frequency Analysis of Brush Sparking in Wound Rotor Induction Machines</p> <p>Jorge E. Carvajal P., Jose Manuel Guerrero Granados, Garazi Hernández, Victor Valverde</p>                                                           |
| <p>ICEM26-000541</p> <p>Data-Driven Multi-State Flux Model for Enhanced Static Eccentricity Diagnosis of IPMSMs</p> <p>Jaeyoon Kim, Jae-Kyung Ryu, Chae-Young Jeong, Joonho Yang, Byeng Dong Youn, Soo-Hwan Park</p>                                            |
| <p>ICEM26-000554</p> <p>High-Frequency Common-Mode Impedance Extraction and dv/dt Current Prediction in Small Inverter-Fed Induction Machines</p> <p>Oliver Magdun, Yves Gemeinder, Ioan Corneliu Salisteanu, Andreas Binder</p>                                |
| <p>ICEM26-000617</p> <p>Prediction of Combination Resonance in a Beam with Superconducting Magnetic Supports</p> <p>Toshihiko Sugiura, Taiga Miyahara</p>                                                                                                       |
| <p>ICEM26-000232</p> <p>Comparative case study of propulsor motor design concepts for 4-seat all-electric aircraft</p> <p>Tobias Knapp, Albert Schmidt, Matthias Centner</p>                                                                                    |
| <p>ICEM26-000336</p> <p>Enhanced Speed Control Strategy for Propeller-Load PMSMs Incorporating Active Damping Compensation</p> <p>Jingwei Lin, Yilin Ma, Huan Yang, Rongxiang Zhao, Jian-Xin Shen</p>                                                           |
| <p>ICEM26-000536</p> <p>A Review of Axial Flux Machines Topology Classification and Manufacturing Techniques</p> <p>Wasiq Ullah, Mohamed Abido, Udochukwu Akuru, Abdul Junejo, Mahmoud Hamouda, Mehroz Fatima</p>                                               |
| <p>ICEM26-000627</p> <p>Systematic Analysis of Axial Flux Synchronous Reluctance Machines Considering End Windings in a Fixed Installation Space</p> <p>Adrian Schäfer, Yuancong Gong, Tobias Zürrlein, Yazan Bajah, Nejila Parspour</p>                        |

ICEM26-000164

Performance Analysis of a Diode-Rectifier-Connected Permanent Magnet Vernier Wind Generator for DC Grids

Sandile Masango, Lucky Dube, Rong-Jie Wang, Maarten Kamper

ICEM26-000522

Multi-Objective Model Predictive Control for an Induction Machine fed by an NPC Inverter

Gustavo Henrique R. Adelino, Marco Rivera, Nady Rocha, Patrick Wheeler

## **Oral Session 32**

### **Rotating Machines 5**

Date: Tuesday, 08 September 2026

Time: 16:40–18:20

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| 16:40 | ICEM26-000088<br><br>Robust Optimal Design of Permanent Magnet Motors Approaching Ultimate Strength<br><br>Haiyang Fang, Miao Wang, Dawei Li, Ronghai Qu, Hao Hu                                  |
| 17:00 | ICEM26-000229<br><br>Overloadability Analysis for Distributed Winding Multiphase Machines<br><br>Stepan Slama, Zdenek Frank, Jan Laksar, Karel Hruska                                             |
| 17:20 | ICEM26-000414<br><br>Shaft Voltage and Bearings Durability of Closed-Slot Stator in Traction Permanent Magnet Machine<br><br>Tahar Hamiti                                                         |
| 17:40 | ICEM26-000455<br><br>Common-Mode Return Current Distribution and Circulating Bearing Currents in Electrical Machines with High-Conductivity Housings<br><br>Hans-Georg Kneidinger, Annette Muetze |
| 18:00 | ICEM26-000076<br><br>CFD study of a hydroelectric generator and effect of air leakage on flow distribution<br><br>Erwan Lambert, Federico Torriano, Mathieu Bertrand                              |

### **Oral Session 33**

#### **Design Issues (Optimization, Modeling and Simulation) 6**

Date: Tuesday, 08 September 2026

Time: 16:40–18:20

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| 16:40 | ICEM26-000216<br><br>Laminated Material Modeling and Mechanical Stress Analysis of Hybrid Laminated–Solid Rotor Core for High-Speed High-Power Induction Motors<br><br>Yulong Cui, Mohammadreza Ilkhani, Christopher Gerada, Andrea Cavagnino                   |
| 17:00 | ICEM26-000611<br><br>Inverter-Induced Bearing Currents in High-Specific-Power Outer Rotor PMSM: Influence of Slot-Pole Asymmetry<br><br>Konstantin Vostrov, Hüseyin Canseven, Ilya Petrov, Juha Pyrhönen                                                        |
| 17:20 | ICEM26-000373<br><br>Impact of Saliency on Small Signal Stability of Synchronous Reluctance Motors for Electric Vehicles<br><br>Hernan Alonso Bravo Urrea, Enrique Quispe, Felipe Santacruz, Juan Tapia, Harold José Díaz Martínez, Carlos Madariaga, Jan Barta |
| 17:40 | ICEM26-000590<br><br>Electromagnetic-noise-constrained optimization using coupled Mesh-Magnetic Equivalent Circuit and analytical vibro-acoustic model<br><br>Vyvien Dumont, Michel Hecquet, Maxime Ployard, Frédéric Gillon, Aymen Ammar, Abdelmounaïm Tounzi  |
| 18:00 | ICEM26-000607<br><br>System-Level and FEM Co-Simulation of a Nanocrystalline Medium-Frequency Transformer: A Comparative Study of Core Loss Models<br><br>Marco Stella, Vittorio Bertolini, Antonio Faba                                                        |

### **Oral Session 34**

#### **Special Machines, Linear Machines, Actuators and Sensors 1**

Date: Tuesday, 08 September 2026

Time: 16:40–18:20

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| 16:40 | ICEM26-000584<br><br>Sensor-less Machine Learning Assisted Position Estimation of Linear Solenoid Actuator System<br><br>Christopher Strablegg, David Rafetseder, Lukas Pinski, Florian Poltschak                      |
| 17:00 | ICEM26-000473<br><br>Fast Electromagnetic Assessment of a Phase Modular Transverse Flux Permanent Magnet Motor Using Static Solution Reconstruction<br><br>Georgios Assi Xylogiannis, Georgios Sakkas, Antonios Kladas |
| 17:20 | ICEM26-000242<br><br>Towards Sustainable Electromagnetic Actuators: A Comparative Study of Rare-Earth-Free Magnetic Materials<br><br>Trung Duong, Arda Tüysüz                                                          |
| 17:40 | ICEM26-000036<br><br>Subspace Projection for Self-Sensing Position Detection<br><br>Lukas Pinski, David Rafetseder                                                                                                     |
| 18:00 | ICEM26-000121<br><br>Design and Comparative Analysis of a Novel Interior Flux-Concentrating Rotor for Yokeless Stator AFPM Machines<br><br>Cheng Yuan, Pang Wei, Chen Huiyu, Zhao Da, Zhao Tianxu, Cui Shumei          |

## **Oral Session 35**

### **Electrical Drives 4**

Date: Tuesday, 08 September 2026

Time: 16:40–18:20

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| 16:40 | ICEM26-000661<br><br>A Modular Norton-Equivalent Approach to Control of Synchronous Machine Drives With an LC Filter<br><br>Hannu Hartikainen, Marko Hinkkanen                                                                     |
| 17:00 | ICEM26-000579<br><br>Intermodulation-based Pulsating High-Frequency Injection Sensorless Control of a Multisaliient Traction Induction Machine<br><br>Peter Gangel, Eduardo Rodriguez Montero, Markus Vogelsberger, Thomas Wolbank |
| 17:20 | ICEM26-000253<br><br>Current Harmonics in Induction Machine Drives Under Torsional Vibrations<br><br>Angelo Boceda, Matteo Deponti, Giovanni Maria Foglia, Roberto Perini                                                          |
| 17:40 | ICEM26-000234<br><br>Linear Quadratic Integral Control with Incremental-State Kalman Filter for Synchronous Motor Currents under Limited Model Information<br><br>Gabriele De Boni, Lorenzo Mantione, Lucia Frosini                |
| 18:00 | ICEM26-000210<br><br>Dynamic Reference Current Adaptation for Field-Oriented Control of Electrically Excited Synchronous Machines at High Speeds<br><br>Felix Burkard, Andreas Gneiting, Nejila Parspour                           |

### **Oral Session 36**

#### **Electrical Machines and Drives for Sustainable Transportation 3**

Date: Tuesday, 08 September 2026

Time: 16:40–18:20

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| 16:40 | ICEM26-000064<br><br>Rewinding a PMSM Stator for Higher Voltages considering Alternative Hairpin Winding Schemes<br><br>Lukas Böcker, Luca Peretti                                                                         |
| 17:00 | ICEM26-000614<br><br>Suboptimal Control of Permanent Magnet-assisted Synchronous Reluctance Motors: Design and Application<br><br>Andrea Credo, Federico Centi, Giuseppe Fabri, Rama Salloum, Marco Villani, Marco Tursini |
| 17:20 | ICEM26-000402<br><br>Harmonic Injection-Based Flux-Weakening Control of PMSM with Improved DC Bus Utilization<br><br>Matteo Pizzuto, Aiswarya Balamurali, Caniggia Viana, Hossain Mohammadi, Narayan Kar                   |
| 17:40 | ICEM26-000562<br><br>Experimental Comparative Study on Regenerative Control Algorithms for Brushless DC Machines<br><br>Marcello Minervini, Emir Poskovic, Angelo Baggini, Paolo Giangrande                                |
| 18:00 | ICEM26-000472<br><br>An Efficiency-Optimized Control Strategy for Variable Flux Machines<br><br>Santiago Cianca Sosa, Julius Kesten, Matthias Brodatzki, Martin Doppelbauer                                                |

### **Oral Session 37**

#### **Physics-Guided and Domain-Informed AI for Electrical Machine Design and Fault Diagnosis**

Date: Wednesday, 09 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000081<br><br>Surrogate-based Sensitivity Analysis for Low-dimensional Freeform Generator Designs<br><br>Latha Sethuraman, Andrew Glaws, Jaime Renedo Anglada, Panagiotis Tsilifis                                                                                   |
| 08:50 | ICEM26-000260<br><br>A BERT-Based Surrogate Model for Permanent Magnet Motor Cogging Torque Prediction<br><br>Siyuan Sun, Ye Wang, Toshiaki Koike-Akino, Tatsuya Yamamoto, Yusuke Sakamoto, Bingnan Wang                                                                    |
| 09:10 | ICEM26-000631<br><br>Physics-Informed Surrogate-Based Local Sensitivity Analysis of Stator Slot Geometry in Hairpin Winding IPMSMs with Limited Data<br><br>Anh Thanh Huynh, Thien- Phuoc Nguyen, Khang Huynh                                                               |
| 09:30 | ICEM26-000209<br><br>Computationally Efficient Prediction of Electromagnetic Excitation Force in SPMSM Considering Axial Leakage Flux via Space Harmonic Analysis-Based Deep Transfer Learning<br><br>Jae-Kyung Ryu, Jae-Hyun Kim, Jae-Yoon Kim, Min-Ro Park, Soo-Hwan Park |
| 09:50 | ICEM26-000307<br><br>Physics-Informed Machine Learning for Interpretable Fault Diagnosis in PMSM-Driven Belt Transmission Systems<br><br>Chengkai Shen, Joachim Weissbacher, Chen Song                                                                                      |

## **Oral Session 38**

### **Cryogenic Electric Machines**

Date: Wednesday, 09 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000588<br><br>Design and Preliminary Testing of a Cryogenically-Cooled Hyperconducting Motor<br><br>Charalampos Manolopoulos, Matteo Felice Iacchetti, Alexander Smith, Hongye Zhang, Paul Tuohy, Alexandru-Vlad Rusu, Stephen Harrison, Matthew Copus, Chuanli Zhao |
| 08:50 | ICEM26-000148<br><br>Comparative Study of Superconducting and Hyperconducting Air-Cored Motors for Electric Aircraft Propulsion<br><br>Mingzhe Sang, Hongye Zhang, Matteo Felice Iacchetti, Markus Mueller, Alexander C. Smith                                              |
| 09:10 | ICEM26-000178<br><br>AC Loss Reduction in the Stator Windings of a Fully HTS Axial-Flux Wind Generator via Coil Layout Optimization<br><br>Shuangrong You, Ozan Keysan, Adil Shah, Hongye Zhang, Markus Mueller                                                             |
| 09:30 | ICEM26-000605<br><br>Revisiting the Analytical Design of Wound-Field Synchronous Machines for High Torque Density Fully Superconducting Slotted Machines<br><br>Anass Lemansour, Thierry Lubin, Jean Lévêque                                                                |
| 09:50 | ICEM26-000073<br><br>Identifying Challenges and Solutions of Partially Superconducting Machines for Aviation Applications<br><br>Urooj Jadoon, Dong Liu, Lassi Aarniovuori, Juha Pyrhönen                                                                                   |

### **Oral Session 39**

#### **Advances in Multiphase Electric Drives: Design, Reliability, and Control**

Date: Wednesday, 09 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000563<br><br>Asymmetrical Space Vector Modulation for Two-Level Nine-Phase Converters<br><br>Rodrigo Bastos, Rafael F. Bortolo, Braz J. Cardoso Filho                                                                                                                                       |
| 08:50 | ICEM26-000411<br><br>Consideration of Magnetic Coupling in Segmented Dual Three-Phase Electrical Machines with Residual Model Approach<br><br>Lorenz Schoch, Matthias Brodatzki, Martin Doppelbauer                                                                                                 |
| 09:10 | ICEM26-000363<br><br>Concept for a high-power Stator Cage Drive with integrated power supply<br><br>Dennis Guhl, Michael Schütz, Martin Dammer, Matthias Centner, Steffen Bernet                                                                                                                    |
| 09:30 | ICEM26-000384<br><br>Impact of Switching Frequency and DC-Link Voltage of Wide-Bandgap Inverters on Bearing Electrical Stress in Electric Machines<br><br>Fawzy Abdo, Daan Deruyter, Mehmet Gulec, Kotb Tawfiq, Peter Sergeant                                                                      |
| 09:50 | ICEM26-000547<br><br>Semi-Decoupled Modulation Method for Voltage Utilisation Improvement and Current Harmonic Mitigation of Dual Three-Phase Motor Drives<br><br>Mengmeng Cui, Dongdong Chen, Tianjie Zou, Dmytro Prystupa, andrew trentin, Jacopo Riccio, Xiang Ren, Michele Degano, chris gerada |

### **Oral Session 40**

## **Frequency Response Analysis for Electrical Machines' Fault Diagnosis and Prognosis**

Date: Wednesday, 09 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000301<br><br>Impedance Frequency Response Analysis for Non-Destructive Evaluation of Concentrated Coils<br><br>Edward Stone, Panagiotis Panagiotou, Andrew Mills, Geraint Jewell, Alexis Lambourne          |
| 08:50 | ICEM26-000261<br><br>Modelling Sensitivity of Impedance Spectroscopy to Coil Insulation Thickness and Geometry<br><br>Edward Stone, Panagiotis Panagiotou, Andrew Mills, Geraint Jewell, Alexis Lambourne           |
| 09:10 | ICEM26-000280<br><br>A Highly-Sensitive Ground-Wall and Phase-Phase Winding Insulation Monitoring Method using Partial Common-Mode Excitation<br><br>Eduardo Rodriguez Montero, Markus Vogelsberger, Thomas Wolbank |
| 09:30 | ICEM26-000105<br><br>Comprehensive Measurement Analysis of the Cyclic Multi-Stress Ageing of Stator Winding Insulation<br><br>Norman Blanken, Bernd Ponick                                                          |
| 09:50 | ICEM26-000300<br><br>Motor Poles' Degradation-based Frequency Response Analysis - The YASA Motor Paradigm<br><br>Magda Maragkoudaki, Tim Woolmer, Konstantinos Gytakis                                              |

## **Oral Session 41**

### **Design Issues (Optimization, Modeling and Simulation) 7**

Date: Wednesday, 09 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000304<br><br>Impact of electromagnetic coupling on bearing dynamics and acoustic response in electric machines<br><br>Charles Nutakor, Fabio Di Giusto, Lucas Van Belle, Alen Alić, Selma Čorović, Mario Vukotić, Elke Deckers, Frank Naets, Damijan Miljavec, Jussi Sopanen |
| 08:50 | ICEM26-000435<br><br>Accelerating Magnetostatic FE Simulations of Electric Machines With Echo State Networks<br><br>Federico Valpiani, Gerd Bramerdorfer, Alessandro Niccolai, Sonia Leva                                                                                            |
| 09:10 | ICEM26-000339<br><br>Effect of Symmetrical and Asymmetric Eccentric Arc Tooth Shaping on Vibration Force in SPM and IPM Synchronous Machines<br><br>Shiyun Li, Zi-Qiang Zhu, Yinzhaoh Zheng, Hao Xu, Yue Liu, Hui Wu, Ruiren Luo                                                     |
| 09:30 | ICEM26-000017<br><br>Assessment of proximity effect with conformal mapping for tooth wound windings in rotating electric machines<br><br>Lukas Resch, Reinhard Ingruber, Roland Seebacher                                                                                            |
| 09:50 | ICEM26-000111<br><br>Coupling of Electromagnetic and Structural Domains for NVH Prediction of PMSM motor<br><br>Alen Alić, Lucas Van Belle, Fabio Di Giusto, Mario Vukotić, Charles Nutakor, Selma Čorović, Frank Naets, Elke Deckers, Urban Rupnik, Damijan Miljavec                |

## **Oral Session 42**

### **Diagnostics and Condition Monitoring 6**

Date: Wednesday, 09 September 2026

Time: 08:30–10:10

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| 08:30 | ICEM26-000560<br><br>The influence of single interturn short circuits on the properties of a switched reluctance motor and their detection<br><br>Mariusz Korkosz, Jan Prokop, Piotr Bogusz, Piotr Zasowski, Marcello Minervini          |
| 08:50 | ICEM26-000483<br><br>An Automated Test Bench Concept for Degradation Testing of Electrical Insulation Systems Under Thermal and Electrical Stress<br><br>Philipp Tillmann                                                                |
| 09:10 | ICEM26-000230<br><br>A Universal Diagnostic Framework for Stator Faults in Symmetrical and Asymmetrical Six-Phase Induction Motor Drives<br><br>Hugo R. P. Antunes, D. S. B. Fonseca, João Serra, Antonio J. Marques Cardoso             |
| 09:30 | ICEM26-000643<br><br>SVM-based Machine Learning Algorithm for Inverter Fault classification and Diagnosis in Five-Phase PMSM Drives<br><br>Eya Gassab, Mohamed Trabelsi, Nouredahr Zaidi, Seifeddine Ben Elghali                         |
| 09:50 | ICEM26-000442<br><br>Data Based Mechanical Fault Identification for Synchronous Reluctance Motor via Physically Significant Features<br><br>Angela Navarro, Oliwia Frankiewicz, Jose E. Ruiz-Sarrio, Maciej Skowron, Jose Antonino Daviu |

## **Poster Session 4**

Date: Wednesday, 09 September 2026

Time: 10:10–11:10

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| ICEM26-000050                                                                                                                            |
| Characterization of Eddy Currents in Additively Manufactured Rotors of Synchronous Reluctance Machines                                   |
| Max Langanke, Marius Behrendt, Bernd Ponick                                                                                              |
| ICEM26-000100                                                                                                                            |
| Review of laser powder bed fusion and multimaterial additive manufacturing for soft magnetic electrical machine core components          |
| Antti Mutanen, Antti Salminen, Rafal P. Jastrzebski                                                                                      |
| ICEM26-000360                                                                                                                            |
| Current Density Maximizing Design of an Additively Manufactured Axial Flux Switched Reluctance Motor                                     |
| Martin Sarap, Ants Kallaste, Toomas Vaimann                                                                                              |
| ICEM26-000093                                                                                                                            |
| Comparative Loss Analysis of Additively Manufactured Copper and Aluminium Windings for Cryogenic Motors                                  |
| Yuchen Wang, Wenkai Yan, Han Wang, Kenneth Nai, Biao Cai, Alexander Goodall, Xianwu Zeng, Xiaozhe Pei                                    |
| ICEM26-000161                                                                                                                            |
| Characterization of Defect-Induced Losses and Insulation Reinforcement Strategies for Litz Wire in Submerged Liquid Hydrogen Pump Motors |
| Yan Zhang, Yuanzhi Zhang, Dawei Li, Ronghai Qu                                                                                           |
| ICEM26-000083                                                                                                                            |
| On the Definition of Specific Electric Loading in Switched Reluctance Machines                                                           |
| Vincenzo Madonna, Cesare Maria Meano, Alberto Lorenzo Vassallo                                                                           |
| ICEM26-000335                                                                                                                            |
| A Shaped Profile Winding Configuration with Variable Cross-Section and Heat Pipe Cooling                                                 |
| Yanhe Ren, Han Zhao, Jing Li, Xiaochen Zhang, Weiduo Zhao, Dalin Du, Yixiang Yuan, He Zhang                                              |
| ICEM26-000682                                                                                                                            |
| Impact of Stator Slot Aspect Ratio on AC Loss in Hairpin Windings in Axial Flux Induction Machines                                       |
| Carlos Galvez-Araya, Carlos Madariaga, Yosmani Almira, Felipe Santacruz, César Gallardo, Juan Tapia                                      |
| ICEM26-000518                                                                                                                            |
| Fast Coupled Electromagnetic-Thermal Analysis for the Optimization of IPMSM Temperature Evaluation over Driving Cycles                   |
| Hiroyuki Sano, Taizo Senda, Atsuyoshi Nagase, Takashi Yamada, Kazuki Semba                                                               |

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| <p>ICEM26-000303</p> <p>Inter-Plane Cross Saturation Effects on the Vector Space Decomposition Modeling of a Dual Three-Phase IPM Machine</p> <p>Marco Pastura, Fabio Tinazzi, Mauro Zigliotto</p>                                                    |
| <p>ICEM26-000475</p> <p>Third-Harmonic Flux Effect in the Five-Phase Interior PMSM</p> <p>Jan Laksar, Tomáš Komrska, Vaclav Šmídl, Karel Hruska, Lukáš Adam</p>                                                                                       |
| <p>ICEM26-000648</p> <p>Direct Force Control of Six-Phase Bearingless Synchronous Machines</p> <p>Nirangkush Das, Floran Martin, Eleftherios Kontodinas, Marko Hinkkanen</p>                                                                          |
| <p>ICEM26-000520</p> <p>Real-Time Inter-Turn Fault Detection in Six-Phase PMSMs and Aging Characterization</p> <p>Luca Vancini, Paolo Seri, Michele Mengoni, Gabriele Rizzoli, Antonio J. Marques Cardoso, Andrea Cavallini</p>                       |
| <p>ICEM26-000569</p> <p>Permanent Magnet Outer Rotor Motor for Aerospace application</p> <p>Federico Centi, Marco Villani, Francesco Parasiliti, Moreno D'Andrea, Riccardo Ballesi, Cecilia D'Angelo</p>                                              |
| <p>ICEM26-000356</p> <p>Comparison of Capacitive and Resistive Faults in Field Windings of Synchronous Machines by Frequency Response Analysis (FRA)</p> <p>Abel Dominguez, Alberto Perez-Arnal, Carlos A. Platero, Jose Manuel Guerrero Granados</p> |
| <p>ICEM26-000077</p> <p>An Overview of the Partial Discharge Electrical Measurement Chain for AI-Based Online Monitoring of Rotating Machines</p> <p>Léo-Paul CARRE, Thierry Boileau, Lionel Durantay, Cyrille Caironi</p>                            |
| <p>ICEM26-000258</p> <p>Optimal Feedforward Torque Control of Permanent Magnet Synchronous Machines via a Meta-Learning-Based Artificial Neural Network</p> <p>Erik Köster, Lukas Hölsch, Oliver Wallscheid</p>                                       |
| <p>ICEM26-000537</p> <p>Compressed-sensing Approach to Magnetic-Flux Map Acquisition with Experimental Validation</p> <p>Abhishek Patkar, Yebin Wang, Abraham Goldsmith, Dehong Liu, Kamal Youcef-Toumi</p>                                           |
| <p>ICEM26-000166</p> <p>How NdFeB Placement Affects the Demagnetization of a Hybrid NdFeB and Ferrite Permanent Magnet in an Electric Motor</p> <p>Kristina Bergström, Sandra Eriksson</p>                                                            |

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| <p>ICEM26-000276</p> <p>A Low-Cost Non-Destructive Method for the Diagnosis of Magnetic Health of Permanent Magnet Rotors</p> <p>Alphousseyni Sagna, Stephane Clenet, Nicolas Perry, Wissem Bekir, Abdelkader Benabou</p>                        |
| <p>ICEM26-000534</p> <p>Review and Classification of Axial Flux Machines for Industrial Transportation Electrification</p> <p>Wasiq Ullah, Mohamed Abido, Udochukwu Akuru, Abdul Junejo, Mahmoud Hamouda, Mehroz Fatima</p>                      |
| <p>ICEM26-000624</p> <p>Stochastic Gradient Descent Based Torque Ripple Mitigation of Permanent Magnet Synchronous Machines: A Comparative Study</p> <p>Qixuan Chenwei Wang, Torbjörn Thiringer, Joachim Härsjö</p>                              |
| <p>ICEM26-000016</p> <p>Magnet Volume Reduction of Spoke-Type IPM Motors Using Resin-Unit Rotor Structure</p> <p>Taketo Minami, Yuki Hidaka</p>                                                                                                  |
| <p>ICEM26-000283</p> <p>Mitigating manufacturing degradation in axial flux traction motors via stress relief annealing</p> <p>Ahmed Abouelyazied, Abderrahmane Rebhaoui</p>                                                                      |
| <p>ICEM26-000413</p> <p>Effects of Magnetic Saturation on the Field-oriented Control of Variable Flux Reluctance Machines</p> <p>Yiwei Hu, Doga Ceylan, Konstantin O. Boynov, Elena Lomonova</p>                                                 |
| <p>ICEM26-000480</p> <p>Improvement of Magnetic Coupling by Simple Modification of Pot-Core Rotary Transformers</p> <p>Murtaza Ali Khooharo, Luca Papini, Paolo Bolognesi</p>                                                                    |
| <p>ICEM26-000538</p> <p>Mathematical Modeling of a Wound Rotor Synchronous Generator with Phase-Shifted Non-Overlap Windings as a Synchronous Condenser</p> <p>Karen Garner</p>                                                                  |
| <p>ICEM26-000190</p> <p>AI-Assisted Multi-Physics Optimization of PWM-Supplied Electric Motors</p> <p>Patrick Lombard, Sifis Leventakis, Limin Huang</p>                                                                                         |
| <p>ICEM26-000192</p> <p>Optimization Design of High-Efficiency Traction Motors Based on Operating Condition Spectrum</p> <p>Linliang Zhao, Dong Li, Zhiming Geng, cao junci, Xinyi He, Dongwu Luo, Huanghui Wu</p>                               |
| <p>ICEM26-000204</p> <p>Drive Cycle Based Multiphysical Optimization of an Interior Permanent Magnet Synchronous Machine Using Isogeometric Rotor Shape Optimization</p> <p>Leon Blumrich, Michael Wiesheu, Sebastian Schöps, Yves Burkhardt</p> |

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| <p>ICEM26-000257</p> <p>A Method for Computation the Copper Layer Thickness of High Speed Copper-Coated Solid Rotor Induction Machines Based on Equivalent Circuit</p> <p>Liwei Zhu, Zhiquan Deng, Aohua Wang</p>                                                                                    |
| <p>ICEM26-000290</p> <p>Comparative preliminary design of three 5 MW, 240rpm electric generators for wind and hydro energy conversion with FEM key validation</p> <p>Ion Boldea, Lucian Tutelea, Ana-Adela Popa, Ileana Torac, Bogdan A. Cîrdei, Viorel Arton</p>                                    |
| <p>ICEM26-000313</p> <p>Study on the influence of mount characteristics uncertainties on the electric machine-induced structure-borne noise</p> <p>Fabien Chauvicourt, Alex McCloskey</p>                                                                                                            |
| <p>ICEM26-000348</p> <p>Feasibility Study of a Pure Iron PBF-LB Printed AFPM Machine</p> <p>Jean Francois Llibre, Olivier Maillot, Thomas Huguet, Nelson Sadowski, Isabelle Pasquet, Valérie Baco-Carles, Vincent Baylac, Philippe Tailhades</p>                                                     |
| <p>ICEM26-000366</p> <p>Influence of Air Gap Geometric Tolerances on Maxwell Pressures in Permanent Magnet Synchronous Machines</p> <p>Thomas Poupon, Vincent Lanfranchi, Arthur Givois, Jean-Daniel Chazot, Tahar Hamiti</p>                                                                        |
| <p>ICEM26-000372</p> <p>Simulation-Driven Preliminary Rolling-Bearing Design for Double Air-Gap Axial-Flux Machines</p> <p>Gyorgy Kulcsar, Sergiu Marciuc, Robert Kulcsar, Ioan-Claudiu Cotovanu, Matei Salomie, Ioan Deac, Abderrahmane Rebhaoui, Bogdan Butnariu</p>                               |
| <p>ICEM26-000395</p> <p>Electromagnetic Analysis and Constrained Genetic Algorithm Optimization of a Miniature Outer-Rotor BLDC Motor for UAV Applications</p> <p>Sumeet Khalid, Ants Kallaste, Toomas Vaimann, Muhammad Usman Naseer, Shahid Hussain, Zahoor Ahmad, Mehroz Fatima, Waqas Sarwar</p> |
| <p>ICEM26-000422</p> <p>Impact of Motor Design Parameters and Materials on the Bearing Voltage and Current Events</p> <p>Francesco Gambelli, Stefano Nuzzo, Filippo Savi, Giovanni Franceschini, Davide Barater</p>                                                                                  |
| <p>ICEM26-000558</p> <p>Optimization of the Fluid flux Barriers in a Synchronous Permanent Magnet Machine Using a Multiphysics Approach Considering Mechanical Stress, Demagnetisation and the Driving Cycle losses</p> <p>Abdelli Abdenour</p>                                                      |
| <p>ICEM26-000296</p> <p>A Review of Cobalt-Iron Alloys for Electrical Machines</p> <p>Jignesh Makwana, Juliette Soulard</p>                                                                                                                                                                          |

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| ICEM26-000544                                                                                                                                                                                           |
| Experimental Investigation of Impingement Jet Cooling of End Windings in a Multiphase Machine<br>Vaclav Bruha, Stepan Slama, Lukas Veg, Roman Pechanek                                                  |
| ICEM26-000642                                                                                                                                                                                           |
| Effect of Rotor Core Hysteresis on Torque and Rotor Losses in a High-Speed Solid-Rotor Induction Machine<br>Felipe Ortiz-Bustos, Ilya Petrov, Konstantin Vostrov, Michele Degano, Pia Lindh, Janne Nerg |
| ICEM26-000037                                                                                                                                                                                           |
| Active noise and vibration compensation in synchronous machines and gearboxes by controlling harmonic currents<br>Michael Kuper, Jonas Jansen, Axel Mertens                                             |
| ICEM26-000109                                                                                                                                                                                           |
| Continuous Control Set MPC for Induction Motors: A Multivariable State-Space Strategy with Stability Analysis<br>Jefferson Costa, Angelo Lunardi, Marco Rivera, Alfeu Sguarezi                          |
| ICEM26-000565                                                                                                                                                                                           |
| Sensor Fault-Tolerant Control of H8-CSI-Fed PMSM Using Adaptive Kalman Filter<br>Jundong Wang, Jianning Dong, Yongpeng Li, Mohamad Ghaffarian Niasar, Pavol Bauer                                       |
| ICEM26-000567                                                                                                                                                                                           |
| Comparison of Matrix Converter Topologies for a High Power Integrated Drive Application<br>Matias Hernandez Maturana, Liliana De Lillo, Mauro Di Nardo, Lee Empringham                                  |
| ICEM26-000574                                                                                                                                                                                           |
| A High-Performance Flux Linkage Controller for PMSM Operating at Low Carrier Ratios<br>Shuhuai Yang, Jian Li, Yang Lu, Fei Du, Mengjia Zhang, Zhen Guo                                                  |
| ICEM26-000068                                                                                                                                                                                           |
| Comparative Study of Power-Frequency and Impulse-Voltage Partial Discharge Measurements on Stressed Motorettes<br>Laureen Stahl, Kristin Homeier, Ali Azeroual, Moritz Kuhnke, Peter Werle              |
| ICEM26-000084                                                                                                                                                                                           |
| Online fault diagnosis of railway traction induction machines working under varying speed and load conditions<br>Razan Issa, Guy CLERC, Ryan Michaud, Eric Lorca, Malorie Hologne-Carpentier            |
| ICEM26-000202                                                                                                                                                                                           |
| Modelling and Simulation of Mechanical Gearbox Faults via Induction Motor Electrical Signal Analysis<br>Juan Barreno, Antonio J. Marques Cardoso                                                        |

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| <p>ICEM26-000323</p> <p>A Reduced-Parameter Electromagnetic Model for Direct Inductance Matrix Evaluation of Induction Machines</p> <p>Carla Terrón Santiago, Sandra Delfa-Baena, Angel Sapena-Bano, Manuel Pineda-Sanchez</p>                          |
| <p>ICEM26-000328</p> <p>Multi-Physics Evaluation of Demagnetization in PMSM Rotor Topologies for Elevator Systems</p> <p>Angelos Argyriou, Vasileios Vlachou, Theoklitos Karakatsanis, Antonios Kladas</p>                                              |
| <p>ICEM26-000354</p> <p>Detection of Static Eccentricity Faults in Coreless Dual-Rotor Permanent Magnet Generators via a Pseudo Zero-Sequence Flux Signal</p> <p>Marios Salinas, Markus Mueller, Konstantinos Gyftakis</p>                              |
| <p>ICEM26-000503</p> <p>Sparse Representation-Based Broken Rotor Bar Diagnosis From Stator Current Measurements With Probabilistic Decision Making</p> <p>Hadi Raja, Ants Kallaste, Toomas Vaimann</p>                                                  |
| <p>ICEM26-000591</p> <p>A New Modeling Approach for Incipient Inter-Turn Short-Circuit Faults in Full PMSM Drive Systems</p> <p>Azeddine Faouzi, Thierry Boileau, Abdenour Soualhi, Nouredine Takorabet, Farid Meibody-Tabar, Franck Vangraefschèpe</p> |
| <p>ICEM26-000008</p> <p>Effect Of Random Wound Winding On Partial Discharge Behaviors for A 400V Electric Vehicle Motor</p> <p>Mohammed Elmezain, Fawzy Abdo, Mehmet Gulec, Peter Sergeant</p>                                                          |
| <p>ICEM26-000067</p> <p>Sequential Co-Simulation of SiC Inverter-Fed PMSMs for Electric Aircraft Propulsion</p> <p>Jeff Kugener, Enrico Teichert, Fabius Liebermann-Zoehe, Matthias Lang, Stefan Kazula, Ilja Koch</p>                                  |
| <p>ICEM26-000376</p> <p>A Novel Magnetization Process of Halbach Array Magnets for In-Wheel Motors</p> <p>Akeshi Takahashi, Hirona Tanaka, Tomoaki Nishimura, Michihiro Takahashi, Tetsuya Suto</p>                                                     |
| <p>ICEM26-000443</p> <p>A Novel Method for Fluid Compatibility Evaluation of Insulation Systems for 800V+ Electric Machines</p> <p>Michael Suriyah, Christian Nörnberg, Shafigh Nategh, Thomas Leibfried, Thomas Hellwig, Dilhun Örsler Özkardesler</p> |
| <p>ICEM26-000599</p> <p>An Analytical Approach for Pole Shaping Optimisations in Electrically Excited Synchronous Machines</p> <p>Gaia Petrelli, Amedeo Vannini, Stefano Nuzzo, Tianjie Zou, Davide Barater, Chris Gerada</p>                           |

ICEM26-000403

General Analytical Modeling of Three-Phase Short-Circuit Currents and Demagnetization Analysis in Dual Three-Phase SPM Wind Generators

Chenning Zhang, Lijian Wu, Yang Shi, Wenting Wang, Haoyu Zhou, Yidong Du

### **Oral Session 43**

#### **Advanced Switched Reluctance Machines and Drives: a Magnet-Free Alternative for Cost-Sensitive and High-Reliability Applications**

Date: Wednesday, 09 September 2026

Time: 11:10–12:50

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| 11:10 | ICEM26-000355<br><br>A Balanced Torque Sharing Control Strategy with Low Torque Ripple and Wide Speed Range for 5-phase Switched Reluctance Machines<br><br>Ali Akbar Emarloo, Luca Papini, Milijana Odavic, Paolo Bolognesi    |
| 11:30 | ICEM26-000310<br><br>Comparison and Critical Aspects of Current Chopping Control and Field Oriented Controls for SRMs over the Whole Speed Region<br><br>Emilio Carfagna, Giovanni Migliazza, Fabio Immovilli, Emilio Lorenzani |
| 11:50 | ICEM26-000263<br><br>Possibilities of Improving Fault Tolerance in Switched Reluctance Motors<br><br>Mariusz Korkosz, Jan Prokop, Piotr Bogusz, Piotr Zasowski, Marcello Minervini                                              |
| 12:10 | ICEM26-000404<br><br>A Discrete-Time Super-Twisting Sliding Mode Controller for High-Speed Switched Reluctance Generators Under Single-Pulse Excitation<br><br>Filipe Pinarello Scalcon, Andy Knight                            |
| 12:30 | ICEM26-000046<br><br>Reduction of AC copper loss by Modifying the Iron Core Shape in High-Speed (50,000r/min) Compact SRMs for Automotive Tractions<br><br>Wenyi Xu, Kyohei Kiyota, Akira Chiba                                 |

### **Oral Session 44**

## **Hairpin Conductor Windings Enabling Advanced Cooling Technologies in EV Electrical Machines**

Date: Wednesday, 09 September 2026

Time: 11:10–12:50

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| 11:10 | ICEM26-000375<br><br>Wideband Impedance Modelling of Hairpin Winding Under Material Uncertainty for EV Traction Motors<br><br>Mingjie Wang, Tianjie Zou, Xiang Ren, Hailin Huang, Hadi Naderiallaf, Adam Walker, Wenting Wang, Christopher Gerada         |
| 11:30 | ICEM26-000062<br><br>Direct Cooled Hairpin Winding via Expandable Slot Liner – The Wedge-Pin<br><br>Tobias Zürlein, Daniel Walch, Jonas Gehring, Anja Preitschaft, Simon Stauber, Roman Hahn, Jörg Franke, Florian Risch                                  |
| 11:50 | ICEM26-000447<br><br>Mechanical Design and Structural Validation for Oil Spray Cooled High-Speed Motors<br><br>Georgios Assi Xylogiannis, Georgios Sakkas, Antonios Kladas                                                                                |
| 12:10 | ICEM26-000568<br><br>Effect of Temperature Distribution on the Electromagnetic Performance of PMSM with Direct Oil Cooling Hairpin Winding<br><br>Ilya Petrov, Hüseyin Canseven, Pratik Bisale, Lassi Aarniovuori, Dong Liu, Juho Montonen, Juha Pyrhönen |
| 12:30 | ICEM26-000357<br><br>Design and Validation of an Oil-immersed Closed-slot Continuous-Wave Winding EV Traction Motor<br><br>Alexandros Michaelides, Cleef Thackwell, Wonrak Bae, Maximilian Wilhelm                                                        |

## **Oral Session 45**

### **Rotating Machines 6**

Date: Wednesday, 09 September 2026

Time: 11:10–12:50

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| 11:10 | ICEM26-000524<br><br>Comparative Analysis of Rotor Topologies in Variable Flux Machines with Low Coercivity Magnets<br><br>Raffaele Garino, Chen Chen, Paolo Pescetto, Simone Ferrari, Gianmario Pellegrino         |
| 11:30 | ICEM26-000311<br><br>Rotor for PM Machines with Axially Extended Magnet Modules<br><br>Gurakuq Dajaku                                                                                                               |
| 11:50 | ICEM26-000006<br><br>Magnet Assisted Synchronous Reluctance Motor with Multiple Magnetic Circuit in Axial Direction<br><br>Yuki Hidaka                                                                              |
| 12:10 | ICEM26-000141<br><br>Innovative Modular Axial-Flux PMSM Machine with Dual-Stator/ Dual-Rotor Structure for Marine Applications<br><br>Esmaeil Mohammadi, Mohammad Amin Jalali Kondelaji, Pedram Asef, Dan M. Ionel  |
| 12:30 | ICEM26-000329<br><br>Evaluation of a Switched Reluctance Motor Using a Newly Developed Si-Gradient Steel (JNHQ)<br><br>Nagomi Yamakawa, Ayumi Nagai, Kenji Nakamura, Yoshiaki Zaizen, Tomoyuki Okubo, Yoshihiko Oda |

## **Oral Session 46**

### **Design Issues (Optimization, Modeling and Simulation) 8**

Date: Wednesday, 09 September 2026

Time: 11:10–12:50

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| 11:10 | ICEM26-000193<br><br>Development of Dynamic Magnetic Network for the Outer-Rotor Flux-Switching Hybrid-Excited Machine Considering Magnetic Saturation Effect and Eddy Current Effect<br><br>Zhiyuan Xu, Ming Cheng, Zhongze Wu, Wentao Zhang, Honghui Wen, Minghao Tong |
| 11:30 | ICEM26-000596<br><br>Quasi-3D Analytical Modeling of Axial Flux Permanent Magnet Motors Using a Linear Motor Transformation<br><br>Young-Hyun Park, Kyu-Seob Kim                                                                                                         |
| 11:50 | ICEM26-000149<br><br>A High-Torque-Density Axial-Flux Field-Modulated Servo Motor with Magnetic Harmonic Reduction for Robotic Joints<br><br>Yuyuan Qin, Ying Fan, Ming Cheng                                                                                            |
| 12:10 | ICEM26-000432<br><br>Comparative Evaluation of Soft Magnetic Composite and Laminated Materials for Axial Flux Synchronous Motor<br><br>Aleksandr Nadkin, Taha El Hajji, Jorge Luis Lora, Lars Sjoberg                                                                    |
| 12:30 | ICEM26-000582<br><br>Comparison of Computed and Measured Flux Maps of a Five-phase Motor<br><br>Daniel Alban, Dieter Gerling                                                                                                                                             |

## **Oral Session 47**

### **Thermal and Losses Issues (Magnetic and Insulation Materials) 2**

Date: Wednesday, 09 September 2026

Time: 11:10–12:50

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| 11:10 | ICEM26-000471<br><br>Advancements in Semi-Magnetic Slot Wedge Design Through Pultrusion<br><br>Eva Maria Bresemann, Hendrik Detampel, Martin Enno Gerlach, Marvin Hengelsberg                                 |
| 11:30 | ICEM26-000577<br><br>Influence of Winding Arrangement on B-H and Core Loss Measurements: From Ring Specimens to Slotted Stator Cores<br><br>Giampaolo Devito, Viviana La Russa, Davide Barater, Stefano Nuzzo |
| 11:50 | ICEM26-000277<br><br>Evaluation of stator core cooling designs via inner-core iron loss tests<br><br>Leonardo Colombo, Rasmus Andersson, Avo Reinap, Francisco Marquez-Fernandez                              |
| 12:10 | ICEM26-000135<br><br>Reduction of Winding Losses in High Speed Electrical Machines with Tooth-Coil Rectangular Windings<br><br>Kean Liu, Dinghua Zhang, Yue Liu, Yangju Zou, Ruiren Luo, Hui Wu               |
| 12:30 | ICEM26-000535<br><br>Effect of magnetic doping of Soft Magnetic Composites: study of the Layer by Layer process parameters influence<br><br>Luca FERRARIS, Fausto Franchini, Federico Carosio, Emir Poskovic  |

## **Oral Session 48**

### **Diagnostics and Condition Monitoring 7**

Date: Wednesday, 09 September 2026

Time: 11:10–12:50

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| 11:10 | <p>ICEM26-000345</p> <p>Intermittent Ground Fault Detection in Variable Frequency Drives with High Resistance Grounding</p> <p>Jesús Mauricio Pérez García, Aritz Iturregi, Carlos Platero, Nader Safari-Shad, Inmaculada Zamora, Jose Manuel Guerrero Granados</p> |
| 11:30 | <p>ICEM26-000145</p> <p>Diagnosis of Bearing Faults in Induction Motors Using Hilbert-Huang Spectral Energy Descriptors</p> <p>Yuri Bórnea, José Pedro Barbosa Neto, Alessandro Goedtel, Wesley Souza, Marcelo Castoldi</p>                                         |
| 11:50 | <p>ICEM26-000255</p> <p>Transient Analysis of Electromagnetic and Vibration Signals for Field Winding Fault Detection in Synchronous Motors</p> <p>Saeed Afrandideh, Jose E. Ruiz-Sarrio, Carlos Platero, Jose Antonino Daviu, Edmund Marth, Gerd Bramerdorfer</p>  |
| 12:10 | <p>ICEM26-000072</p> <p>Application of Machine Learning to a Low-Cost Condition Monitoring Ball-Screw Drive System</p> <p>Charlotte Harries-Harris, Judith Apsley, Sinisa Durovic</p>                                                                               |
| 12:30 | <p>ICEM26-000070</p> <p>Impact of Early-Stage Unbalance Fault on Vibration Analysis in Axial Industrial Fans Under Grid and Variable-Speed Drive Operation</p> <p>Francesca Muzio, Lorenzo Mantione, Tomas Garcia-Calva, Daniel Morinigo-Sotelo, Lucia Frosini</p>  |

### **Oral Session 49**

#### **Fault Diagnosis and Fault-Tolerant Operation in Multiphase Electric Drives**

Date: Wednesday, 09 September 2026

Time: 14:00–15:40

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| 14:00 | ICEM26-000177<br><br>Fault-Tolerance Analysis of Multiphase Permanent Magnet Bearingless Motors<br><br>Gabriele Antonino Cagliari, Amedeo Vannini, Mukhammed Murataliyev, Meiqi Wang, Lorenzo Carbone, Giacomo Sala, Wolfgang Gruber, Michele Degano, Chris Gerada |
| 14:20 | ICEM26-000460<br><br>Post-Fault Control of Dual Three-Phase Drives With Zero Inter-Turn Short-Circuit Current<br><br>Giacomo Sala, Gabriele Antonino Cagliari, Lorenzo Carbone, Gregorio Cutuli, Stefano Nuzzo                                                     |
| 14:40 | ICEM26-000254<br><br>Hybrid signal- and machine learning-based open-circuit fault detection and diagnosis algorithms for star-connected 5-phase SM-PMSM<br><br>Esther Altemir, Edorta Ibarra, Andres Sierra-Gonzalez, Borja Prieto                                 |
| 15:00 | ICEM26-000041<br><br>Inter-Turn Short Circuit Current Analysis and Field-Weakening Mitigation in a Dual Three Phase PMSM for Aircraft Door Actuators<br><br>Daniel Walch, Christian Bentheimer, Yves Burkhardt                                                     |
| 15:20 | ICEM26-000391<br><br>Online Open-Phase Fault Detection in Variable-Speed Six-Phase Induction Machines<br><br>Mehdi Taherzadeh, Franck Betin, Marius Ouedraogo                                                                                                      |

## **Oral Session 50**

### **Advances in Multiphysics Topology Optimization of Electric Machines and Drives**

Date: Tuesday, 08 September 2026

Time: 16:40–18:20

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|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16:40 | ICEM26-000318<br><br>Multiphysical Topology optimization of a PMSM considering demagnetization, thermal and mechanical effects<br><br>Nepomuk Krenn, Peter Gangl                                                                                   |
| 17:00 | ICEM26-000478<br><br>Reducing AC losses in Halbach electrical machines with density topology optimization of winding<br><br>Théodore Cherrière, Pons Alexis, Guillaume Krebs, Adrien Mercier, Loucif Benmamas, Sullivan Küttler                    |
| 17:20 | ICEM26-000608<br><br>Coupled Multiphysics Topology Optimization for V-Shape IPM Rotor: Design and Performance Analysis<br><br>Mohamed Reda Mahmoud, Mohamed Ibrahim, Peter Sergeant                                                                |
| 17:40 | ICEM26-000500<br><br>Analytical Framework for Topology Optimization of Hairpin Conductors in Automotive Electrical Machines<br><br>Tudor Plopeanu, Jaan Kalda, Hans Tiismus, Toomas Vaimann, Ants Kallaste                                         |
| 18:00 | ICEM26-000467<br><br>Electromagnetic Topology Optimization of Brushless DC Motor Based on Density Method<br><br>Shahid Hussain, Ants Kallaste, Peter Gangl, Nepomuk Krenn, Théodore Cherrière, Muhammad Usman Naseer, Zahoor Ahmad, Toomas Vaimann |

## **Oral Session 51**

### **AI for Incipient Faults and Health Monitoring in Electrical Drives**

Date: Wednesday, 09 September 2026

Time: 14:00–15:40

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|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14:00 | <p>ICEM26-000207</p> <p>Classification of Angular Misalignment Faults in Synchronous Reluctance Motor by Graph-based Machine Learning</p> <p>Konstantinos Ptochos, Konstantinos Koutrakos, Epameinondas Mitronikas, George Tsialiamanis, Panagiotis Panagiotou</p> |
| 14:20 | <p>ICEM26-000227</p> <p>A Time-Frequency Fusion Convolutional Neural Network for Reliable Classification of Rotor Electrical Faults in Induction Motors</p> <p>Haihang Xia, Xuecheng Wang, Xinyu Zhao, Zihao Song, Tiantai Deng, Panagiotis Panagiotou</p>         |
| 14:40 | <p>ICEM26-000091</p> <p>Rotor Based Fault Detection in Electrical Machines Using AI Enabled Telemetry</p> <p>Marius Meiswinkel, Benedikt Staudacher, Amir Ebrahimi</p>                                                                                             |
| 15:00 | <p>ICEM26-000217</p> <p>CPO-WPD and BO-MSCNN-Based Simultaneous Diagnosis of Inter-Turn Short Circuit and Local Demagnetization Faults Using Induced-EMF in VPMM</p> <p>Chang Wang, Xianglin Li, Xuejiang Tian, Zhiwei Xue, Yongliang Liang, Wei Hua</p>           |
| 15:20 | <p>ICEM26-000597</p> <p>Structure-Aware Neural Network with Physically-Informed Activation Function for PMSM analysis</p> <p>Matteo Felice Iacchetti, Angelo Boceda, Juri Tessaro, Luca Peretti, Zhaokai Li, Roberto Perini</p>                                    |

## **Oral Session 52**

### **Rotating Machines 7**

Date: Wednesday, 09 September 2026

Time: 14:00–15:40

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|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14:00 | ICEM26-000245<br><br>Optimized torque density and demagnetization analysis of innovative drone propulsion drive<br><br>Timo Wilfling, Andreas Möckel, Kilian Streicher, Johannes Germishuizen   |
| 14:20 | ICEM26-000523<br><br>Material Selection and Multidisciplinary Design of a High-Power, High-Speed Sleeved Permanent-Magnet Synchronous Motor<br><br>Yulong Cui, Barrie Mecrow, Andrea Cavagnino  |
| 14:40 | ICEM26-000107<br><br>Topology Comparison of Pole-Changing Wound Field Synchronous Generators<br><br>Ryno Gerber, Maarten Kamper                                                                 |
| 15:00 | ICEM26-000151<br><br>Feasibility Study of a 50 krpm Ultra-High-Speed Traction Motor Using Conventional Laminated Steel Sheet<br><br>Tsubasa Nakayama, Ren Tsunata, Masatsugu Takemoto, Jun Imai |
| 15:20 | ICEM26-000331<br><br>Coupled Power-Density Analysis of Planetary Geared High-Speed Electric Drivetrains<br><br>Paolo Atas, Guoyu Chu, Rukmi Dutta                                               |

### **Oral Session 53**

#### **Design Issues (Optimization, Modeling and Simulation) 9**

Date: Wednesday, 09 September 2026

Time: 14:00–15:40

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|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14:00 | ICEM26-000325<br><br>Impact of Stator Segmentation on Cogging Torque and Torque Ripple: A Comparative Study<br><br>Matteo Olivo, Cesare Ciriani, Alberto Tassarolo                                                    |
| 14:20 | ICEM26-000529<br><br>Low Computational Cost Thermal Modelling Enabling Real-Time Electromechanical-Thermal Co-Simulation in Electrical Machines<br><br>Vincenzo Madonna, Cesare Maria Meano, Alberto Lorenzo Vassallo |
| 14:40 | ICEM26-000179<br><br>2D Implementation of Elastoplasticity for Electrical Machine Rotor Analysis<br><br>Daniel Keller, Holger Schunk, Stefanie Retka, Mercedes Herranz Gracia, Joachim Kempkes                        |
| 15:00 | ICEM26-000665<br><br>Comprehensive Data of a Grain Oriented Reference Material for Efficient Modelling of Axial Flux Machines<br><br>Vineetha Puttaraj, Sonja Karin Tidblad Lundmark, Torbjörn Thiringer              |
| 15:20 | ICEM26-000479<br><br>Functional Equivalence Design of a Ferrite-Based Spoke-Type Traction Motor Under Torque and Power Envelope Constraints<br><br>Danyang Cui, Lena Max, Cecilia Boström, Boel Ekergård              |

## **Oral Session 54**

### **Diagnostics and Condition Monitoring 8**

Date: Wednesday, 09 September 2026

Time: 14:00–15:40

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|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14:00 | ICEM26-000114<br><br>Super-Resolution for Magnetic Field Estimation in Rotor-Eccentric Induction Motors<br><br>Timon Callens, Jorik Vanuxem, Philip Desenfans, Sammy Verslype, Dries Vanoost, Hans Hallez                                                                         |
| 14:20 | ICEM26-000223<br><br>Reliability-Based Evaluation of Electrical Signal Representations for Bearing Fault Impulsiveness in Induction Motors<br><br>Fardin Dalvand, Jose Antonino Daviu, Michael Pecht                                                                              |
| 14:40 | ICEM26-000038<br><br>Nonlinear Spark Fault Detection in DC Motors Using Multichannel Hidden Markov Models and Bicoherence Analysis<br><br>Miguel Enrique Iglesias Martínez, Jose Antonino Daviu, Dunai Larisa, Pedro Fernández de Córdoba, Vicente Biot-Monterde, Jose A Conejero |
| 15:00 | ICEM26-000625<br><br>Feature-Level Fusion for BLDC Fault Diagnosis Under Electrical, Mechanical, and Mixed Fault Conditions<br><br>Marek Karbowniczyn, Jerzy Baranowski                                                                                                           |
| 15:20 | ICEM26-000546<br><br>CNN-based Classification of Operational Regimes in Pulsating Loads Driven by Electric Drives via Current Signature Analysis, with experimental validation<br><br>Adrian Martin, Lucian Tutelea, Liviu Danut Vitan, Ion Boldea                                |

### **Oral Session 55**

#### **High-Performance Electrical Drives: Physics-Based Modeling, Advanced Model-Based Control and Physics-Informed AI Operation**

Date: Wednesday, 09 September 2026

Time: 16:10–17:50

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|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16:10 | ICEM26-000022<br><br>Iterative Moving Horizon Algorithm for Rotor Angle Estimation of Nonlinear IPMSMs<br><br>Max Bayer, Timo Hörmann, Simon Steentjes                                                   |
| 16:30 | ICEM26-000452<br><br>Saliency-based rotor position estimation from standstill to high speed<br><br>Johannes Roßmann, Christoph Hackl                                                                     |
| 16:50 | ICEM26-000021<br><br>Impact of Model Fidelity and Parameter Sensitivity on Model Predictive Control Performance of Permanent Magnet Synchronous Machines<br><br>Timo Hörmann, Max Bayer, Simon Steentjes |
| 17:10 | ICEM26-000454<br><br>Comparison of Flux Linkage Identification Approaches for Synchronous Reluctance Machines<br><br>Jakub Sevcik, Romain Delpoux, Vaclav Šmídl                                          |
| 17:30 | ICEM26-000641<br><br>Chat with Your Drive: MCP Server Allowing Safe and Efficient Drive Commissioning by AI Agents<br><br>Vaclav Šmídl, Zdeněk Peroutka                                                  |

## Oral Session 56

## Rotating Machines 8

Date: Wednesday, 09 September 2026

Time: 16:10–17:50

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|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16:10 | ICEM26-000606<br><br>Impact of Multilevel Inverter Topologies on AC Copper Losses in Synchronous Machines<br><br>Amr Abbas, Joonas Vesa, Antero Marjamäki, Hadhiq Khan, Ahmed Sayed, Mohamed Taha, Paavo Rasilo  |
| 16:30 | ICEM26-000305<br><br>Analysis of Low-Frequency Torque Ripples in Multi-Unit PMSM under Post-Fault Unit Isolation<br><br>Jiazhuang Gao, Li Liyi, Jiwei Cao, Boyu Chen                                             |
| 16:50 | ICEM26-000240<br><br>Bearing Voltage Prediction in Inverter-Fed EESMs with a Common DC-Link Supply<br><br>Maximilian Bleicher, Niklas Himker, Bernd Ponick                                                       |
| 17:10 | ICEM26-000678<br><br>Proposal of a Permanent Magnet Vernier Motor with Y-shaped Split Stator Teeth<br><br>Kohei Aiso                                                                                             |
| 17:30 | ICEM26-000011<br><br>Experimental Study of the Ventilation Circuit of a 168 MVA Vertical Hydroelectric Generator<br><br>Federico Torriano, David Gagnon, Philippe Hudon, H  l  ne Provencher, Alexandre Bertrand |

## **Oral Session 57**

### **Design Issues (Optimization, Modeling and Simulation) 10**

Date: Wednesday, 09 September 2026

Time: 16:10–17:50

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|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16:10 | ICEM26-000581<br><br>Torque Ripple and Electromagnetic Vibration Reduction in Spoke-Type Interior Permanent Magnet Motors via Rotor Shape Optimization<br><br>Shi Xiao, Bin Liu, Zhiqiang Zhang, Rujun Li, cao junci |
| 16:30 | ICEM26-000040<br><br>Characteristic Analysis of Double-Layer V-Type IPMSMs With Step-Skew Using a Separated Stator–Rotor MEC<br><br>Yun-Jae Won, Seong-Hyeon Kim, Jin-Ho Choi, Kyeong-Jik Kim, Myung-Seop Lim        |
| 16:50 | ICEM26-000603<br><br>Optimal Design of a Dual-PM Vernier Flux-Modulated Machine Using Air-Gap Harmonics and Hierarchical Surrogate Modeling<br><br>Xin Wang, Yuting Gao, Yanzi Qu, Yunong Wang, Xiaoming Zha         |
| 17:10 | ICEM26-000170<br><br>Drive Cycle Optimization of Switched Reluctance Machines Using a Hybrid Model<br><br>Yuancong Gong, Nejila Parspour                                                                             |
| 17:30 | ICEM26-000080<br><br>Control-Aware Surrogate-Based Optimization of Externally Excited Synchronous Machines for Drive Cycle Applications<br><br>Abdullah Sharaf, Markus Henke                                         |

## **Oral Session 58**

### **Special Machines, Linear Machines, Actuators and Sensors 2**

Date: Wednesday, 09 September 2026

Time: 16:10–17:50

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|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16:10 | ICEM26-000265<br><br>Impact of Key Design Parameters on the Startup- and Steady-State Performance of Line-Start Machines<br><br>Thomas Krainer, Gabriel Weissitsch, Markus Peer, Edmund Marth, Gerd Bramerdorfer, David Klink                                               |
| 16:30 | ICEM26-000176<br><br>Yokeless Partitioned Stator Field Modulated Linear Machine for Long-Stroke Applications<br><br>Aleksi Kytöviita, Jasper Anttila, Rafal Jastrzebski                                                                                                     |
| 16:50 | ICEM26-000095<br><br>Analysis of Vernier Permanent Magnet Machine Based on Equivalent Magnetic Potential Difference Model Considering Iron Saturation<br><br>Wenlong Yang, Li Fang, Ronghai Qu, Dawei Li                                                                    |
| 17:10 | ICEM26-000173<br><br>Analytical Modeling of Multiphase Halbach-Array Permanent Magnet Bearingless Motors<br><br>Gabriele Antonino Cagliari, Amedeo Vannini, Mukhammed Murataliyev, Meiqi Wang, Lorenzo Carbone, Giacomo Sala, Wolfgang Gruber, Michele Degano, Chris Gerada |
| 17:30 | ICEM26-000672<br><br>Electromagnetic Design and Performance Comparison of Limited Angle Rotary Voice Coil Motors<br><br>Emre Cevik, Mehmet Gulec, Metin Aydin                                                                                                               |

## **Oral Session 59**

### **Thermal and Losses Issues (Magnetic and Insulation Materials) 3**

Date: Wednesday, 09 September 2026

Time: 16:10–17:50

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|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16:10 | ICEM26-000132<br><br>Bayesian Inference for Thermal Model Calibration in Multi-Layer Actuator Insulation<br><br>Gan Fu, Mitrofan Curti, Calina Ciuhu, Elena Lomonova                                                                                     |
| 16:30 | ICEM26-000208<br><br>Heat Pipe Assisted Thermal Management of Torus-Type Axial-Flux Permanent-Magnet Machines<br><br>Federico Marcolini, Rafal Wrobel, Giulio De Donato, Federico Caricchi                                                               |
| 16:50 | ICEM26-000412<br><br>Characterization and Prediction of magnetic properties of electrical steels Subject to Punching in an Electric Machine<br><br>Sima Soltanipour, Torbjörn Thiringer, Joachim Lindström                                               |
| 17:10 | ICEM26-000593<br><br>Simplified Thermal Network for Early-Stage Design of Axial Flux Permanent Magnet Machines<br><br>Matias Jimenez, Federica Graffeo, Silvio Vaschetto, Alberto Tenconi, Andrea Cavagnino                                              |
| 17:30 | ICEM26-000601<br><br>Advanced Sustainable Encapsulation and Nanocrystalline Core Materials for Inductive Power Transfer Systems in the Context of Electric Machines<br><br>Christian Auer, Ulf Schmitdtgen, Manuel Seidenath, Jörg Franke, Florian Risch |

## **Oral Session 60**

### **Electrical Machines and Drives for Sustainable Transportation 4**

Date: Wednesday, 09 September 2026

Time: 16:10–17:50

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|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16:10 | ICEM26-000496<br><br>Torque Pulsation Reduction During Magnetization State Transitions of Variable Flux Machines<br><br>Luca Gnudi, Lesedi Masisi                                                                                                  |
| 16:30 | ICEM26-000431<br><br>Circulating Currents Analysis in a Yokeless Segmented Stator of a Wound-Field Axial Flux Machine<br><br>Ivan Taddia, Gregorio Cutuli, Shafigh Nategh, Philippe Farah, Giovanni Franceschini, Stefano Nuzzo                    |
| 16:50 | ICEM26-000647<br><br>Multi-Physics Assessment of a Segmented Double-Stator Axial-Flux Machine with Grain-Oriented Stator Teeth<br><br>Gianluca Zito, Mohamed Amine Hebri, Abdelli Abdenour, Cristian Demian, Jean-Philippe Lecointe, Pierre Delpit |
| 17:10 | ICEM26-000390<br><br>Design and Analysis of a Contactless Excitation System for a Wound-Rotor Synchronous Motor<br><br>Lazar Lukic, Bogdan Brkovic, Mladen Terzic                                                                                  |
| 17:30 | ICEM26-000314<br><br>Motor Immersion in Sea Water for Marine Applications<br><br>Giada Sala, Michael Galea, Claudio Bianchini, Joseph Cilia                                                                                                        |