IEEE CEFC 2016

The 17th Biennial Conference on Electromagnetic Field Computation

November 13 – 16, 2016
Miami, Florida, U.S.A.

CONFERENCE PROGRAM
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General Chair Welcome Message


This conference is cosponsored by the IEEE Magnetics Society and IEEE Miami Section. We welcome your participation in one of the most important scientific technical events in computational electromagnetics. The conference offers an excellent opportunity for the presentation of technical papers at one of the largest gatherings of international experts in electromagnetic field computations. During the IEEE CEFC 2016, authors from more than 50 countries from around the world will present the latest developments in modeling and simulation methodologies for the analysis of electromagnetic fields and wave interactions, with an application emphasis on the computer-aided design of low and high frequency devices, components and systems. Many contributions are original works in the areas of Static and Quasi-static Fields, Wave Propagation, Material Modeling, Coupled Problems, Numerical Techniques, Optimization and Design, Software Methodology, Nanomagnetics, Nanophotonics, Bioelectric Field Computation as well as Devices and Applications. The technical program includes three full days of oral and poster sessions.

The conference will feature 24 oral sessions and 48 poster sessions. The accepted and presented digests will be published in IEEE Xplore. The extended versions of accepted and presented papers will undergo the standard IEEE Magnetics Society peer review process for possible publication in the June 2017 issue of the IEEE Transactions on Magnetics. Three best poster paper cash awards and certificates will be given to the top three posters and will be awarded at the conference closing session on Wednesday November 16th, 2016 following the last paper presentation. Recipients need to be physically present to receive this award.

In addition, there will be a technical exhibition. We have also scheduled three technical tutorials which are offered free of charge to registered participants on Sunday, November 13 from 1-4 PM. A Special invited presentation on Technobiology Paradigm Shift in Nanomedicine will be conducted at the beginning of the session MO07 on Monday at 3:15 PM by Professor Sakhrat Khizroev. The conference also includes an outstanding social program. It is anticipated that we will have an excellent and stimulating technical program and social functions throughout the three full days of the conference.

As General Chairman of IEEE CEFC2016, I would like to express my gratitude to all members of the Editorial Board and in particular to its Chairman Professor A. A. Arkadan, for their much appreciated work, expertise and dedication. I would like to also thank members of our organizing committee and the CEFC 2016 Secretariat Ms. Abla Hariri for the continuous and diligent work during the last many months as well as to all staff members and volunteers students who have contributed to the conference success. Finally, I would like to thank all those who contributed to the conference by submitting technical papers, holding tutorials or attending the conference and for making it a great success.

On behalf of the Conference, welcome to Miami and please take full advantage of the technical and social offerings of IEEE CEFC2016 and enjoy your stay in Miami and Florida, the Sunshine State.

Professor Osama A. Mohammed
IEEE CEFC2016 General Chairman
Location
Miami, Florida, the site of the IEEE CEFC 2016, is often labeled the city of the future; it is one of United States Premier international cities. Miami is a world famous center for tourism, fine arts, sports, international business and trade, banking, high technology firms, and major universities. Its dramatic culture diversity, thriving economy, modern facilities, youthful nerve, and cosmopolitan flavor are increasingly apparent throughout its distinctive neighborhoods. In Miami, you will enjoy its world famous climate of sunshine and golden beaches, and multi-cultural influences in scenery, arts, and dining. Miami is also known as the Cruise Capital of the world with more than 4.33 million annual passengers from the port of Miami. The weather in November should be very pleasant in Miami with plenty of sunshine. Temperature are in the range of 66 – 83 °F (19 – 28 °C).

IEEE CEFC Papers
The call for papers resulted in a large number of papers submitted for review for presentation at the Conference. A worldwide editorial board of 18 scientists and prominent researchers selected more than 600 papers for presentation at the Conference and for inclusion in the Conference record after a peer review for each paper. Extended version of accepted papers will undergo another peer review process for inclusion in the IEEE Transactions on Magnetics if the papers are presented at the conference by an author or a co-author.

Conference Technical Program
IEEE CEFC 2016 Miami is considered to be one of the most important scientific and technical events in computational electromagnetics and related fields and is bound to be an excellent experience for all attendees and supporters. CEFC 2016 is comprised of a comprehensive technical program including oral sessions, interactive poster sessions, computer demonstrations, and vendor exhibits.

Technical Exhibitions
The setup of the exhibits will start in afternoon of Sunday November 13, 2016. The main conference will be three full days (Monday, Nov 14, 2016 through Wednesday, Nov 16, 2016). We will have more than 300 attendees from more than 40 countries with more than 450 papers to be presented. The exhibits will be held on Monday, Nov 14 through Wednesday, Nov 16 from 8:00 AM until 5:00 PM in the main exhibit area (exhibits will close at approximately 2:00 PM on Wednesday). In addition to the technical program, IEEE CEFC 2016 will also features a major social program.

Onsite Registration
The conference registration desks will be located at the Hotel Hilton Miami Downtown, and will be open during the following hours:

<table>
<thead>
<tr>
<th>Day</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Sunday, November 13, 2016</td>
<td>12:00 PM - 5:30 PM</td>
</tr>
<tr>
<td>Monday, November 14, 2016</td>
<td>8:00 AM - 5:00 PM</td>
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<tr>
<td>Tuesday, November 15, 2016</td>
<td>8:00 AM - 5:00 PM</td>
</tr>
<tr>
<td>Wednesday, November 16, 2016</td>
<td>8:00 AM - 3:00 PM</td>
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</table>

Presentation Awards
During the three days of the conference, assigned judges will evaluate all poster presentations and decide on three excellent ones to be awarded a significant amount of money. The winner papers will be announced in the closing ceremony of the conference.

Conference Reception
The conference reception will be held on Sunday, November 13th from 6:00 to 8:00 pm at the Bayside Marketplace. Buses would leave the hotel starting at 5:30 pm from front of the hotel on the street level. You must present a reception ticket and badge for admission.
Hotel and Location

Hilton Miami Downtown
Overlooking Biscayne Bay, this contemporary tower hotel is a 3-minute walk from Adrienne Arsht Center Metromover Station for free transportation around downtown Miami and a 4 miles' drive from Miami Beach. Enjoy the majestic skyline views and first-class service. Outside, the best of downtown is just minutes away - from South Beach nightlife and NBA action at American Airlines Arena to Bayside Marketplace, the city's best food, fun, and shopping. Amenities include a relaxed bistro restaurant serving international cuisine, a lobby cafe, and a rooftop pool and poolside bar with skyline.

Miami Dade Metromover
Everybody rides free on Metro mover. This 4.4-mile electrically-powered, fully automated people mover system connects with Metrorail at Government Center and Brickell stations and with Metrobus at various locations throughout downtown. Major destinations of the Metromover system include the American Airlines Arena and Bayside Market Place views.

International Steering Committee Meetings
The CEFC International Steering Committee will meet on Monday, November 14th between 12:00 pm and 1:30 pm. The Compumag International Steering Committee will meet on Monday, November 14th between 6:00 pm and 10:00 pm. Both meetings will be in the Metronome of the Hilton. A floormap of the Conference location at the Hilton Miami Downtown is attached at the end of this conference program booklet.

Floor Plan of the Conference Location
Airport Transportation

To provide IEEE CEFC 2016 Conference guests with reasonable and best travel experience, we bring your notice the Super Shuttle which is offering special discounts for IEEE CEFC 2016 participants & guests. Please follow the below link which will redirect you to the super shuttle website and book your ride from Airport to the Hotel Hilton Miami Downtown or from Hotel Hilton Miami Downtown to Airport: http://www.supershuttle.com/default.aspx?GC=3EQHS

Please use this code to receive the discount rate especially for IEEE CEFC 2016 Conference: Coupon Code: 3EQHS

Facts About Florida (the Sunshine State)

Florida, commonly known as the sunshine state, is southernmost state of the mainland United States. With over 1,300 miles of coast, many amusement parks, and even more national parks; Florida is one of the most popular vacation destinations in the USA. Florida is also home to the oldest European settlement in North America, Saint Augustine, as well as a plethora various wildlife and habitats. On top of it all, Florida is also known for its year-round warm climate making it possible to enjoy all of these activities at any time of the year.

South Florida

Miami (the Magic City)
Miami is the most Metropolitan city in Florida. During the day there are two national parks within the span of Miami with the Everglades National Park and the Biscayne National Park, as well as the Miami Zoo and Miami Sea Aquarium. Port Miami is also the world’s leading cruise port and the most popular departure destination for cruises to the Caribbean islands. Apart from nature, Miami also has a very active nightlife with many activities constantly going on. Furthermore there is the Wynwood art district where a variety of great food and drinks can be enjoyed all while observing the work of some of Miami’s greatest artist.

Florida Keys
The Florida Keys are a popular destination for many marine activities, such as snorkeling, diving, paddle boarding and jet skiing. Travel all the way south to Key West and stand at the southernmost point of the mainland United States, only 90 miles from Cuba.

Naples/Fort Myers
Home to more beautiful beaches and water activities in a smaller mellower environment than Miami.

Central Florida

Orlando
Orlando’s most popular tourist attractions are by far its various amusement parks. Being home to Universal Studios, Islands of Adventure, Sea World, and 4 different Disney parks as well as many luxury resorts making it a perfect destination for the family.

Saint Augustine
The oldest European settlement in North America offers great food and many fun and educational tours. Learn about the history of Spanish settlement in Florida as you tour the Fort and old settlement, or enjoy ghost stories as you tour old graveyards and hospitals.

Cape Canaveral
The USA’s landmark for space exploration. Tour the Kennedy Space center and see the space crafts that were used in various missions.

Tampa
Home to more amusement parks and the famous Clearwater beach. There are various museums and theaters throughout the city, as well as the Lowry Park Zoo. Tampa is a beautiful destination for anyone visiting Florida.
Local and Florida Sightseeing

Flamingo Gardens

Flamingo Gardens is a 60-acre, not-for-profit botanical garden and Everglades wildlife nature preserve. There are over 3,000 species of unusual, tropical, subtropical, and native plants showcased in the botanical garden and over 83 native species such as, alligators, bears, bobcats, eagles, otters, panthers, peacocks and flamingos that can be seen at the wildlife nature preserve. The Everglades Wildlife Sanctuary is considered a home to the largest collection of Florida native wildlife.

Zoo Miami

Zoo Miami is the largest and oldest zoological garden in Florida, and the only tropical zoo in the continental United States. Home to over 3,000 animals, 500 different species, and over 100 exhibits, Zoo Miami is the ultimate family attraction. There are playgrounds, water play areas, camel rides and animal feedings/encounters, making it one of the must see attractions for families.

Jungle Island

Jungle Island is an interactive zoological park in Watson Island, Miami, FL. At Jungle Island, visitors are given the opportunity to encounter wildlife from all over the world. There is a petting zoo where visitors can interact with a number of domestic and exotic animals, including an experience with red kangaroos. As Miami’s most unique destination, Jungle Island continues to delight the thousands of people who visit Miami each year.

Vizcaya Museum & Gardens

Built in the 1910's, the Vizcaya Museum & Gardens is a popular destination for those with a love of art, history or nature. The museum features the beautifully maintained 34-room mansion, showcasing over 2,500 art objects and furnishings. There are ten acres of European-inspired formal gardens with fountains and statuary, some of which date back to antiquity; a significant orchid collection totaling 2,000 specimens; and 25 acres of endangered primary growth forests. This Italianate mansion that once belonged to industrialist James Deering is worth a visit.

Dolphin Mall

The beautiful, state-of-the-art Dolphin Mall is Miami-Dade County's largest retail value shopping center blending the hottest concepts in theme entertainment and dining. There are over 240 retail outlets and name-brand discounters, including stores not found anywhere else in the county such as, Bloomingdale's, The Outlet Store, Coach Factory Store, Last Call by Neiman Marcus, and Saks Fifth Avenue OFF 5th, to name a few.

Lincoln Road Mall

The Lincoln Road Mall is fun, lively, and friendly for diverse cultures and lifestyles. The best times to hit the road are during Sunday-morning farmers' markets and on weekend evenings, when cafes are bustling; art galleries schedule openings; street performers take the stage; and bookstores, import shops, and clothing stores are open for late-night Miami shopping purchases.

Sawgrass Mills Mall

Sawgrass Mills is a shopping mall operated by the Simon Property Group, in Sunrise, Florida. The mall falls on a 2,383,906 square feet area of retail selling space. Sawgrass mills is the eighth largest mall in the United States, the largest single story mall in the U.S., and the second largest mall in Florida. There are over 300 retail outlets and name brand discounters. The mall features some other lifestyle areas filled with restaurants and similar plazas. The mall is a destination for thousands of tourists per year.
Special Invited Presentation -
Technobiology Paradigm Shift in Nanomedicine
(During Session MO07 on Monday at 3:15 pm)

Sakhrat Khizroev
Professor of Electrical and Computer Engineering, College of Engineering
Professor of Cellular Biology and Pharmacology, College of Medicine
Florida International University
E-mail: khizroev@fiu.edu

Abstract—The emerging field of nanomedicine promises unprecedented patient- and disease-specific medical diagnostic and treatment. Significant progress has been achieved in this field from the perspective of biotechnology. Especially with the development of bioinformatics, there are almost endless computational resources to identify molecular compounds that could target almost any specific biomarker. Conversely, the development of high technology to treat a disease at the intra-cellular level is still in its very early stage. Such a technology-driven approach could exploit quantum mechanics to enable an unprecedented high-efficacy remote-field control of intrinsic molecular processes that underlie specific diseases. Being complementary to the traditional approach, the new development can make its own special contribution to the big goal of making personalized nanomedicine a reality. This presentation will discuss our recent studies on using magnetoelectric nanoparticles to advance the state of treatment of cancer, neurological diseases, HIV/AIDS, and others. The promising results of in vitro and in vivo studies will be presented to demonstrate the novel nanotechnology approach.

Sakhrat Khizroev, a Professor with a joint appointment at the College of Engineering and the College of Medicine, is an inventor with expertise in nanomagnetic/spintronic devices. His group’s current research focus is at the intersection of nanotechnology with medicine. Prior to re-joining FIU in 2011 to lead the university-wide multi-disciplinary research effort in personalized nanomedicine, Khizroev was a tenured Professor at the Department of Electrical Engineering of the University of California, Riverside (UCR). From 2003-2005, he was Associate Professor of Electrical Engineering at FIU (tenured). Prior to his academic career, Khizroev spent almost four years as a Research Staff Member with Seagate Research (1999-2003) and one year as a Doctoral Intern with IBM Almaden Research Center (1997-1998). For his pioneering contribution to the development of perpendicular magnetic recording (PMR) and other discoveries in the broad area of spin-based nanodevices, Khizroev was named a Fellow of National Academy of Inventors (2012). He holds over 31 granted US patents plus many international patents. He has authored over 130 peer-reviewed papers. He has acted as a guest science and technology commentator on television and radio programs across the globe. He has served as an Editor for IEEE Transactions on Nanotechnology, Nanotechnology, and IEEE Trans actions on Magnetics and sits on editorial boards of several Science and Technology journals. Khizroev received a B.S/M.S. degree in Physics from Moscow Institute of Physics and Technology in 1992/1994, a M.S. degree in Physics from the University of Miami, and a PhD degree in Electrical and Computer Engineering from Carnegie Mellon University in 1999.

Free Tutorials on Sunday November 13th

Tutorial 1: CAD Embedded Electro-Mechanical Simulation With Applications (Concerto A)

Abstract—In today’s fast paced engineering product design environment, 3D and collaborative design is unavoidable. Engineers across multiple discipline work jointly during the product development stage and this is enabled by 3D CAD and PDM systems. Simulation has become an integral part of the product development cycle and engineers adopt simulation early in the cycle. This leads to better quality products, fewer prototypes and faster time to market. EMS is a product of EMW that is embedded inside popular 3D CAD like SOLIDWORKS, Autodesk Inventor and SpaceClaim. EMS is a full 3D field simulation software that helps engineers simulate real life electrical machines like motors, transformers, linear actuators, solenoids, sensors, high voltage devices etc. In this tutorial, Ahmed will walk you through some of the basics of EMS talking about its philosophy of doing simulations with various real life examples. You can learn how EMS can help you in your product development process and also find out how to get a free trial version of EMS. We look forward to seeing you in this session.

Ahmed Khebir holds a BS and MS in Engineering Science from the Pennsylvania State University (1985, 1986), and Ph.D. degree in Electrical and Computer Engineering from the University of Illinois at Urbana-Champaign (1989). He is the general manager of ElectroMagneticWorks (EMW). Prior to joining EMW, he worked at General Electric Corporate Research and Development, Schenectady, New York, as a Senior Scientist where he led a team to develop innovative radar cross section prediction technology. He also held a research position at the University of Montreal where he designed miniature antennas that are inserted in a human heart for the treatment of cardiac arrhythmia.
Tutorial 2: Multi-Physics Analysis of Adjustable Speed Motor Drives (Concerto B)

Abstract—Adjustable speed motor drives exhibit electromagnetic, structural and thermal phenomenon which can interactively affect the performance of the drive system in terms of its efficiency, acoustic noise, torque density, and safety. These systems contain a physical interface between the power electronic circuit and the terminals of the electric machine. It is a necessity to predict the performance of the drive system under normal and transient conditions. This tutorial will provide an insightful and enabling understanding of the interrelated multi-physics phenomena which includes, electromagnetic, fluid dynamics, structural, thermal, and physical interface with power electronics drivers. Examples from induction, permanent magnet synchronous machines, and switched reluctance machines will be provided to explain the impact of the multi-physics analysis in the context of real world applications. The contents of this 3 hours tutorial are selected such that practicing engineers and graduate students as well as research scientists can benefit from.

Dr. Babak Fahimi received his B.S. and M.S. degrees in Electrical Engineering with the highest distinction from the University of Tehran, Iran in 1991 and 1993 respectively. He earned his PhD in Electrical Engineering from Texas A&M University in 1999. Dr. Fahimi has been the recipient of DAAD scholarship (1993-1995), IEEE R.M. Bass Power Electronics Young Investigator Award (2003), SAE Ralph Teetor Educational award (2008), Fulbright scholarship in 2010, and IEEE Cyril Veinott electromechanical energy conversion award in 2015. Dr. Fahimi has co-authored 300 (85 Journal and 215 peer reviewed conference papers) scientific articles, 15 book chapters, and several technical reports in the general area of adjustable speed motor drives and power electronics. He holds 17 US patents and has 6 more pending. Dr. Fahimi has served IEEE in various capacities including chairing of the IEEE Vehicle Power and Propulsion Conference (2007), chairing of the IEEE International future energy challenge competition (2009), chairing the electric machines committee in IEEE-IES (2007-2009), chairing the 2010 IEEE Applied Power Electronics Conference and Expo, and chairing of 2014 IEEE Industrial Electronics Annual Meeting (IECON). Dr. Fahimi is/has been an associate editor of the IEEE Transactions on Industrial Electronics, IEEE Transactions on Energy Conversion, IEEE Transactions on Vehicular Technology, and IEEE Transactions on Power Electronics. Dr. Fahimi has supervised 18 PhD (4 tenured/tenure track professors and the other 14 in industry) and 16 M.S. students. He is a Fellow of IEEE for his contributions to modeling and analysis of adjustable speed ac motor drives.

Tutorial 3: Battery Physics-Based Modeling and their Applications (Concerto C)

Abstract—The lead acid and lithium ion battery have become staples to power many aspects of our lives. The lead acid battery remains a dependable resource to provide steady, reliable power for both vehicles and the grid, alike. Unfortunately, its deployment in electric vehicles (EV) have been limited as a result of long charging periods and particularly, a limited state of health (SoH) sensitive to high discharge currents and deep depth of discharge. The lithium ion battery has emerged as a proven alternative for applications synonymous with high charge and discharge currents. Accurate modeling and simulation of batteries remain a challenge and can present the designer with a number of options from a traditional 1st order Randles equivalent circuit model, up to a physics-based model based on finite element analysis. In this tutorial, multiphysics models for the lead acid and lithium ion batteries will be derived and compared to common electrochemical equivalent circuits. Their operational performance and some applications will be discussed. An extension will then be made to enhance the physics-based models to account for the degradation processes which impact SoH. A discussion over battery SoH mechanisms and the usage of impedance spectroscopy to obtain the equivalent circuit in industrial systems will be connected to the multiphysics domain showing how information from these processes can be reflected within the physics-based model.

Christopher R. Lashway received his B.S. in electrical engineering technology at the University of Central Florida, Orlando in 2008 and M.Eng. degree in electrical engineering at Pennsylvania State University – Harrisburg in 2010. He moved on to work as an engineer for the Naval Surface Warfare Center in Dahlgren, Virginia on a wide range of Marine Corps and Naval projects focusing on mobile power and energy solutions. From 2010 to 2012, he supported the Squad Electric Power program, an effort focused on consolidating proprietary non-rechargeable batteries found in tactical radios and night vision equipment through developing a central power manager with a lithium ion battery pack. During this period, he detailed at the Naval Research Laboratory as an electrical integration lead to re-chargable batteries found in marine and auxiliary generator. He is currently a PhD candidate at the Energy Systems Research Laboratory at Florida International University in Miami, FL where his research is focused on hybrid energy storage modeling through finite element analysis and improving multi-chemistry battery management systems.
# Schedule of Events

<table>
<thead>
<tr>
<th>Time</th>
<th>Sunday, November 13th, 2016</th>
</tr>
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<tbody>
<tr>
<td>1:00 pm - 4:00 pm</td>
<td>Free Tutorial 1 - CAD Embedded Electro-Mechanical Simulation With Applications - (Concerto A)</td>
</tr>
<tr>
<td>1:00 pm - 4:00 pm</td>
<td>Free Tutorial 2 – Multi-Physics Analysis of Adjustable Speed Motor Drives - (Concerto B)</td>
</tr>
<tr>
<td>1:00 pm - 4:00 pm</td>
<td>Free Tutorial 3 - Battery Physics-Based Modeling and their Applications - (Concerto C)</td>
</tr>
<tr>
<td>2:00 pm- 4:00 pm</td>
<td>Exhibition Set Up</td>
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<tr>
<td>6:00 pm – 8:00 pm</td>
<td>Conference Reception</td>
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<table>
<thead>
<tr>
<th>Time</th>
<th>Monday, November 14th, 2016</th>
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<tr>
<td>7:00 am - 8:00 am</td>
<td>Breakfast</td>
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<tr>
<td>8:00 am- 8:30 am</td>
<td>Opening Session – Professor Osama Mohammed (Symphony I)</td>
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<tr>
<td>8:30 am -10:15 am</td>
<td>Oral Session 1- MO01 Numerical Techniques 1 Chair: A. A. Arkadan</td>
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<tr>
<td>8:30 am -10:15 am</td>
<td>Oral Session 2- MO02 Devices &amp; Applications 1 Chair: Chang-Seop Koh</td>
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<tr>
<td>8:30 am -10:15 am</td>
<td>Oral Session 3-MO03 Material Modeling 1 Chair: Yasushi Kanai</td>
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<tr>
<td>8:30 am -10:15 am</td>
<td>Oral Session 4- MO04 Optimisation &amp; Design</td>
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<tr>
<td>10:15 am- 10:30 am</td>
<td>Coffee Break</td>
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<tr>
<td>10:30 am-12:00 pm</td>
<td>Poster Session 1 MP011 Coupled Problems 1 Chair: Christian Magele</td>
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<tr>
<td>10:30 am-12:00 pm</td>
<td>Poster Session 2 MP012 Bio Electromagnetic Field Chair: Costin Iffrim</td>
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<tr>
<td>10:30 am-12:00 pm</td>
<td>Poster Session 3 MP021 Devices and Applications Chair: Yves Marechal</td>
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<tr>
<td>10:30 am-12:00 pm</td>
<td>Poster Session 4 MP022 Material Modeling Chair: Dennis Giannacopoulos</td>
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<tr>
<td>10:30 am-12:00 pm</td>
<td>Poster Session 5 MP031 Static and Quasi Static Fields Chair: Gerard Meunier</td>
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<tr>
<td>10:30 am-12:00 pm</td>
<td>Poster Session 6 MP032 Wave Propagation Chair: Jan Sykulski</td>
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<tr>
<td>10:30 am-12:00 pm</td>
<td>Poster Session 7 MP041 Numerical Techniques Chair: Joao Pedro Bastos</td>
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<tr>
<td>10:30 am-12:00 pm</td>
<td>Poster Session 8 MP042 Optimization and Design Chair: Karl Hollaus</td>
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<tr>
<td>12:00 pm- 1:30 pm</td>
<td>Lunch Break</td>
</tr>
<tr>
<td>1:30 pm- 3:00 pm</td>
<td>Poster Session 9 MP051 Devices and Applications Chair: So Noguchi</td>
</tr>
<tr>
<td>1:30 pm- 3:00 pm</td>
<td>Poster Session 10 MP052 Static and Quasi Static Fields Chair: Lionel Pichon</td>
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<tr>
<td>1:30 pm- 3:00 pm</td>
<td>Poster Session 11 MP061 Numerical Techniques Chair: Markus Clemens</td>
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<tr>
<td>1:30 pm- 3:00 pm</td>
<td>Poster Session 12 MP062 Optimization and Design Chair: Noboru Niguchi</td>
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<tr>
<td>1:30 pm- 3:00 pm</td>
<td>Poster Session 13 MP071 Devices and Applications Chair: M. Reza Barzegaran</td>
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<tr>
<td>1:30 pm- 3:00 pm</td>
<td>Poster Session 14 MP072 Coupled Problems Chair: Renato Cardoso Mesquita</td>
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<tr>
<td>1:30 pm- 3:00 pm</td>
<td>Poster Session 15 MP081 Optimization and Design Chair: Yves Marechal</td>
</tr>
<tr>
<td>1:30 pm- 3:00 pm</td>
<td>Poster Session 16 MP082 Devices and Applications Chair: Bai Baodong</td>
</tr>
<tr>
<td>3:00 pm- 3:15 pm</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>3:15 pm- 5:00 pm</td>
<td>Oral Session 5- MO05 Static &amp; Quasi Static Fields 1 Chair: Erich Schmidt</td>
</tr>
<tr>
<td>3:15 pm- 5:00 pm</td>
<td>Oral Session 6- MO06 Coupled Problems 1 Chair: Sami Barnada</td>
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<tr>
<td>3:15 pm- 5:00 pm</td>
<td>Oral Session 7- MO07 Nano Magnetics &amp; Bio Electric Fields Chair: Shiyou Yang</td>
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<tr>
<td>3:15 pm- 5:00 pm</td>
<td>Oral Session 8- MO08 Devices &amp; Applications 2 Chair: Dan Ionel</td>
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<tr>
<td>Time</td>
<td>Tuesday, November 15th, 2016</td>
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<td>--------------------------------------------------------</td>
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<tr>
<td>7:00 am - 8:30 am</td>
<td>Breakfast</td>
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</table>
| 8:30 am - 10:15 am   | Oral Session 9 - TO09  
|                      | Wave Propagation 1 Chair: Ermanno Cardelli  
|                      | (Symphony I)                                           |
|                      | Oral Session 10 - TO10  
|                      | Optimization and Design 2 Chair: Raffaele Martone  
|                      | (Concerto A)                                           |
|                      | Oral Session 11 - TO11  
|                      | Devices & Applications 3 Chair: Feliziani Mauro  
|                      | (Concerto B)                                           |
|                      | Oral Session 12 - TO12  
|                      | Static and Quasi Static Fields 2 Chair: Anouar Belahcen  
|                      | (Concerto C)                                           |
| 10:15 am - 10:30 am  | Coffee Break                                           |
| 10:30 am - 12:00 pm  | Poster Session 17 TP011 Coupled Problems 1 Chair: Bai Baodong  
|                      | Poster Session 18 TP012 Devices and Applications Chair: Christian Magele  
|                      | Poster Session 19 TP021 Devices and Applications Chair: Joao Pedro Bastos  
|                      | Poster Session 20 TP022 Static and Quasi Static Fields Chair: Christian Kruettgen  
|                      | Poster Session 21 TP031 Coupled Problems Chair: M. Reza Barzegaran  
|                      | Poster Session 22 TP032 Static and Quasi Static Fields Chair: David Lowther  
|                      | Poster Session 23 TP041 Numerical Techniques Chair: Christos Antonopoulos  
|                      | Poster Session 24 TP042 Devices and Applications Chair: David Lowther  
|                      | (Symphony II & III)                                    |
| 12:00 pm - 1:30 pm   | Lunch Break                                            |
| 1:30 pm - 3:00 pm    | Poster Session 25 TP051 Coupled Problems 1 Chair: Christian Magele  
|                      | Poster Session 26 TP052 Devices and Applications Chair: Dennis Giannacopoulos  
|                      | Poster Session 27 TP061 Devices and Applications Chair: Gerard Meunier  
|                      | Poster Session 28 TP062 Static and Quasi Static Fields Chair: Jan Sykulski  
|                      | Poster Session 29 TP071 Coupled Problems Chair: Markus Clemens  
|                      | Poster Session 30 TP072 Static and Quasi Static Fields Chair: Christian Kruettgen  
|                      | Poster Session 31 TP081 Numerical Techniques Chair: Karl Hollaus  
|                      | Poster Session 32 TP082 Devices and Applications Chair: Lionel Pichon  
|                      | (Symphony II & III)                                    |
| 3:00 pm - 3:15 pm    | Coffee Break                                           |
| 3:15 pm - 5:00 pm    | Oral Session 13 - TO13  
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|                      | Oral Session 14 - TO14  
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|                      | Oral Session 15 - TO15  
|                      | Numerical Techniques 2 Chair: Jasmin Smajic  
|                      | (Concerto B)                                           |
|                      | Oral Session 16 - TO16  
|                      | Static & Quasi Static Fields 3 Chair: Ruth Sabariego  
<p>|                      | (Concerto C)                                           |</p>
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| 8:30 am -10:15 am| **Oral Session 17- WO17**  
|                  | Numerical Techniques 3  
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|                  | **Oral Session 18- WO18**  
|                  | Material Modeling 2  
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|                  | **Oral Session 19-WO19**  
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|                  | Chair: Fabio Freschi  
|                  | **Oral Session 20- WO20**  
|                  | Devices & Applications 5  
|                  | Chair: Alessandro Formisano  
|                  | (Symphony I)  
|                  | (Concerto A)  
|                  | (Concerto B)  
|                  | (Concerto C)  |
| 10:15 am- 10:30 am| Coffee Break                   |
| 10:30 am-12:00 pm| **Poster Session 33**  
|                  | WP011 Devices and Applications  
|                  | Chair: Kazuhiro Muramatsu  
|                  | **Poster Session 34**  
|                  | WP012 Optimization and Design  
|                  | Chair: Lionel Pichon  
|                  | **Poster Session 35**  
|                  | WP021 Material Modeling  
|                  | Chair: M. Reza Barzegaran  
|                  | **Poster Session 36**  
|                  | WP022 Wave Propagation  
|                  | Chair: Noboru Niguchi  
|                  | **Poster Session 37**  
|                  | WP031 Numerical Techniques  
|                  | Chair: Renato Cardoso Mesquita  
|                  | **Poster Session 38**  
|                  | WP032 Devices and Applications  
|                  | Chair: So Noguchi  
|                  | **Poster Session 39**  
|                  | WP041 Devices and Applications  
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|                  | **Poster Session 40**  
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| 12:00 pm- 1:30 pm| Lunch Break                     |
| 1:30 pm- 3:00 pm | **Poster Session 41**  
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|                  | WP052 Devices and Applications  
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| 3:00 pm- 3:15 pm | Coffee Break                    |
| 3:15 pm- 5:00 pm | **Oral Session 21- WO21**  
|                  | Coupled Problems 3  
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|                  | **Oral Session 22- WO22**  
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|                  | Chair: Antonios Kladas  
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|                  | **Oral Session 23- WO23**  
|                  | Numerical Techniques 4  
|                  | Chair: Piergiorgio Alotto  
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|                  | **Oral Session 24- WO24**  
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|                  | Chair: Zsolt Badics  
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| 5:00 pm - 5:30 pm| Closing Session and Poster Paper Award Presentation |
## Technical Program Overview

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Devices and Applications  
Olivier Chadebec  
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POSTER SESSION 6-WP062  Wednesday, November 16, 2016  1:30 PM - 3:00 PM
Devices and Applications  
Gerard Meunier  
( Symphony II & III )

POSTER SESSION 6-WP071  Wednesday, November 16, 2016  1:30 PM - 3:00 PM
Wave Propagation  
Karl Hollaus  
( Symphony II & III )

POSTER SESSION 6-WP072  Wednesday, November 16, 2016  1:30 PM - 3:00 PM
Numerical Techniques  
Christos Antonopoulos  
( Symphony II & III )

POSTER SESSION 6-WP081  Wednesday, November 16, 2016  1:30 PM - 3:00 PM
Devices and Applications  
Costin Ifrim  
( Symphony II & III )

POSTER SESSION 6-WP082  Wednesday, November 16, 2016  1:30 PM - 3:00 PM
Material Modeling  
Jan Sykulski  
( Symphony II & III )

ORAL SESSION WO21  Wednesday, November 16, 2016  3:15 PM - 5:00 PM
Coupled Problems III  
Ahmed Mohamed  
( Symphony I )

ORAL SESSION WO22  Wednesday, November 16, 2016  3:15 PM - 5:00 PM
Static & Quasi Static Fields IV  
Antonios Kladas  
( Concerto A )

ORAL SESSION WO23  Wednesday, November 16, 2016  3:15 PM - 5:00 PM
Numerical Techniques IV  
Piergiorgio Alotto  
( Concerto B )

ORAL SESSION WO24  Wednesday, November 16, 2016  3:15 PM - 5:00 PM
Optimization and Design IV  
Zsolt Badics  
( Concerto C )
**Technical Program**

**OPENING SESSION**
Sunday, November 13, 2016
Prof. Osama A Mohammed
General Chair
(Symphony I)

**ORAL SESSION MO01**
Monday, November 14, 2016
8:30 AM - 10:00 AM

8:30 AM - 8:50 AM  MO01-1  
K. Hollaus  
Technische University Wien, Institute for Analysis and Scientific Computing, AUSTRIA  
**Multiscale and Harmonic Balance FEM for the Eddy Current Problem in Laminated Iron Cores**

8:50 AM - 9:10 AM  MO01-2  
T. Mifune, Y. Takahashi, K. Fujiwara,  
Kyoto University, JAPAN  
**Complex-Valued Formulation of Nonlinear Time-Harmonic Magnetic Field Analysis and New Krylov-Like Solvers**

9:10 AM - 9:30 AM  MO01-3  
L. Montier, S. Clénet, T. Henneron, B. Goursaud  
L2EP, University Lille 1, FRANCE  
**Rotation movement based on the Spatial Fourier Interpolation Method (SFIM)**

9:30 AM - 9:50 AM  MO01-4  
T. Henneron, S. Clénet  
university Lille1 - L2EP, FRANCE  
**Parametric analysis of Magnetoharmonic problem based on Proper Generalized Decomposition**

9:50 AM - 10:10 AM  MO01-5  
U. Römer, H. De Gersem  
Technische Universitaet Darmstadt, GERMANY  
**Balancing Modeling and Discretization Errors in the Numerical Approximation of Magnetostatic Fields with Uncertainties**

**ORAL SESSION MO02**
Monday, November 14, 2016
8:30 AM - 10:00 AM

8:30 AM - 8:50 AM  MO02-1  
M. Wu, B. Fahimi  
University of Texas at Dallas, UNITED STATES OF AMERICA  
**Multiphysics Simulation of Pulsed Cold Plasma Arc Rotation in the Field of a Ring Permanent Magnet**

8:50 AM - 9:10 AM  MO02-2  
D. Chen, B. Bai, W. Yuan  
Shenyang University of Technology, CHINA, PEOPLE'S REPUBLIC OF  
**Study on the Protection and Energy Transmission Modes of One Phase Short Circuit to Ground in Inverters**

9:10 AM - 9:30 AM  MO02-3  
C. Jäger, I. Grinbaum, J. Smajic  
University of Applied Sciences Rapperswil HSR, SWITZERLAND  
**Dynamic Short-Circuit Analysis of Synchronous Machines**

9:30 AM - 9:50 AM  MO02-4  
M. Kamruzzaman, M. Barzegaran, O. Mohammed  
Lamar University, UNITED STATES OF AMERICA  
**EMI reduction of PMSM Drive through Matrix converter controlled with wide band gap switches**

9:50 AM - 10:10 AM  MO02-5  
S. Matsutomo, T. Manabe, V. Cingoski, S. Noguchi  
Hokkaido University, JAPAN  
**A computer aided education system based on augmented reality by immersion to 3-D magnetic field**
ORAL SESSION MO03
Monday, November 14, 2016
8:30 AM - 10:00 AM

8:30 AM - 8:50 AM  MO03-1  Y. Sato, H. Igarashi
Hokkaido University, Japan
Time-domain Analysis of Soft Magnetic Composite Using Equivalent Circuit Obtained via Homogenization

8:50 AM - 9:10 AM  MO03-2  J. Kitao, Y. Takahashi, K. Fujiwara, A. Ahagon, T. Matsuo, A. Daikoku
Doshisha Univ., Mitsubishi Electric Corp. / Japan, Japan
Homogenization Method for Laminated Iron Core Taking Account of Hysteretic Property

9:10 AM - 9:30 AM  MO03-3  C. Ermanno, A. Faba, A. Laudani, S. Quondam Antonio, F. Riganti Fulginei, A. Salvini
University of Perugia, Italy
Magnetic Modelling for the Texture Analysis of Fe-Si Alloys

9:30 AM - 9:50 AM  MO03-4  K. Hoffmann, J. Bastos, J. Leite, N. Sadowski, F. Mendes
Univ. Fed. Santa Catarina, Brazil
An accurate vector Jiles-Atherton model for improving the FEM convergence

9:50 AM - 10:10 AM  MO03-5  L. Daniel, F. Bouillault
GeePs-CentraleSupelec, France
An equivalent strain approach for magneto-elastic couplings

ORAL SESSION MO04
Monday, November 14, 2016
8:30 AM - 10:00 AM

8:30 AM - 8:50 AM  MO04-1  X. Zhang, W. Li, C. Gerada, H. Zhang, J. Li, M. Galea, D. Gerada, J. Cao
Beijing Jiaotong University, United Kingdom
CQICO and multi-objective thermal optimization for high speed PM generator

8:50 AM - 9:10 AM  MO04-2  K. Lee, S. Hong, I. Park
Sungkyunkwan University, Korea, Republic of (South Korea)
Dot Sensitivity Analysis for Topology Optimization of Dielectric Material in Electrostatic System

9:10 AM - 9:30 AM  MO04-3  G. Lossa
University of Mons, Belgium
Influence of the Geometrical Uncertainties on the RLC parameters of Wound Inductors Modeled Using the Finite Element Method

9:30 AM - 9:50 AM  MO04-4  A. Salimi, D. Lowther
Electrical and Computer Engineering Department, McGill University, Canada
Projection-Based Objective Space Reduction for Many-Objective Optimization Problems: Application to an Induction Motor Design

9:50 AM - 10:10 AM  MO04-5  T. Bauerfeind, P. Baumgartner, O. Biro, C. Magele, K. Preis, R. Torchio
Institute of Fundamentals and Theory in Electrical Engineering / Graz University of Technology, Austria
PEEC-Based Multi-Objective Synthesis of Non-Uniformly Spaced Linear Antenna Arrays

POSTER SESSION MP011
Monday, November 14, 2016
11:00 AM - 12:30 PM

10:30 AM -12:00 PM  MP011-1  N. Rahman, E. Bostanci, B. Fahimi
University of Texas at Dallas, United States of America
Thermal Analysis of Switched Reluctance Motor with Direct In-Winding Cooling System

10:30 AM -12:00 PM  MP011-2  J. Lee, J. Chang
Dong-A University, Korea, Republic of (South Korea)
Analysis of the Vibration Characteristics of Coaxial Magnetic Gear
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<th>Time</th>
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<tr>
<td>10:30 AM-12:00 PM</td>
<td>MP011-3</td>
<td>Influence of Rotor Structure on Field Current and Rotor Electromagnetic Field of Turbine Generator Under Out-of-Phase Synchronization</td>
<td>W. Li, P. Wang, Y. Xue, Y. Li, D. Li, J. Zeng Beijing Jiaotong University, CHINA, PEOPLE'S REPUBLIC OF</td>
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<tr>
<td>10:30 AM-12:00 PM</td>
<td>MP011-4</td>
<td>Electromechanical analysis of a new PMs Bearing</td>
<td>S. Barmada, A. Musolino, M. Rauzi, R. Rizzo, E. Tripodi DESTEC University of Pisa, ITALY</td>
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<td>10:30 AM-12:00 PM</td>
<td>MP011-5</td>
<td>Analysis of Transient Magnetic Shielding made by Conductive Plates with a PEEC method</td>
<td>P. Du, H. Chen The Hong Kong Polytechnic University, HONG KONG S.A.R. (CHINA)</td>
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<tr>
<td>10:30 AM-12:00 PM</td>
<td>MP011-6</td>
<td>Titanium Droplet Formation in Electromagnetic Levitation Melting Process</td>
<td>H. Li, S. Wang, J. Zhu Xi'an Jiaotong University, CHINA, PEOPLE'S REPUBLIC OF</td>
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<td>10:30 AM-12:00 PM</td>
<td>MP011-7</td>
<td>Comparative study of metal obstacles variations in disturbing wireless power transmission system</td>
<td>P. Zhang, Q. Yang, X. Zhang, Y. Li, Y. Li Hebei University of Technology, CHINA, PEOPLE'S REPUBLIC OF</td>
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<td>10:30 AM-12:00 PM</td>
<td>MP011-8</td>
<td>Hybrid Analytical Model Coupling Laplace's Equation and Reluctance Network for Electrical Machines</td>
<td>S. Bazhar, J. Fontchastagner, N. Takorabet, N. Labbe University de Lorraine - GREEN, FRANCE</td>
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<td>10:30 AM-12:00 PM</td>
<td>MP011-9</td>
<td>Numerical Modeling of Steady State of Magnetostatic Problems Coupled with nonlinear Electric Circuit</td>
<td>G. Caron, T. Henneron, F. Piriou, J. Mipo University Lille 1 - Laboratoire L2EP, FRANCE</td>
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<tr>
<td>10:30 AM-12:00 PM</td>
<td>MP011-10</td>
<td>A Novel Finite Integration Technique Model for Static and Dynamic Piezoelectric Coupled Problems</td>
<td>L. Codecasa, D. Desideri, A. Doria, A. Maschio, F. Moro Dnipartimento di Ingegneria Industriale, University di Padova, ITALY</td>
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**POSTER SESSION MP012**

**NanoMagnetics & Bioelectric Fields**

**Costin Ifrim**

( Symphony II & III )

**Monday, November 14, 2016**

11:00 AM-12:30 PM

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<tr>
<td>10:30 AM-12:00 PM</td>
<td>MP012-1</td>
<td>Induced Effects in a Pacemaker equipped with Wireless Power Transfer Charging System</td>
<td>F. Palandrani, T. Campi, S. Cruciani, V. De Santis, F. Maradei, M. Feliziani University of L'Aquila, ITALY</td>
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<tr>
<td>10:30 AM-12:00 PM</td>
<td>MP012-2</td>
<td>Human exposure assessment in dynamic inductive power transfer for automotive applications</td>
<td>V. Cirimele, F. Freschi, L. Giaccone, L. Pichon, M. Repetto Politecnico di Torino, ITALY</td>
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<td>10:30 AM-12:00 PM</td>
<td>MP012-3</td>
<td>Channel Interaction in Cochlear Implant Acoustic Models</td>
<td>C. Choi, S. Huang, Y. Lee National Chiao Tung University, Dept of Electrical and Computer Engineering, TAIWAN, REPUBLIC OF CHINA</td>
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<td>10:30 AM-12:00 PM</td>
<td>MP012-4</td>
<td>Particular Electromagnetic Shielding Analysis of Cables for Electric Vehicle Applications</td>
<td>T. Damatopoulou, V. Lazaris, A. Kladas ICCS-National Technical University of Athens, GREECE</td>
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<td>10:30 AM-12:00 PM</td>
<td>MP012-5</td>
<td>A Forward Solution of Acoustic Inhomogeneity in Magnetoacoustic Tomography with Magnetic Induction Base on GFEM</td>
<td>W. Li, S. Zhang, H. Yang, W. Hou, G. Xu, W. Yan Hebei University of Technology, CHINA, PEOPLE'S REPUBLIC OF</td>
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10:30 AM-12:00 PM  MP012-6  S. Zhang, Y. Guo, G. Xu, W. Yan
Hebei University of Technology, CHINA, PEOPLE'S REPUBLIC OF
Electrical Impedance Tomography Reconstruction using a Hybrid Variation Regularization Algorithm

10:30 AM-12:00 PM  MP012-7  A. Arduino, O. Bottauscio, M. Chiampi, L. Zilberti
IST. NAZ. RICERCA METROLOGICA, ITALY
Douglas-Gunn Method Applied to Dosimetric Assessment in Magnetic Resonance Imaging

10:30 AM-12:00 PM  MP012-8  W. Kaiser, M. Kiechle, G. Zienns, D. Schmitt-Landsiedel, S. Breitkreutz-V. Gamm
Technical University of Munich, GERMANY
Engineering the switching behavior of nanomagnets for logic computation using 3-dimensional modeling and simulation

10:30 AM-12:00 PM  MP012-9  T. Tanaka, A. Furuya, Y. Uehara, K. Shimizu, J. Fujiisaki, T. Ataka, H. Oshima
Fujitsu Ltd., JAPAN
Speeding up Micromagnetic Simulation by Energy Minimization with Interpolation of Magnetostatic Field

10:30 AM-12:00 PM  MP012-10  E. Smith, F. Freschi, M. Repetto, S. Crozier
Politecnico di Torino, ITALY
Synthesis of the cooling pathways optimal layout for MRI gradient coils

POSTER SESSION  MP021
Monday, November 14, 2016
11:00 AM- 12:30 PM

10:30 AM-12:00 PM  MP021-1  K. Shin, H. Park, H. Cho, S. Lee, J. Choi
Department of Electrical Engineering, Chungnam National University, KOREA, REPUBLIC OF (SOUTH KOREA)
Design and Analysis of Magnetic-Geared Permanent Magnet Motor considering Flux Modulating Iron Structure

10:30 AM-12:00 PM  MP021-2  N. Feng, H. Yu, M. Hu, Z. Shi, X. Liu
Southeast University, CHINA, PEOPLE'S REPUBLIC OF
A Rotary-Linear Magnetic-Geared Permanent Magnet Machine

10:30 AM-12:00 PM  MP021-3  V. Ghorbanian, D. Lowther
Electrical and Computer Engineering Department, McGill University, CANADA
Magnetic and Electrical Design Challenges of Inverter-fed Permanent Magnet Synchronous Motors

10:30 AM-12:00 PM  MP021-4  H. Yang, H. Lin, Z. Zhu, K. Guo, S. Fang, Y. Huang
Southeast University, CHINA, PEOPLE'S REPUBLIC OF
Novel Design of a Variable Reluctance Permanent Magnet Machine with Bipolar Coil Flux-Linkage

10:30 AM-12:00 PM  MP021-5  T. Hacib, Y. Le Bihan, M. Chelabi, B. Houssem, M. Mekideche
GeePs, ALGERIA
Eddy Current Characterization Using Robust Meta-Heuristic Algorithms for LS-SVM Hyper-Parameters Optimization

10:30 AM-12:00 PM  MP021-6  K. Lu, Y. Xia
Aalborg University, DENMARK
Bounded-state Magnetic Particle Imaging for Localization of Helical Blood-Vessel Micro-robot by Using Pickup Coils

10:30 AM-12:00 PM  MP021-7  Y. Zhong, Y. Fang, X. Huang, Q. Lu
Zhejiang University, CHINA, PEOPLE'S REPUBLIC OF
Magnetic Field Analysis Using an Analytical Method in a Radial Magnetic Bearing
10:30 AM - 12:00 PM  MP021-8  X. Yin, P. Pfister, Y. Fang  
Zhejiang University, CHINA, PEOPLE’S REPUBLIC OF  
Analytical Modeling of a Novel Vernier Pseudo-Direct-Drive Permanent-Magnet Machine

10:30 AM - 12:00 PM  MP021-9  G. Jang, J. Kim, J. Choi  
Chungnam National University, KOREA, REPUBLIC OF (SOUTH KOREA)  
Optimal Design and Torque Analysis Considering Eddy-Current Reduction of Axial-Flux Permanent Magnet Couplings with Halbach Array Based on 3D-FEM

10:30 AM - 12:00 PM  MP021-10  J. Song, J. Lee, Y. Kim, S. Jung  
Sungkyunkwan University, KOREA, REPUBLIC OF (SOUTH KOREA)  
Analysis and Modeling of Variable Flux Memory Motor Using a Lumped Magnetic Circuit Method

10:30 AM - 12:00 PM  MP021-11  B. W. Kim, G. H. Kang, S. K. Lee, Y. U. Cho  
Korea Marine Equipment Research Institute, KOREA, REPUBLIC OF (SOUTH KOREA)  
Design and Verification of 200kW Interior Permanent Magnet Synchronous Motor for Ship Propulsion

POSTER SESSION  MP022  
Monday, November 14, 2016  
11:00 AM - 12:30 PM

10:30 AM - 12:00 PM  MP022-1  H. Li, X. Li, X. Tian, X. Chen, F. Jia, L. Wang, Z. Zhao  
North China Electric Power University, CHINA, PEOPLE’S REPUBLIC OF  
An Improved Transformers Model Considering of Losses and Hysteresis of Core under Different Frequency Sinusoidal Voltage Waveform

10:30 AM - 12:00 PM  MP022-2  P. Diez  
Infolytica Corp., CANADA  
Symmetric Invertible B-H Curves Using Piecewise Linear Rationals

10:30 AM - 12:00 PM  MP022-3  S. Odawara, N. Kitsunezaki, K. Fujisaki, M. Nakagawa, N. Kitano, Y. Asano  
Toyota Technological Institute, JAPAN  
Numerical Calculation of Magnetic Hysteresis Property Taking into Account Magnetic Anisotropy of Electrical Steel Sheet

10:30 AM - 12:00 PM  MP022-4  K. Malleron, H. Talleb, A. Gensbittel, Z. Ren  
L2E, UPMC University Pierre et Marie Curie, FRANCE  
Finite element modeling of magnetoelectric energy transducers with interdigitated electrodes

10:30 AM - 12:00 PM  MP022-5  S. Hussain, D. Lowther  
McGill University, CANADA  
The Modified Jiles-Atherton Model for the Accurate Prediction of Iron Losses

10:30 AM - 12:00 PM  MP022-6  S. Ito, T. Mifune, T. Matsuo, Y. Takahashi, K. Fujiwara, C. Kaido  
Kyoto University, JAPAN  
The domain structure model including pinning effect based on the statistical distribution function

10:30 AM - 12:00 PM  MP022-7  W. Li, Z. Cao, X. Zhang, J. Zeng  
Beijing Jiaotong University, CHINA, PEOPLE’S REPUBLIC OF  
Research on Rotor Eddy Current Fields and Temperature Fields of High Voltage Solid Rotor PMSM with a Novel Stator Slot Wedge

10:30 AM - 12:00 PM  MP022-8  W. Xu, N. Duan, S. Wang, J. Zhu  
Xi’an Jiaotong University, CHINA, PEOPLE’S REPUBLIC OF  
Modelling of Magnetic Properties in Soft Magnetic Composite Material under Rotational Magnetization

10:30 AM - 12:00 PM  MP022-9  P. Eckert, L. Righi, A. Flores Filho, J. Kanieski  
Laboratory of Electrical Machines, Energy and Drives, Federal University of Rio Grande do Sul, BRAZIL  
A Stochastic Method for Characterization of Soft Magnetic Material with a Damped LC Circuit
A Simplified Method for Acquisition of the Parameters of Jiles-Atherton Hysteresis Scalar Model Without Use of Derivatives

POSTER SESSION MP031
Monday, November 14, 2016
11:00 AM - 12:30 PM

10:30 AM - 12:00 PM MP031-1  G. Vinsard, S. Dufour
University de Lorraine, LEMTA, FRANCE
Eddy Currents in Cusp Shaped Thin Shell

10:30 AM - 12:00 PM MP031-2  Z. Cheng, B. Forghani, J. Hou, T. Liu, Y. Fan, L. Liu, F. Che, F. Meng, X. Zhao,
Baoding Tianwei Baobian Electric Co., LTD, CHINA, PEOPLE’S REPUBLIC OF
Magnetic Loss Modeling inside GO Silicon Steel Laminations Excited by 3-D Harmonic Magnetic Field

10:30 AM - 12:00 PM MP031-3  Y. Zhao, W. Fu
Ansys Inc, HONG KONG S.A.R. (CHINA)
A Novel Formulation with Coulomb Gauge for 3-D Magnetostatic Problems Using Edge Elements

10:30 AM - 12:00 PM MP031-4  X. Xu, P. Lyu, S. Yan, Z. Ren
Institute of Microelectronics of Chinese Academy of Sciences, CHINA, PEOPLE’S REPUBLIC OF
Stationary Electro-Thermal Coupling Analysis Considering Dual Finite Element Formulations of Steady Current Field

10:30 AM - 12:00 PM MP031-5  S. Ziani, T. Henneron, Y. Le Menach
University of Lille/L2EP, FRANCE
Nonlinear Lamination Stacks Studied with Harmonic Balance FEM Supplied by Magnetic Flux Arising from PWM

10:30 AM - 12:00 PM MP031-6  W. Dong
Global Energy Interconnection Research Institute, CHINA, PEOPLE’S REPUBLIC OF
Rated Capacitance Design of a New 1000kV Equipotential Shielding Capacitor Voltage Transformer Under the Interference of Stray Capacitance

10:30 AM - 12:00 PM MP031-7  M. Zang, M. Clemens
University of Wuppertal, Chair of Electromagnetic Theory, GERMANY
A Co-Simulation Scalar-Potential Finite Difference (SPFD) Approach for the Simulation of Human Exposure to Magneto-Quasistatic Fields

10:30 AM - 12:00 PM MP031-8  D. Wang, T. Lu, Q. Li, B. Chen, X. Li
North China Electric Power University, CHINA, PEOPLE’S REPUBLIC OF
3-D Electric Field Computation with Charge Simulation Method around Buildings near HV Transmission Lines

10:30 AM - 12:00 PM MP031-9  Z. Andjelic, K. Ishibashi
POLOPT Technologies, CROATIA
Double-Layer BEM for Generic Electrostatics

10:30 AM - 12:00 PM MP031-10  K. Shin, H. Park, H. Cho, J. Choi
Department of Electrical Engineering, Chungnam National University, KOREA, REPUBLIC OF (SOUTH KOREA)
Armature Reaction Field and Inductance Calculations for a Permanent Magnet Linear Synchronous Machine Based on Subdomain Model
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<td>MP032-1</td>
<td>C. Antonopoulos, N. Kantartzis, I. Rekanos</td>
<td>Aristotle University of Thessaloniki, GREECE</td>
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<td>FDTD Method for Wave Propagation in Havriliak-Negami Media based on Fractional Derivative Approximation</td>
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<td>MP032-2</td>
<td>S. Ma, G. Yang, F. Meng, X. Ding, K. Zhang, J. Fu, Q. Wu</td>
<td>Harbin Institute of Technology, CHINA, PEOPLE’S REPUBLIC OF</td>
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<td>Electrically Tunable Array Antenna with Beam Steering from Backfire to Endfire Based on Liquid Crystal Miniaturized Phase Shifter</td>
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<td>MP032-3</td>
<td>B. Che, F. Meng, J. Fu, K. Zhang, G. Yang, Q. Wu</td>
<td>Harbin Institute of Technology, CHINA, PEOPLE’S REPUBLIC OF</td>
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<td>A Dual Band CRLH Leaky Wave Antenna with Electrically Steerable Beam Based on Liquid Crystals</td>
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<td>P. Lyu, X. Xu, S. Yan, Z. Ren</td>
<td>Institute of Microelectronics of Chinese Academy of Sciences, CHINA, PEOPLE’S REPUBLIC OF</td>
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<td>Acceleration of Reflection in 2D Ray Tracing Based on Image by Binary Space Partitioning</td>
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<td>MP032-5</td>
<td>A. Papadimopoulos, S. Amanatiadis, N. Kantartzis, I. Rekanos, T. Zygidis, T. Tsiboukis</td>
<td>Aristotle University of Thessaloniki, GREECE</td>
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<td>A Convolutional PML Scheme for the Efficient Modeling of Graphene Structures through the ADE-FDTD Technique</td>
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<td>F. Gonçalves, E. Silva, R. Mesquita</td>
<td>Federal University of Minas Gerais - UFMG, BRAZIL</td>
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<td>Design of Non-Singular Two-Dimensional Layered Cloaks Mapped from Small Areas</td>
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<td>MP032-7</td>
<td>M. Cicuttin, L. Codecasa, B. Kapidani, R. Specogna, F. Trevisan</td>
<td>Ecole Nationale des Ponts et Chausses, ITALY</td>
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<td>A comparative performance analysis of time-domain formulations for wave propagation problems</td>
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<td>MP032-8</td>
<td>M. Cicuttin, L. Codecasa, R. Specogna, F. Trevisan</td>
<td>Ecole Nationale des Ponts et Chausses, FRANCE</td>
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<td>A geometric frequency-domain wave propagation formulation for fast convergence of iterative solvers</td>
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<td>10:30 AM-12:00 PM</td>
<td>MP032-9</td>
<td>L. Zhou, D. Wang, Z. Mu, Y. Pu, X. Xi</td>
<td>Xi’an University of Technology, CHINA, PEOPLE’S REPUBLIC OF</td>
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<td>Loran-C Ground-wave Propagation Prediction Based on the Calibrated Two-way NAPE Algorithm</td>
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<td>MP032-10</td>
<td>Y. Yuan, X. Ding, K. Zhang, Q. Wu</td>
<td>Harbin Institute of Technology, CHINA, PEOPLE’S REPUBLIC OF</td>
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<td>Planar Efficient Metasurface for Vortex Beam Generating and Converging in Microwave Region</td>
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**POSTER SESSION MP041**  
Monday, November 14, 2016  
11:00 AM-12:30 PM

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<tr>
<td>10:30 AM-12:00 PM</td>
<td>MP041-1</td>
<td>N. Lima, R. Mesquita</td>
<td>Universidade Federal de Minas Gerais, BRAZIL</td>
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<tr>
<td></td>
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<td>Meshless Vector Radial Basis Functions with Weak Forms</td>
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<td>10:30 AM-12:00 PM</td>
<td>MP041-2</td>
<td>T. Zygidis, A. Papadopoulos, N. Kantartzis, C. Antonopoulos, E. Glytsis, T. Tsiboukis</td>
<td>Aristotle University of Thessaloniki - ELKE, GREECE</td>
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<tr>
<td></td>
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<td>Polynomial-Chaos Time-Domain Method for Uncertainty Analysis of Axially-Symmetric Structures</td>
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<tr>
<td>Time</td>
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<td>10:30 AM-12:00 PM MP041-3</td>
<td>V. Mukherjee, M. Farzamfar, A. Belahcen</td>
<td>Force Computation of a Synchronous Reluctance Motor by Model Order Reduction with Constraint Based Uneven Snapshot Matrix</td>
<td>Aalto University, FINLAND</td>
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<td>10:30 AM-12:00 PM MP041-4</td>
<td>M. Nitas, C. Antonopoulos, T. Yioultsis</td>
<td>E-B Eigenmode Formulation for the Analysis of Lossy and Evanescent Modes in Periodic Structures and Metamaterials</td>
<td>Aristotle University of Thessaloniki, ELKE, GREECE</td>
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<tr>
<td>10:30 AM-12:00 PM MP041-5</td>
<td>A. Sommer, T. Bauer, R. Baltes, R. Dyczij-Edlinger</td>
<td>A Hierarchical Greedy Strategy for Adaptive Model-Order Reduction</td>
<td>Chair of Electromagnetic Theory, Saarland University, GERMANY</td>
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<tr>
<td>10:30 AM-12:00 PM MP041-6</td>
<td>J. Keränen, P. Ponomarev, J. Pippuri, P. Rábek, M. Lyly, J. Westerlund</td>
<td>Parallel Performance of Multi-Slice Method for Skewed Electrical Machines</td>
<td>VTT, FINLAND</td>
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<tr>
<td>10:30 AM-12:00 PM MP041-7</td>
<td>Y. Sato, H. Igarashi</td>
<td>Homogenization Method Based on Model Order Reduction for FE Analysis of Multi-turn Coils</td>
<td>Hokkaido University, JAPAN</td>
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<tr>
<td>10:30 AM-12:00 PM MP041-8</td>
<td>H. Ebrahimi, K. Muramatsu, Y. Gao</td>
<td>Fast Non-Linear Magnetic Field Analysis of Inverter-Driven Machines by Applying POD on Linearized Coefficient Matrices</td>
<td>Saga University, JAPAN</td>
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<tr>
<td>10:30 AM-12:00 PM MP041-9</td>
<td>K. Cheshmi, G. Xu, S. Zonouz, M. MehriDehnavi</td>
<td>Axb: A Compiler for Sparse Direct Solvers</td>
<td>Rutgers University, UNITED STATES OF AMERICA</td>
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<td>10:30 AM-12:00 PM MP041-10</td>
<td>U. Resende, F. Moreira, M. Afonso, E. Coppoli</td>
<td>Combined Formulation for Meshless-MoM Hybrid Method Applied to 2D Electromagnetic Scattering</td>
<td>CEFET-MG, BRAZIL</td>
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<tr>
<td>POSTER SESSION MP042</td>
<td>Optimization &amp; Design</td>
<td>Karl Hollaus (Symphony II &amp; III)</td>
<td></td>
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<td>Monday, November 14, 2016 11:00 AM-12:30 PM</td>
<td>F. Mach, M. Kurfířt, I. Doležel</td>
<td>Robust Magnetic Flux-based Fault Detection of Electromagnetic Valve Operation under Uncertainty</td>
<td>Faculty of Electrical Engineering, University of West Bohemia in Pilsen, CZECH REPUBLIC</td>
</tr>
<tr>
<td>10:30 AM-12:00 PM MP042-2</td>
<td>R. Silva, M. Li, T. Rahman, D. Lowther</td>
<td>Surrogate-based MOEA/D for Electric Motor Design with Scarce Function Evaluations</td>
<td>Electrical and Computer Engineering Department, McGill University, CANADA</td>
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<td>10:30 AM-12:00 PM MP042-3</td>
<td>H. Zargarzadeh, M. Barzegaran, O. Mohammed</td>
<td>Wireless Power Transfer for Electric Vehicle using an Adaptive Robot</td>
<td>Lamar University, UNITED STATES OF AMERICA</td>
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<td>10:30 AM-12:00 PM MP042-4</td>
<td>J. Lee, J. Kim, Y. Kim, S. Jung</td>
<td>Distance based Intelligent Particle Swarm Optimization for Optimal Design of Permanent Magnet Synchronous Machine</td>
<td>SungKyunKwan University, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<tr>
<td>10:30 AM-12:00 PM MP042-5</td>
<td>B. Son, D. Kim, J. Kim, Y. Kim, S. Jung</td>
<td>Genetic Algorithm Adopting Building Block Identification</td>
<td>Sungkyunkwan University, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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10:30 AM - 12:00 PM  MP042-6  Y. Hidaka, H. Igarashi
Advanced Technology R&D Center, Mitsubishi Electric Corporation, JAPAN
**Topology Optimization of Rotating Machine Rotors Considering Localized Magnetic Degradation Caused in Manufacturing Process**

10:30 AM - 12:00 PM  MP042-7  H. Hultmann Ayala, C. Klein, V. Mariani, L. Coelho
Pontifical Catholic University of Paraia, BRAZIL
**Multi-objective Symbiotic Search Algorithm Approaches for Electromagnetic Optimization**

10:30 AM - 12:00 PM  MP042-8  M. Pham, C. Koh
Chungbuk National University, VIETNAM
**Differential Evolution Using Adaptive Mutation Scaling Factor for Multi-Objective Electromagnetic Constrained Optimization Problems**

10:30 AM - 12:00 PM  MP042-9  Y. Li, X. Huang
Zhejiang University, CHINA, PEOPLE'S REPUBLIC OF
**Design and Analysis of A Outer-Rotor Permanent-Magnet Flux-Modulated Motor for Electric Vehicles**

10:30 AM - 12:00 PM  MP042-10  B. Xia, Z. Ren, C. Koh
Chungbuk National University, KOREA, REPUBLIC OF (SOUTH KOREA)
**A Novel Reliability-Based Optimal Design of Electromagnetic Devices Based on Adaptive Dynamic Taylor Kriging**

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**POSTER SESSION MP051**
Monday, November 14, 2016
1:30 PM - 3:30 PM

1:30 PM - 3:00 PM  MP051-1  Y. Oh, K. Joo, J. Lim, H. Lee, S. Jung, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
**A Study on the Torque Control of IPMSM through Coupled-analysis Methods**

1:30 PM - 3:00 PM  MP051-2  N. Zhang, S. Wang, C. Zhang, S. Wang
Xi'an Jiaotong University, CHINA, PEOPLE'S REPUBLIC OF
**Mitosis Interference of K-Ras Driven Lung Cancer Cells by Magnetic Stimulation**

1:30 PM - 3:00 PM  MP051-3  D. Yuan, S. Wang, H. Li, H. Zhang
Xi'an Jiaotong University, CHINA, PEOPLE'S REPUBLIC OF
**Stress-based Variable Phase-shifting Reactor for the Multi-phase Rectifier System**

1:30 PM - 3:00 PM  MP051-4  W. Zhao, T. Lipo, B. Kwon
Shandong University, KOREA, REPUBLIC OF (SOUTH KOREA)
**Design and Analysis of a Novel PM-Assisted Synchronous Reluctance Machine with Axially Integrated Magnets by Finite Element Method**

1:30 PM - 3:00 PM  MP051-5  V. Majchrzak, G. Parent, J. Brudny, V. Costan, P. Guuinic
University d'Artois, FRANCE
**Coupling Transformer Operation of a Dynamic Voltage Restorer Under Electrical Grid Conditions**

1:30 PM - 3:00 PM  MP051-6  K. Joo, S. Cho, S. Jung, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
**Robust Speed Sensorless Control to Estimated Error for PMa-SynRM**

1:30 PM - 3:00 PM  MP051-7  F. Gonzalez Montanez, S. Maximov, J. Guzman, R. Escarela Perez, J. Olivares Galvan
UNAM, MEXICO
**Modeling of Magnetic Levitation Systems Using Finite Elements and an Analytical Solution**

1:30 PM - 3:00 PM  MP051-8  X. Yang, B. Zhu, C. Li
Hebei University of Technology, CHINA, PEOPLE'S REPUBLIC OF
**Design and Realization of a Current Sensor for Impulse Current Waveform Measurement**
POSTER SESSION MP052
Monday, November 14, 2016
1:30 PM - 3:30 PM

1:30 PM - 3:00 PM MP051-9
H. Kim, Y. Lee, J. Ryu, G. Park
Pusan National University, KOREA, REPUBLIC OF (SOUTH KOREA)
Effects of the Induced Magnetic Field on the Defect Signals in RFECT System for Pipeline Inspection

1:30 PM - 3:00 PM MP051-10
J. Jeong, C. Ha, J. Lim, C. Kim, J. Choi
KIMM, KOREA, REPUBLIC OF (SOUTH KOREA)
Analysis and Control of Electromagnetic Coupling Effect of Levitation and Guidance Systems for Semi-High-Speed Maglev Train Considering Current Direction

1:30 PM - 3:00 PM MP052-1
J. Silva, M. Afonso, J. Faria, G. Pellegrino
Departamento de Fisica e Matemática - CEFET/MG, BRAZIL
Effect of local support configuration on the precision of numerical solutions of Poisson equation obtained with differential quadrature method

1:30 PM - 3:00 PM MP052-2
A. Formisano, R. Martone
Dept. of Industrial and Inform. Engin. Seconda University di Napoli, ITALY
A Fast, Semi-Analytical Method for Field Computation in Presence of Magnetic and Conductive Materials

1:30 PM - 3:00 PM MP052-3
Doshisha Univ., Mitsubishi Electric Corp. / Japan, JAPAN
Steady-State Analysis of Hysteretic Magnetic Field Problems Using Parallel TP-EEC Method

1:30 PM - 3:00 PM MP052-4
K. Sugahara
Kindai University, JAPAN
Improvised Asymptotic Boundary Conditions for Quasi- Static Magnetic-Field Problems in Ellipsoidal Domains

1:30 PM - 3:00 PM MP052-5
L. Huang, G. Meunier, O. Chadebec, J. Guichon, Y. Li, Z. He
CNRS, G2Elab, University de Grenoble, FRANCE
General Integral Formulation of Magnetic Flux Computation and its Application in Inductive Power Transfer System

1:30 PM - 3:00 PM MP052-6
G. Parent, S. Duschesne, P. Dular
University d'Artois, FRANCE
Determination of Flux Tube Portions by Adjunction of Electric or Magnetic Multivalued Equipotential Lines

1:30 PM - 3:00 PM MP052-7
J. Padilha, P. Kuo-Peng, N. Sadowski, N. Batistela
Universidade Federal de Santa Catarina, BRAZIL
Vector Hysteresis Model Associated to FEM in a Hysteresis Motor Modeling

1:30 PM - 3:00 PM MP052-8
D. Di Pietro, B. Kapidani, R. Specogna, F. Trevisan
University of Udine, ITALY
An arbitrary-order discontinuous skeletal method for solving electrostatics on general polyhedral meshes

1:30 PM - 3:00 PM MP052-9
D. Wu, X. Yan, R. Tang, D. Xie, Z. Ren
Shenyang University of Technology, CHINA, PEOPLE'S REPUBLIC OF
GPU Acceleration of 3D Eddy Current Losses Calculation in Large Power Transformer

1:30 PM - 3:00 PM MP052-10
P. Bettini, R. Benato, S. Dambone Sessa, R. Specogna
University di Padova - DII (Department of Industrial Engineering), ITALY
T-Omega formulation for eddy current problems with periodic boundary conditions
POSTER SESSION MP061
Monday, November 14, 2016
1:30 PM - 3:30 PM

1:30 PM - 3:00 PM MP061-1 K. Fujisaki
Toyoa Technological Institute, JAPAN
Magnetic Multi-Scale Problem of Equivalent Electromagnetic Material Constants for Local Eddy Current Flow

1:30 PM - 3:00 PM MP061-2 X. Gu, Y. Zhao, W. Fu
Ansys Inc, HONG KONG S.A.R. (CHINA)
A Novel Iterative Linear Solver for 3-D Magnetostatic Problems Using Edge Elements

1:30 PM - 3:00 PM MP061-3 M. Jüttner, J. Falk, W. Rucker
University of Stuttgart, Institute for Theory of Electrical Engineering, GERMANY
A Neural Network based Recommendation System for Solvers and Preconditioners for Systems of Linear Equations

1:30 PM - 3:00 PM MP061-4 Y. Sato, T. Shimotani, H. Igarashi
Hokkaido University, JAPAN
Synthesis of Cauer-Equivalent Circuit Based on Model Order Reduction Considering Nonlinear Magnetic Property

1:30 PM - 3:00 PM MP061-5 M. Al Eit, P. Dular, F. Bouillault, C. Marchand, G. Krebs
GeePs laboratory, FRANCE
2D Finite Element Model Reduction for Copper Losses Calculation in Switched Reluctance Machines

1:30 PM - 3:00 PM MP061-6 M. Eller, S. Reitzinger, S. Schöps, S. Zaglmayr
CST AG, GERMANY
A Reduced Basis Approach for Broadband Maxwell Simulations

1:30 PM - 3:00 PM MP061-7 L. Perkkiö
Aalto University, School of Electrical Engineering, FINLAND
Iron Loss Measurement as Inverse Heat Source Problem

1:30 PM - 3:00 PM MP061-8 R. Sabariego, J. Gyselink
KU Leuven, BELGIUM
Eddy-current-effect Homogenization of Windings in Harmonic Balance Finite Element Models

1:30 PM - 3:00 PM MP061-9 F. De Souza, L. Ferreira, E. Da Silva, R. Mesquita
Federal University of Minas Gerais - UFMG, BRAZIL
An h-Adaptive Natural Element Method To Solve Static Electromagnetic Problems

1:30 PM - 3:00 PM MP061-10 V. Ghorbanian, D. Lowther
Electrical and Computer Engineering Department, McGill University, CANADA
A Computational-analytical Approach to Efficiently Locate Optimum Objective Spaces of Permanent Magnet Motors in Transient, Rated and Flux Weakening Operations

POSTER SESSION MP062
Monday, November 14, 2016
1:30 PM - 3:30 PM

1:30 PM - 3:00 PM MP062-1 H. Liu, G. Jeong, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
Bubbles and Blisters Impact on Die-Casting Cage to the Designs and Operations of Line-Start Synchronous Reluctance Motors

1:30 PM - 3:00 PM MP062-2 Y. Li, S. Xiao, M. Rotaru, J. Sykulski
University of Southampton, UNITED KINGDOM
A kriging based optimization approach for large datasets

1:30 PM - 3:00 PM MP062-3 D. Xu, H. Lu, J. Kwon, S. Hwang
School of Mechanical Engineering, Pusan National University, KOREA, REPUBLIC OF (SOUTH KOREA)
Analysis of Electro-Magnetic Circuit Variables' Effects on Total Harmonic Distortion in a Balanced Armature Driver
1:30 PM - 3:00 PM MP062-4  S. Furui, H. Sasaki, H. Igarashi, H. Sakamoto, T. Abe, K. Ogura
Graduate School of Information Science and Technology, Hokkaido University, JAPAN
Regularized Topology Optimization of IPM Motors and Post-Processing for Interpretation of Optimal Solutions

1:30 PM - 3:00 PM MP062-5  K. Guo, S. Fang, H. Lin, K. Wang, H. Yang
Southeast University, CHINA, PEOPLE'S REPUBLIC OF
3D Magnetic Field Analytical Calculation of Flux Reversal Linear-Rotary Permanent Magnet Actuator

1:30 PM - 3:00 PM MP062-6  P. Alotto, L. Dos Santos Coelho, V. Cocco Mariani, T. Cardoso Bora
University di Padova, Dip. Ing. Industriale, ITALY
Multiobjective Cross Entropy for Electromagnetic Optimization

1:30 PM - 3:00 PM MP062-7  W. Han, J. Kim, Y. Kim, S. Jung
Sungkyunkwan University, KOREA, REPUBLIC OF (SOUTH KOREA)
Multi-Simplex Algorithm Applied to FEM based Optimal Design of Electric Machine

1:30 PM - 3:00 PM MP062-8  J. Yuan, L. Liu, X. Luo, C. Tian, Z. Du, W. Guan, Y. Gao, K. Muramatsu, B. Chen
Wuhan University, CHINA, PEOPLE'S REPUBLIC OF
Optimal Gear Capacity Design of 380V/30kVar Superconducting Controllable Reactor Based on ANSYS-Immune Algorithm

1:30 PM - 3:00 PM MP062-9  H. Liu, K. Joo, H. Lee, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
Design of Equivalent Magnetic Circuit and Parameter Analysis for Improving Performance of Fuel Injections

1:30 PM - 3:00 PM MP062-10 A. Hariri, A. Elsayed, O. Mohammed
Florida International University, UNITED STATES OF AMERICA
An Integrated Characterization Model for the Magnetic Design of an EV Chargers Circular Wireless Power Transfer Pads

POSTER SESSION MP071
Monday, November 14, 2016
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1:30 PM - 3:00 PM MP071-1  X. Zhu, W. Hua, M. Cheng
School of Electrical Engineering, Southeast University, CHINA, PEOPLE'S REPUBLIC OF
An Improved Configuration for Cogging Torque Reduction in Flux-Reversal Permanent Magnet Machines

1:30 PM - 3:00 PM MP071-2  E. Cardelli, A. Faba, S. Gaiotto, A. Laudani, F. Riganti Fulginei, A. Salvini, F. Tissi
University of Perugia, ITALY
Modeling of Inductive Blocking Devices for the Mitigation of Indirect Lightning Effects

1:30 PM - 3:00 PM MP071-3  J. Zou, W. Xu, C. Ye
Huazhong University of Science and Technology, CHINA, PEOPLE'S REPUBLIC OF
Model Predictive Control for Linear Induction Machines With Less Computational Burden

1:30 PM - 3:00 PM MP071-4  H. Yang, Z. Zhu, H. Lin, K. Guo, Y. Huang, S. Fang
Southeast University, CHINA, PEOPLE'S REPUBLIC OF
On-Load Magnetization Characteristic Analysis of a Novel Partitioned Stator Hybrid Magnet Memory Machine

1:30 PM - 3:00 PM MP071-5  H. Bouguedda, T. Hacib, Y. Le Bihan, H. Acikgoz
GeePs, ALGERIA
Cracks Characterization of Non-Ferromagnetic Material Using EMAT Transducer and TLBO Algorithm

1:30 PM - 3:00 PM MP071-6  A. Limone, A. Shoory, S. Skibin, T. Franz, J. Smajic, J. Tepper
University of Applied Sciences Rapperswil HSR, SWITZERLAND
Computational and experimental investigation of distribution transformers under Differential and Common Mode transient conditions
1:30 PM - 3:00 PM  MP071-7  F. Xing, W. Zhao, B. Kwon  
HANYANG UNIVERSITY, KOREA, REPUBLIC OF (SOUTH KOREA)  
Design of a Novel Rotor Structure for PM-Assisted Synchronous Reluctance Machines to Improve Torque Characteristics

1:30 PM - 3:00 PM  MP071-8  K. Shin, J. Choi, H. Cho  
Department of Electrical Engineering, Chungnam National University, KOREA, REPUBLIC OF (SOUTH KOREA)  
Influence of Rotor Structure on End Effects of High-Speed Permanent Magnet Synchronous Generator Using 3-D Finite Element Analysis

1:30 PM - 3:00 PM  MP071-9  B. Chen, L. Wei, Y. Lei, Y. Zhong, C. Tian, W. Guan, Y. Gao, K. Muramatsu, J. Yuan  
Wuhan University, CHINA, PEOPLE'S REPUBLIC OF  
Investigation on a Modified Hybrid Compact Saturated-core Fault Current Limiter Based on Permanent Magnets

1:30 PM - 3:00 PM  MP071-10  W. Zhao, T. Lipo, B. Kwon  
Shandong University, KOREA, REPUBLIC OF (SOUTH KOREA)  
Optimal Design of a Spoke-type Permanent Magnet Motor with Phase-group Concentrated-coil Windings to Minimize Torque Pulsations

POSTER SESSION  MP072  
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1:30 PM - 3:00 PM

1:30 PM - 3:00 PM  MP072-1  H. Zeng, Z. Liu, T. Hei, B. Zhou  
Shandong University, School of Electrical Engineering, CHINA, PEOPLE'S REPUBLIC OF  
Optimization of Magnetic Core Structure for Wireless Charging Coupler

1:30 PM - 3:00 PM  MP072-2  J. Pacheco, M. Wu, B. Fahimi  
University of Texas at Dallas, UNITED STATES OF AMERICA  
2D Simulation of Magnetic Field Generation by Pulsating AC Voltage in Cold Plasma Chamber

1:30 PM - 3:00 PM  MP072-3  H. Yeo, H. Park, J. Seo, J. Ro, H. Jung  
Seoul National University, KOREA, REPUBLIC OF (SOUTH KOREA)  
Coupled Electromagnetic-Thermal Analysis of a Surface-Mounted Permanent-Magnet Motor with Overhang Structure

1:30 PM - 3:00 PM  MP072-4  D. Yun, H. Park  
Korea Institute of Machinery & Materials (KIMM), KOREA, REPUBLIC OF (SOUTH KOREA)  
Analysis on Small Particles Heating Using Electromagnetic Excitation

1:30 PM - 3:00 PM  MP072-5  J. Da Silva, J. Bastos  
Univ. Fed. Santa Catarina, BRAZIL  
On-line Evaluation of Power Transformer Temperatures Using Magnetic and Thermodynamics Numerical Modeling

1:30 PM - 3:00 PM  MP072-6  D. Nair, A. Arkkio  
Aalto University, FINLAND  
Inverse Thermal Modelling to Determine Power Losses in Induction Motor

1:30 PM - 3:00 PM  MP072-7  V. Jimenez, R. Escarela, E. Melgoza, M. Arjona, J. Oliveras  
Universidad Autonoma Metropolitana – Azcapotzalco, MEXICO  
Quasi-3D Finite Element Modeling of a Power Transformer

1:30 PM - 3:00 PM  MP072-8  X. Zhang, Z. Yuan, Q. Yang, S. Jiang  
Tianjin Polytechnic University, CHINA, PEOPLE'S REPUBLIC OF  
Cooperative Operating Mode Featuring Tight-Strong Coupling for Wireless Power Transmission

1:30 PM - 3:00 PM  MP072-9  L. Zhu, Y. Yang, Q. Yang  
Tianjin Polytechnic University, CHINA, PEOPLE'S REPUBLIC OF  
Electromagnetic Vibration of Saturable Reactor Considering Magnetostriction and Damping Effect
1:30 PM - 3:00 PM  MP081-1  T. Ishikawa, S. Mizuno, N. Kurita  Gunma University, JAPAN  
**Topology Optimization Method for Unsymmetrical Rotor Using Cluster and Cleaning Procedure**

1:30 PM - 3:00 PM  MP081-2  S. Alfonzetti, N. Salerno  DIEEI - University of Catania, ITALY  
**Microwave Imaging by means of Contrast Source Inversion Method and FEM-DBCI Method**

1:30 PM - 3:00 PM  MP081-3  P. Karban, D. Panek, F. Mach, I. Dolezel  Department of Theory of Electrical Engineering, CZECH REPUBLIC  
**Utilization of Advanced Optimization and Penalization Techniques for Calibration of Numerical Models**

1:30 PM - 3:00 PM  MP081-4  T. Nguyen, H. Mac, S. Clenet, E. Guillot  Laboratoire d'Electrotechnique et d'Electronique de Puissance, FRANCE  
**Global Sensitivity Analysis Applied to an Hydrogenerator**

1:30 PM - 3:00 PM  MP081-5  S. An, S. Yang, Z. Ren  China Jiliang University, CHINA, PEOPLE'S REPUBLIC OF  
**Incorporating Light Beam Search in a Vector Normal Boundary Intersection Method for Multiobjective Inverse Problem**

1:30 PM - 3:00 PM  MP081-6  X. Yang, C. Li, B. Zhu  Hebei University of Technology, CHINA, PEOPLE'S REPUBLIC OF  
**Design and Development of a Current Sensor with Temperature Stability and High Resolution**

1:30 PM - 3:00 PM  MP081-7  O. Puigdellivol, Y. Le Menach, S. Harmand, D. Méresse, J. Wecxsteen  L2EP, FRANCE  
**Multiphysics Topology Optimization for Laminated Busbars**

1:30 PM - 3:00 PM  MP081-8  M. Seo, T. Lee, J. Kim, Y. Kim, S. Jung  SungKyunKwan University, KOREA, REPUBLIC OF (SOUTH KOREA)  
**Principal Component Optimization with Mesh Adaptive Direct Search for Optimal Design of Permanent Magnet Synchronous Machine**

1:30 PM - 3:00 PM  MP081-9  H. Jung, G. Park, D. Kim, S. Jung  SungKyunKwan University, KOREA, REPUBLIC OF (SOUTH KOREA)  
**Optimal Design and Validation of IPM Motor for Maximum Efficiency Distribution compatible to Energy Consumption Areas of HD-EV**

1:30 PM - 3:00 PM  MP081-10  Z. Hosseinidoust, D. Giannacopoulos, W. Gross  McGill University, CANADA  
**GPU Optimization and Implementation of Gaussian Belief Propagation Algorithm**

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1:30 PM - 3:00 PM  MP082-1  Y. Gao, K. Muramatsu, N. Takeda, H. Dozono, W. Guan, J. Yuan, C. Tian, B. Chen, K. Konishi, K. Kanazawa  Saga University, JAPAN  
**Simple Land T Shaped Butt Joints Composed of Anisotropic and Isotropic Block Cores in Three-Phase Reactor**

1:30 PM - 3:00 PM  MP082-2  H. Park, H. Jung, D. Woo  Seoul National University, KOREA, REPUBLIC OF (SOUTH KOREA)  
**Field Reconstruction Method in Axial Flux Permanent Magnet Motor with Overhang Structure**

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POSTER SESSION MP081  
Monday, November 14, 2016  
1:30 PM - 3:30 PM  
Optimization & Design  
Yves Marechal (Symphony II & III)

POSTER SESSION MP082  
Monday, November 14, 2016  
1:30 PM - 3:30 PM  
Devices & Applications  
Bai Baodong (Symphony II & III)
1:30 PM - 3:00 PM  MP082-3  K. Lu, Y. Xia  
Aalborg University, DENMARK  
3D Magnetic-Resonance-Coupling (MRC) Localization of Wireless Capsule Endoscopy

1:30 PM - 3:00 PM  MP082-4  Y. Le Bihan, F. Loete, J. Ferreira, D. Mencaraglia  
GeePs, FRANCE  
Model-Based Eddy Current Determination of the Electrical Conductivity of Semiconductors

1:30 PM - 3:00 PM  MP082-5  E. Ghosh, F. Ahmed, A. Mollaeian, N. Kar  
University of Windsor, CANADA  
Online Parameter Estimation and Loss Calculation using Duplex Neural - Lumped Parameter Thermal Network for Faulty Induction Motor

1:30 PM - 3:00 PM  MP082-6  X. Liu, X. Zhang, S. Huang  
Hunan University, CHINA, PEOPLE'S REPUBLIC OF  
Transient Analysis of a Coaxial Magnetic Gear Based on Analytical Model

1:30 PM - 3:00 PM  MP082-7  Q. Wang, S. Niu  
The Hong Kong Polytechnic University, HONG KONG S.A.R. (CHINA)  
Design Optimization and Comparative Study of Novel Magnetic-Geared Permanent Magnet Machines

1:30 PM - 3:00 PM  MP082-8  S. Seo, J. Choi, M. Koo, J. Kim  
Chungnam National University, KOREA, REPUBLIC OF (SOUTH KOREA)  
Comparison of Characteristic of a Double-sided Permanent Magnet Linear Synchronous Generator According to Magnetization Pattern

1:30 PM - 3:00 PM  MP082-9  D. Wang, H. Jung, S. Jung  
Shandong University, CHINA, PEOPLE'S REPUBLIC OF  
Design Characteristics and Analysis of High Power Density Tubular Linear Switch Reluctance Generator for Direct Drive WEC

1:30 PM - 3:00 PM  MP082-10  L. Huang, M. Hu, J. Yang, M. Chen  
Southeast University, CHINA, PEOPLE'S REPUBLIC OF  
Research on a direct-drive wave energy converter using Outer-PM linear tubular generator

1:30 PM - 3:00 PM  MP082-11  B. W. Kim, G. H. Kang, S. K. Lee, H. J. An  
KOMERI, KOREA, REPUBLIC OF (SOUTH KOREA)  
Rotor Design Optimization for Performance Improvement of IPM Motor

ORAL SESSION MO05  
Monday, November 14, 2016  
3:00 PM - 5:00 PM  
Static & Quasi Static Fields  
Erich Schmidt  
(Concerto A)

3:15 PM - 3:35 PM  MO05-1  A. Desmoort, Z. De Grève, P. Dular, C. Geuzaine, O. Deblecker  
University of Mons, BELGIUM  
Surface Impedance Boundary Condition with Circuit Coupling for the 3D Finite Element Modeling of Wireless Power Transfer

University of Udine, ITALY  
T-Ω formulation with higher order hierarchical basis functions for non simply connected conductors

3:55 PM - 4:15 PM  MO05-3  J. Dutiné, M. Clemens, S. Schöps  
University of Wuppertal, Chair of Electromagnetic Theory, GERMANY  
Multiple Right-Hand Side Techniques in Semi-Explicit Time Integration Methods for Transient Eddy Current Problems

4:15 PM - 4:35 PM  MO05-4  Y. Li, S. Yan, X. Xu, P. Lyu, Z. Ren  
Institute of Microelectronics of Chinese Academy of Sciences, CHINA, PEOPLE'S REPUBLIC OF  
3D IC Interconnect Parasitic Capacitance Extraction with a Reformulated PGD Algorithm

29
3D Magnetic Devices Analysis using Facet FEM Formulation Coupled with Reluctance Network Method

3D Analysis of Magnetohydrodynamic Flow Employing Meshless Method Based on Weighted Least Square Method

Nonlinear Reduced Order Model of a 3-Phase Transformer For Electric Network Simulator Coupling

Condition Monitoring of electric components using 3-D printed multiple magnetic coil antennas

Modelling the Effect of Multiaxial Stress on Magnetic Hysteresis of Electrical Steel Sheets: A Comparison

Modelling of Magnetostriction Induced Deformation Using Computer Code Chaining and Equivalent Stress Projection

Technobiology Paradigm Shift in Nanomedicine

Low-Dimensional Stochastic Modeling of the Electrical Properties of Biological Tissues

Simulation of Inductive Power Transfer Systems Exposing a Human Body with a Coupled Scaled-Frequency Approach

Magneto-Thermal Modeling of Biological Tissues: A Step towards Breast Cancer Detection

Design of a Dual-Stator Superconducting Permanent Magnet Wind Power Generator with Different Rotor Configuration
3:35 PM - 3:55 PM  MO08-2  H. Zhao, D. Zhang, Y. Wang, Y. Zhan, G. Xu
North China Electric Power University, CHINA, PEOPLE’S REPUBLIC OF
Separation of Slip- and High-Frequency Electromagnetic Quantity and its Application in Rotor Loss
Fine Analysis of Induction Motor

3:55 PM - 4:15 PM  MO08-3  A. Berzoy, A. Mohamed, O. Mohammed
Florida International University, UNITED STATES OF AMERICA
Impact of Inter-Turn Short-Circuit Location on Induction Machines Parameters through FE
Computations

4:15 PM - 4:35 PM  MO08-4  H. Zhang, X. Zhang, C. Gerada, M. Galea, D. Gerada, J. Li
Beijing Jiaotong University, UNITED KINGDOM
Armature Design of an Ultra-high Speed PM Generator

4:35 PM - 4:55 PM  MO08-5  Y. Hidaka, H. Igarashi
Advanced Technology R&D Center, Mitsubishi Electric Corporation, JAPAN
Three-Dimensional Shape Optimization of Claw-Pole Motors

ORAL SESSION TO09
Tuesday, November 15, 2016
8:30 AM - 10:00 AM

8:30 AM - 8:50 AM  TO09-1  L. Liu, W. Fu
The Hong Kong Polytechnic University, HONG KONG S.A.R. (CHINA)
Postprocessing of the Linear Sampling Method in Inverse Electromagnetic Scattering Problem for
Obstacles

8:50 AM - 9:10 AM  TO09-2  T. Ohtani, Y. Kanai, N. Kantartzis
Niigata Institute of Technology, JAPAN
Wide-Angle Elimination of TF/SF-Generated Spurious Waves in the Nonstandard-FDTD Technique

9:10 AM - 9:30 AM  TO09-3  W. Renhart, T. Bauernfeind, K. Preis, C. Magele, C. Tuerk
Graz University of Technology/IGTE, AUSTRIA
Sparse Grid of Metal Strips Description Implemented into Finite Element Formulation

9:30 AM - 9:50 AM  TO09-4  B. Horvath, Z. Badics, J. Pavo, P. Horvath
Tensor Research, LLC, UNITED STATES OF AMERICA
Validation of Numerical Models of Portable Wireless Devices for Near-Field Simulation

9:50 AM - 10:10 AM  TO09-5  Y. Sakata, T. Mifune, T. Matsuo
Kyoto University, JAPAN
Optimal Subgrid Connection for Space-Time Finite Integration Technique

ORAL SESSION TO10
Tuesday, November 15, 2016
8:30 AM - 10:00 AM

8:30 AM - 8:50 AM  TO10-1  Y. Okamoto, S. Wakao
Hosei University, JAPAN
Level-set-function-based Topology Optimization Supported by the Method of Moving Asymptotes in a
Magnetic Field Problem

8:50 AM - 9:10 AM  TO10-2  F. Rahmani, M. Barzegaran
Lamar University, UNITED STATES OF AMERICA
Dynamic Wireless Power Charging of Electric Vehicles Using Optimal Placement of Transmitters

9:10 AM - 9:30 AM  TO10-3  S. Lee, C. Lee, I. Jang
Korea Advanced Institute of Science and Technology, KOREA, REPUBLIC OF (SOUTH KOREA)
Precise Determination of the Optimal Coil for Wireless Power Transfer Systems through Postprocessing
in the Smooth Boundary Representation
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<th>Author(s)</th>
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<tr>
<td>9:50 AM - 10:10 AM</td>
<td>TO10-5</td>
<td>Hybrid Multi-Objective Optimization Algorithm for PM Motor Design</td>
<td>C. Krasopoulos, I. Armouti, A. Kladas ICCS - National Technical University of Athens, GREECE</td>
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**ORAL SESSION TO11**  
Tuesday, November 15, 2016  
8:30 AM - 10:00 AM

- **TO11-1**  
  A. Mollaeian, E. Ghosh, N. Kar  
  University of Windsor, CANADA  
  3-D Sub-domain Analytical Model to Calculate Magnetic Flux Density in Induction Machines with Semi-closed Slots under No-Load Condition

- **TO11-2**  
  P. Di Barba, F. Dughiero, M. Forzan, E. Sieni  
  University of Padova - Department of Industrial Engineering, ITALY  
  Handling sensitivity in multiobjective design optimization of MFH inductors

- **TO11-3**  
  Department of Electrical Engineering, Chungnam National University, KOREA, REPUBLIC OF (SOUTH KOREA)  
  Analytical Prediction for Electromagnetic Performance of Interior Permanent Magnet Synchronous Machines Based on Subdomain Model

- **TO11-4**  
  GeePs | Group of electrical engineering - Paris, UMR CNRS 8507, CentraleSupalec, Univ. Paris- Sud, University Paris-Saclay, Sorbonne Universitas, UPMC Univ Paris 06, FRANCE  
  Discontinuous Galerkin Time-Domain method for 3D modeling of ground penetrating radar scenarios

- **TO11-5**  
  M. Benhamida, H. Ennassiri, M. Dhifli, G. Barakat, Y. Amara  
  GREAH / Le Havre university, FRANCE  
  Slots & Poles combination influence on the vibro-acoustic behavior of axial type flux switching permanent magnet machines

**ORAL SESSION TO12**  
Tuesday, November 15, 2016  
8:30 AM - 10:00 AM

- **TO12-1**  
  G. Aiello, S. Alfonzetti, S. Rizzo, N. Salerno  
  DIEEI - University of Catania, ITALY  
  Solution of Open-Boundary Problems by means of the hybrid FEM-GDBCI Method

- **TO12-2**  
  F. Freschi, L. Giaccone, M. Repetto  
  Politecnico di Torino, ITALY  
  Nonlinear BEM-surface impedance boundary condition formulation for unstructured meshes

- **TO12-3**  
  L. Codecasa, L. Di Rienzo  
  POLITECNICO DI MILANO - DEIB, ITALY  
  MOR-based Approach to Uncertainty Quantification in Electrokinetics with Correlated Random Material Parameters

- **TO12-4**  
  C. Kruettgen, S. Steentjes, G. Glehn, K. Hameyer  
  RWTH Aachen University, Institute of Electrical Machines, Aachen, Germany, GERMANY  
  Parametric Homogenized Model for Inclusion of Eddy Currents and Hysteresis in 2-D Finite Element Simulation of Electrical Machines
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<th>Authors</th>
<th>Institution</th>
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<tr>
<td>10:30 AM</td>
<td>TP011-1</td>
<td>Transient Electro-Thermal Coupling Analysis in Through-Silicon-Via Using Proper Orthogonal Decomposition</td>
<td>X. Xu, S. Yan, P. Lyu, Z. Gao, Z. Ren</td>
<td>Institute of Microelectronics of Chinese Academy of Sciences, CHINA, PEOPLE'S REPUBLIC OF</td>
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<tr>
<td>10:30 AM</td>
<td>TP011-2</td>
<td>3-D coupled electromagnetic-fluid-thermal analysis of 220kV three-phase three-limb transformer under DC bias</td>
<td>R. Gong, J. Ruan, C. Liao, C. Liu, S. Jin</td>
<td>Electrical engineering school of Wuhan university, CHINA, PEOPLE'S REPUBLIC OF</td>
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<td>10:30 AM</td>
<td>TP011-3</td>
<td>Analytical Modeling of Manufacturing Imperfections in Double Rotor Axial Flux PM Machines: Effects on Back EMF</td>
<td>B. Guo, Y. Huang, Y. Guo, J. Zhu</td>
<td>School of Electrical Engineering, Southeast University, CHINA, PEOPLE'S REPUBLIC OF</td>
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<tr>
<td>10:30 AM</td>
<td>TP011-4</td>
<td>Optimal Rotor Structure Design of Claw-pole alternator for Performance Improving Using Static 3D FEM Coupled-Circuit Model</td>
<td>H. Liu, G. Jeong, S. Ham, J. Lee</td>
<td>Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<td>10:30 AM</td>
<td>TP011-5</td>
<td>Reduction Method Based on Looped Slot Wedges for End to End Shaft Voltage in Inverter Driven IPM Motor</td>
<td>T. Wellawatta, J. Park, S. Choi, J. Hur</td>
<td>School of Electrical Engineering, University of Ulsan, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<td>10:30 AM</td>
<td>TP011-6</td>
<td>Performance Improvement and Comparison of Concentrated Winding Segmental Rotor and Double Stator Switched Reluctance Machines</td>
<td>E. Bostanci, L. Gu, E. Cosoroaba, M. Moollem, B. Fahimi</td>
<td>University of Texas at Dallas, UNITED STATES OF AMERICA</td>
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<td>10:30 AM</td>
<td>TP011-7</td>
<td>A Ferrofluid Motion Analysis with Particle Method and Magnetic Moment Method</td>
<td>K. Mitsufuji, S. Matsuzawa, K. Hirata, F. Miyasaka</td>
<td>Osaka-University, JAPAN</td>
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<td>10:30 AM</td>
<td>TP011-8</td>
<td>Torque Computation of Nonmagnetic Rotor Submerged in Ferrofluid by Multi-physics Approach</td>
<td>G. Kim, H. Choi</td>
<td>Department of Electrical Engineering, Kyungpook National University, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<tr>
<td>10:30 AM</td>
<td>TP011-9</td>
<td>Multiphysics Model of Electromagnetically Induced Chemical Reactions in a Mono-Ethylene Glycol Filled Gap of a Permanent Magnet Motors</td>
<td>C. Iftim</td>
<td>FMC Technologies Inc., UNITED STATES OF AMERICA</td>
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<tr>
<td>10:30 AM</td>
<td>TP011-10</td>
<td>Electromagnetic-Thermal Modeling of an Axial Flux PM machine by using Maxwell's Equations and Lumped Models</td>
<td>B. Guo, Y. Huang, Y. Guo, J. Zhu</td>
<td>School of Electrical Engineering, Southeast University, CHINA, PEOPLE'S REPUBLIC OF</td>
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POSTER SESSION  TP012
Tuesday, November 15, 2016
10:30 AM -12:00 PM

10:30 AM-12:00 PM  TP012-1  J. Du, P. Lu
Xian Jiaotong University, CHINA, PEOPLE'S REPUBLIC OF
Optimal Force Ripple Design of Mutually Coupled Linear Switched Reluctance Machines with Transverse Flux by Taguchi Method

10:30 AM-12:00 PM  TP012-2  H. Zhang, W. Hua
School of Electrical Engineering, Southeast University, CHINA, PEOPLE'S REPUBLIC OF
Analysis and Optimization of Back-EMF Waveform of a Novel Outer-Rotor-Permanent-Magnet Flux-Switching Machine

10:30 AM-12:00 PM  TP012-3  T. Jeong, D. Kang, G. Jeong, K. Joo, J. Lee
Keimyung University, KOREA, REPUBLIC OF (SOUTH KOREA)
Optimal Rotor Design of an 150kW-Class IPMSM Through the 3D Voltage-Inductance Map Analysis Method

10:30 AM-12:00 PM  TP012-4  H. Hong, H. Liu, G. Jeong, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
Design of High-end SynRM Based on 3D Printing Technology

10:30 AM-12:00 PM  TP012-5  D. Park, K. Kim
Hanbat National University, KOREA, REPUBLIC OF (SOUTH KOREA)
Characteristic Analysis due to Temperature Rise of the Interior Permanent Magnet Synchronous Motor

10:30 AM-12:00 PM  TP012-6  J. Cha, R. Son, G. Yoo, M. Jeon
Hyundai Heavy Industries co., ltd, KOREA, REPUBLIC OF (SOUTH KOREA)
Equivalent core length consideration of synchronous motor with radial air-ducts by using 3D electromagnetic finite element method

10:30 AM-12:00 PM  TP012-7  J. Kim, J. Choi, J. Jeong, K. Lee, S. Lee
Chungnam Nat’l Univ., KOREA, REPUBLIC OF (SOUTH KOREA)
Design and Analysis of a Linear Oscillatory Single-phase Permanent Magnet Generator for Free-piston Stirling Engine Systems

10:30 AM-12:00 PM  TP012-8  N. Rahman, L. Gu, E. Bostanci, B. Fahimi
University of Texas at Dallas, UNITED STATES OF AMERICA
Temperature Estimation of Switched Reluctance Machines Using Thermal Impulse Response Technique

10:30 AM-12:00 PM  TP012-9  G. Jeong, H. Liu, C. Park, T. Jeong, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
A Study on an IPMSM Designed to Secure Rotor Reliability in View of Demagnetization

10:30 AM-12:00 PM  TP012-10  B. Chen, L. Wei, C. Tian, Y. Gao, K. Muramatsu, J. Yuan
Wuhan University, CHINA, PEOPLE'S REPUBLIC OF
Optimization Study of a Novel Small-section Permanent-magnet-biased Fault Current Limiter with Leakage Flux Effect

POSTER SESSION  TP021
Tuesday, November 15, 2016
10:30 AM -12:00 PM

10:30 AM-12:00 PM  TP021-1  T. Zou, R. Qu, D. Li, D. Jiang
Huazhong University of Science & Technology, CHINA, PEOPLE'S REPUBLIC OF
Flux Barrier Effect of Spoke-Array Magnets in Flux-Modulation Machines

10:30 AM-12:00 PM  TP021-2  E. Cosoroaba, B. Fahimi
University of Texas at Dallas, UNITED STATES OF AMERICA
Magnetohydrodynamics in Thermal to Electric Energy Conversion
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<tr>
<td>POSTER SESSION</td>
<td>TP022</td>
<td><strong>Static &amp; Quasi Static Fields</strong></td>
<td>Christian Kruettgen (Symphony II &amp; III)</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP022-1</td>
<td>Fast Three-Dimensional Analysis of Eddy Currents in Litz Wire Using Integral Equation</td>
<td>H. Igarashi, S. Hiruma \ Graduate School of Information Science, Hokkaido University, JAPAN</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP022-2</td>
<td>An improved time-harmonic 2D eddy current finite element H formulation</td>
<td>M. Corona-Sánchez, E. Melgoza-Vázquez, S. Maximov \ Universidad Autonoma Metropolitana--Azcapotzalco, MEXICO</td>
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<tr>
<td>10:30 AM-12:00 PM</td>
<td>TP022-3</td>
<td>A Coupled 3DFE/Electrochemical Model for the Analysis of Voltage Behavior in Batteries under Loading and Charging Conditions</td>
<td>C. Lashway, O. Mohammed \ Florida International University, UNITED STATES OF AMERICA</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP022-4</td>
<td>A Novel Potential Formulation with Coulomb Gauge for 3-D Motional Eddy-current Problems Using Edge Elements</td>
<td>Y. Zhao, W. Fu \ Ansys Inc, HONG KONG S.A.R. (CHINA)</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP021-3</td>
<td>Comparing Partial Element Equivalent Circuit and Finite Element Methods for the Resonant Wireless Power Transfer 3D Modeling</td>
<td>A. Desmoort, Z. De Grève, J. Siau, G. Meunier, J. Guichon, O. Chadebec, O. Deblecker \ University of Mons, BELGIUM</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP021-4</td>
<td>Design and Comparison of Novel Flux Reversal Machines with Large Stator Slot Opening</td>
<td>Y. Gao, R. Qu, D. Li, J. Li \ Huazhong University of Science &amp; Technology, CHINA, PEOPLE'S REPUBLIC OF</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP021-5</td>
<td>A Study on Fault-Tolerant Operation of a Two-Phase Permanent Magnet Synchronous Motor Based on Structural Alteration</td>
<td>H. Lin, F. Zhao, T. Lipo, B. Kwon \ Hanyang University, CHINA, PEOPLE'S REPUBLIC OF</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP021-6</td>
<td>FEM-based Computation of Circuit Parameters for Testing Fast Transients for EMC Problems</td>
<td>S. Bauer, W. Renhart, O. Bíró \ IGTE, TU GRAZ, AUSTRIA</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP021-7</td>
<td>Presentation of E-Core Transverse-Flux Permanent Magnet Linear Motor and Its No-Load Magnetic Field Analysis Based on Schwarz Christoffel Transformation</td>
<td>D. Fu, Y. Xu \ Shandong university, CHINA, PEOPLE'S REPUBLIC OF</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP021-8</td>
<td>A Simplified Approach for Predicting the Starting Performance of Induction Machines based on Rotor Design Modification</td>
<td>J. Yun, S. Lee \ Hyundai Heavy Industries Co., LTD., KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP021-9</td>
<td>A Novel Cogging torque reduction method for the Modular Arc-Linear Flux Switching Permanent-Magnet Motor</td>
<td>X. Liu, Z. Gu, J. Zhao \ Beijing Jiaotong University, CHINA, PEOPLE'S REPUBLIC OF</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP021-10</td>
<td>Model order reduction of large-scale state-space models in fusion machines via Krylov methods</td>
<td>M. Bonotto, P. Bettini, A. Cenedese \ University di Padova - DII (Department of Industrial Engineering), ITALY</td>
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10:30 AM-12:00 PM TP022-5 Z. De Greve, P. Dular
University of Mons (Electrical Power Engineering Unit), BELGIUM
Full-Wave Correction of Quasi-Static Models Using Finite Element Subproblems: Application to High Frequency Wound Inductors

10:30 AM-12:00 PM TP022-6 M. Trlep, M. Jesenik, M. Beković, A. Hamler
University of Maribor, Faculty of Electrical Engineering and Computer Science, SLOVENIA
Transient Analysis of a Grounding System as Second Order Time-Dependent Nonlinear Problem

10:30 AM-12:00 PM TP022-7 C. Choi, I. Park
School of Electronic and Electrical Engineering, Sungkyunkwan University, KOREA, REPUBLIC OF (SOUTH KOREA)
Capacitance Extraction of Current Carrying Conductor Using Surface Charge and Field Energy

10:30 AM-12:00 PM TP022-8 A. Canova, V. Cirimele, F. Freschi, L. Giaccone
Politecnico di Torino, ITALY
From the magnetic field measurement to the numerical evaluation of the human exposure

10:30 AM-12:00 PM TP022-9 H. Yamamoto, K. Sugahara
Kindai University, JAPAN
Strategic Dual Image Method for Three-dimensional Magnetic Field Problems

10:30 AM-12:00 PM TP022-10 C. De Falco, L. Di Rienzo, N. Ida, S. Yuferev
The university of akron, ITALY
Nonlinear Impedance Boundary Condition for Time-domain E-B BEM Formulation

POSTER SESSION TP031
Tuesday, November 15, 2016
10:30 AM-12:00 PM

10:30 AM-12:00 PM TP031-1 S. H. Lee, J. H. Choi, S. H. Kim
Kyungpook National University, KOREA, REPUBLIC OF (SOUTH KOREA)
Shape and Dynamic Behavior of Nonmagnetic Material Immersed in Magnetic Nanofluid Due to Magnetic Surface and Body Force Density

10:30 AM-12:00 PM TP031-2 W. Qi, L. Xiaoming, Y. Tian, H. Chongyang
Tianjin Polytechnic University, CHINA, PEOPLE'S REPUBLIC OF
Study on the Insulation Performance Using the Response Surface-Geometric Feature Charge Simulation Method

10:30 AM-12:00 PM TP031-3 Z. Gao, X. Xu, S. Yan, P. Lyu, Z. Ren
Institute of Microelectronics of Chinese Academy of Sciences, CHINA, PEOPLE'S REPUBLIC OF
Multiphysics Coupling Analysis of TSV by Using Discrete Geometric Method Based on Tonti Diagram

10:30 AM-12:00 PM TP031-4 T. Yamamoto, S. Matsuzawa, T. Ota, K. Hirata
Osaka University, JAPAN
Numerical Analysis of Ion Behavior Considering Charging Effect of a Dielectric Body

10:30 AM-12:00 PM TP031-5 T. Ben, Q. Yang, R. Yan, L. Zhu
Tianjin Polytechnic University, CHINA, PEOPLE'S REPUBLIC OF
Magnetically Controlled Saturable Reactor Core Vibration under Practical Working Conditions

10:30 AM-12:00 PM TP031-6 M. Toudji, G. Parent, S. Duchesne, P. Dular
University d'Artois, FRANCE
Determination of Winding Lumped Parameter Equivalent Circuit by Means of Finite Element Method

10:30 AM-12:00 PM TP031-7 X. Zhang, L. Li, Y. Geng, Q. Yang, C. Xie
Tianjin Polytechnic University, CHINA, PEOPLE'S REPUBLIC OF
The research of suppressing motor noise and vibration based on negative magnetostrictive effect
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<td>10:30 AM-12:00 PM</td>
<td>TP031-8</td>
<td>C. Park, T. Song, T. Kim&lt;br&gt;Hyundai Heavy Industries, KOREA, REPUBLIC OF (SOUTH KOREA)&lt;br&gt;Structural safety evaluation of the inner conductors in GIB(Gas Insulated Bus) using electromagnetic structural coupled analysis</td>
<td>C. Park, T. Song, T. Kim&lt;br&gt;Hyundai Heavy Industries, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
<td>C. Park, T. Song, T. Kim&lt;br&gt;Hyundai Heavy Industries, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP031-9</td>
<td>M. Ostrenko, B. Andriienko&lt;br&gt;SoftTeam Group, UKRAINE&lt;br&gt;Transformer Impulse Surges Calculation by FEM Coupled to Circuit</td>
<td>M. Ostrenko, B. Andriienko&lt;br&gt;SoftTeam Group, UKRAINE</td>
<td>M. Ostrenko, B. Andriienko&lt;br&gt;SoftTeam Group, UKRAINE</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP031-10</td>
<td>X. Guan, N. Shu, X. Jin, Y. Wu, H. Peng&lt;br&gt;School of electrical engineering, Wuhan University, CHINA, PEOPLE'S REPUBLIC OF&lt;br&gt;Temperature and Electromagnetic Force Analysis of GIB Plug-in Connector with Different Contact Status under Short Circuit Fault</td>
<td>X. Guan, N. Shu, X. Jin, Y. Wu, H. Peng&lt;br&gt;School of electrical engineering, Wuhan University, CHINA, PEOPLE'S REPUBLIC OF</td>
<td>X. Guan, N. Shu, X. Jin, Y. Wu, H. Peng&lt;br&gt;School of electrical engineering, Wuhan University, CHINA, PEOPLE'S REPUBLIC OF</td>
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<td>POSTER SESSION TP032</td>
<td>Static &amp; Quasi Static Fields</td>
<td>David Lowther&lt;br&gt;(Symphony II &amp; III)</td>
<td>David Lowther&lt;br&gt;(Symphony II &amp; III)</td>
<td>David Lowther&lt;br&gt;(Symphony II &amp; III)</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP032-1</td>
<td>F. Xiao, B. Zhang, J. Mo, J. He&lt;br&gt;Tsinghua University, CHINA, PEOPLE'S REPUBLIC OF&lt;br&gt;Calculation of Ion Flow Field at the Crossing of HVDC Transmission Lines by Method of Characteristics</td>
<td>F. Xiao, B. Zhang, J. Mo, J. He&lt;br&gt;Tsinghua University, CHINA, PEOPLE'S REPUBLIC OF</td>
<td>F. Xiao, B. Zhang, J. Mo, J. He&lt;br&gt;Tsinghua University, CHINA, PEOPLE'S REPUBLIC OF</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP032-2</td>
<td>Y. Zhao, W. Fu&lt;br&gt;Ansys Inc, HONG KONG S.A.R. (CHINA)&lt;br&gt;A Novel Coulomb Gauged Magnetic Vector Potential Formulation for 3-D Eddy-current Field Analysis Using Edge Elements</td>
<td>Y. Zhao, W. Fu&lt;br&gt;Ansys Inc, HONG KONG S.A.R. (CHINA)</td>
<td>Y. Zhao, W. Fu&lt;br&gt;Ansys Inc, HONG KONG S.A.R. (CHINA)</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP032-3</td>
<td>S. Shah, P. Rasilo, A. Arkkio&lt;br&gt;Aalto University, FINLAND&lt;br&gt;Eddy Current Loss Calculation in Burred Laminated Cores</td>
<td>S. Shah, P. Rasilo, A. Arkkio&lt;br&gt;Aalto University, FINLAND</td>
<td>S. Shah, P. Rasilo, A. Arkkio&lt;br&gt;Aalto University, FINLAND</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP032-5</td>
<td>J. Siau, O. Chadebec, G. Meunier, J. Guichon, R. Perrin-Bit&lt;br&gt;CNRS, G2Elab, University de Grenoble, FRANCE&lt;br&gt;Preconditioning of a Low-Frequency Electric Field Integral Equation Formulation with Circuit Coupling using H-matrices</td>
<td>J. Siau, O. Chadebec, G. Meunier, J. Guichon, R. Perrin-Bit&lt;br&gt;CNRS, G2Elab, University de Grenoble, FRANCE</td>
<td>J. Siau, O. Chadebec, G. Meunier, J. Guichon, R. Perrin-Bit&lt;br&gt;CNRS, G2Elab, University de Grenoble, FRANCE</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP032-6</td>
<td>G. Vinsard, S. Dufour&lt;br&gt;University de Lorraine, LEMTA, FRANCE&lt;br&gt;The breakup of a spherical magnetic beads chain suspended along the magnetic axis of a magnet</td>
<td>G. Vinsard, S. Dufour&lt;br&gt;University de Lorraine, LEMTA, FRANCE</td>
<td>G. Vinsard, S. Dufour&lt;br&gt;University de Lorraine, LEMTA, FRANCE</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP032-7</td>
<td>Q. Debray, G. Meunier, O. Chadebec, J. Coulomb, A. Carpentier&lt;br&gt;CNRS, G2Elab, University de Grenoble, FRANCE&lt;br&gt;2D Integral Formulations for Nonlinear Magneto-static Field Computation and Rotating Machines Pre-Design</td>
<td>Q. Debray, G. Meunier, O. Chadebec, J. Coulomb, A. Carpentier&lt;br&gt;CNRS, G2Elab, University de Grenoble, FRANCE</td>
<td>Q. Debray, G. Meunier, O. Chadebec, J. Coulomb, A. Carpentier&lt;br&gt;CNRS, G2Elab, University de Grenoble, FRANCE</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP032-8</td>
<td>E. Rodrigues, R. Pontes, T. Fernandes Neto&lt;br&gt;Federal University of Ceara, BRAZIL&lt;br&gt;Lightning Incidence Model Based on the Electric Field Gradient: 3D Electrostatic Analyses</td>
<td>E. Rodrigues, R. Pontes, T. Fernandes Neto&lt;br&gt;Federal University of Ceara, BRAZIL</td>
<td>E. Rodrigues, R. Pontes, T. Fernandes Neto&lt;br&gt;Federal University of Ceara, BRAZIL</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP032-9</td>
<td>M. Abdelqader, J. Morelli, R. Palka, K. Woronowicz&lt;br&gt;Queen's University, CANADA&lt;br&gt;2-D Quasi-Static Fourier Series Solution for a Single Coil of a Linear Induction Motor</td>
<td>M. Abdelqader, J. Morelli, R. Palka, K. Woronowicz&lt;br&gt;Queen's University, CANADA</td>
<td>M. Abdelqader, J. Morelli, R. Palka, K. Woronowicz&lt;br&gt;Queen's University, CANADA</td>
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<td>10:30 AM-12:00 PM</td>
<td>TP032-10</td>
<td>R. Gong, S. Wang, W. Xie&lt;br&gt;Xian Jiaotong University, CHINA, PEOPLE'S REPUBLIC OF&lt;br&gt;Simulation Analysis and Design of the Electromagnetic Repulsion Mechanism Based on Finite Element Method</td>
<td>R. Gong, S. Wang, W. Xie&lt;br&gt;Xian Jiaotong University, CHINA, PEOPLE'S REPUBLIC OF</td>
<td>R. Gong, S. Wang, W. Xie&lt;br&gt;Xian Jiaotong University, CHINA, PEOPLE'S REPUBLIC OF</td>
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10:30 AM - 12:00 PM  TP041-1  C. Richter, M. Clemens, S. Schoeps  University of Wuppertal, GERMANY  
GPU Accelerated Explicit Time Integration Methods for Electro-Quasistatic Fields

10:30 AM - 12:00 PM  TP041-2  I. Niyonzima, M. Clemens, S. Schöps  TU Darmstadt, GERMANY  
Investigation of the Time Integration Methods on the Parareal Method for Field Computation of Eddy Currents Problems

10:30 AM - 12:00 PM  TP041-3  L. Montier, A. Pierquin, T. Henneron, S. Clénet  University Lille1 - L2EP, FRANCE  
Structure Preserving Model Reduction of Low Frequency Electromagnetic Problem based on POD and DEIM

10:30 AM - 12:00 PM  TP041-4  R. Baltes, O. Farle, R. Dyczij-Edlinger  Chair of Electromagnetic Theory, Saarland University, GERMANY  
Compact Time-Domain Models Including Lorentz Materials Based on Reduced-Order Models in the Frequency-Domain

10:30 AM - 12:00 PM  TP041-5  S. Noguchi, T. Naoe, H. Igarashi, S. Matsutomo, V. Cingoski  Hokkaido University, JAPAN  
A New Adaptive Meshing Method Using Non-conforming Finite Element Method

10:30 AM - 12:00 PM  TP041-6  Y. Xie, L. Li, S. Wang  North China Electric Power University, CHINA, PEOPLE'S REPUBLIC OF  
Model Order Reduction for Non-Linear Quasi-Electrostatic Problems

10:30 AM - 12:00 PM  TP041-7  J. Choi, H. Lee, K. Jang, M. Hikita, S. Lee  Kyungpook National University, KOREA, REPUBLIC OF (SOUTH KOREA)  
Finite Element Analysis of Partial Discharge Initiation Voltage Employing Surface Charge Density at the Liquid- Solid Interface

10:30 AM - 12:00 PM  TP041-8  A. Chiariello, A. Formisano, F. Ledda, R. Martone, F. Pizzo  Department of Industrial and Information Engineering, Seconda UniversitÄ di Napoli, ITALY  
Impact of field approximations on magnetic field line tracing

10:30 AM - 12:00 PM  TP041-9  P. Ferrouillat, C. Guérin, G. Meunier, B. Ramdane, P. Labie, D. Dupuy  Univ. Grenoble Alpes, G2Elab, FRANCE  
3D Modeling of the Movement of Machine using Mortar Method for Edge Finite Elements of Magnetic Vector Potential Formulation

10:30 AM - 12:00 PM  TP041-10  M. Hasan, J. Gyselinck, R. Sabariego  KU Leuven - Dept. ESAT, BELGIUM  
POD- versus a physics-based parameterized model-order- reduction technique accounting for movement

POSTER SESSION  TP042  
Tuesday, November 15, 2016  
10:30 AM - 12:00 PM  

10:30 AM - 12:00 PM  TP042-1  D. Jung, G. Jeong, K. Joo, J. Lee  Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)  
Study on the optimal design of PMa-SynRM loading ratio for achievement of ultra-premium efficiency

10:30 AM - 12:00 PM  TP042-2  G. Cho, W. Lee, I. Kang, J. Ha, H. Kim, W. Son, D. Song, M. Song, G. Kim  Changwon National University, KOREA, REPUBLIC OF (SOUTH KOREA)  
The stabilization of cogging torque variation by manufacturing tolerances
10:30 AM-12:00 PM  TP042-3  C. Lai, G. Feng, N. Kar  University of Windsor, CANADA  Torque Ripple Minimization for Interior PMSM with Consideration of Magnetic Saturation Incorporating On-line Parameter Identification

10:30 AM-12:00 PM  TP042-4  S. Ham, S. Cho, G. Jeong, H. Liu, J. Lee  Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)  Design and performance analysis of outer rotor Fan-type PMSM for power density improvement

10:30 AM-12:00 PM  TP042-5  H. Lee, H. Ahn, K. Joo  Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)  Quasi-real-time Parameter Tracking Method of the Precise Parameters for IPMSM

10:30 AM-12:00 PM  TP042-6  S. Lee, J. Lee, W. Kim  Busan University of Foreign Studies, KOREA, REPUBLIC OF (SOUTH KOREA)  A Study on Correcting the Nonlinearity between Stack Length and Back Electromotive Force in Spoke Type Ferrite Magnet Motors

10:30 AM-12:00 PM  TP042-7  G. Zhang, W. Hua, M. Tong, M. Cheng  School of Electrical Engineering, Southeast University, CHINA, PEOPLE'S REPUBLIC OF  Coupled Magnetic-Thermal Fields Analysis of Water Cooling Flux-Switching Permanent Magnet Motors by an Axially Segmented Model

10:30 AM-12:00 PM  TP042-8  O. Kwon, H. Choi  Department of Electrical Engineering, Kyungpook National University, KOREA, REPUBLIC OF (SOUTH KOREA)  Improvements of Magnetic Binding Forces Between Permanent Magnet Rack and Back Yoke in Large-scale Motors

10:30 AM-12:00 PM  TP042-9  D. Kim, H. Hwang, T. Kim, G. Jeong, C. Lee  Pusan National University, KOREA, REPUBLIC OF (SOUTH KOREA)  An Optimal Design Method of Double-Stator Flux-Switching Permanent Magnet Machine Based on Magnetic Equivalent Circuit

10:30 AM-12:00 PM  TP042-10  D. Yun, B. Kim, S. Oh, G. Kim, H. Jeon, M. Shon  Korea Institute of Machinery & Materials (KIMM), KOREA, REPUBLIC OF (SOUTH KOREA)  Induction Heating of Adhesive for Shoe Manufacturing

POSTER SESSION 4 - TP051  
Tuesday, November 15, 2016  
1:30 PM-3:00 PM

1:30 PM-3:00 PM  TP051-1  S. Lim, S. Min, K. Izui, S. Nishiwaki  Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)  Design Optimization of a Magnetic Actuator Incorporating the Concept of the Hybrid Analysis Method

1:30 PM-3:00 PM  TP051-2  A. Wang, Y. Wen  North China Electric Power University, CHINA, PEOPLE'S REPUBLIC OF  Application of a Hybrid Genetic Algorithm for Optimal Design of Interior Permanent Magnet Synchronous Machines

1:30 PM-3:00 PM  TP051-3  A. Pierquin, S. Brisset, T. Henneron, S. Clenet  university Lille1 - L2EP, FRANCE  Optimization of the TEAM workshop problem 22 using POD-EIM reduced model

1:30 PM-3:00 PM  TP051-4  F. Mach  University of West Bohemia, CZECH REPUBLIC  Bayesian Approach to Design Optimization of Electromagnetic Systems under Uncertainty
1:30 PM - 3:00 PM  TP051-5  S. Ho, S. Yang, Y. Bai  Zhejiang University, CHINA, PEOPLE'S REPUBLIC OF  A Fast Methodology for Topology Optimizations of Electromagnetic Devices

1:30 PM - 3:00 PM  TP051-6  J. Gong, F. Gillon, J. Truong Canh  Shandong University, CHINA, PEOPLE'S REPUBLIC OF  Kriging Manifold Mapping Technique for Electromagnetic Design Optimization

1:30 PM - 3:00 PM  TP051-7  G. Sirewal, Q. Ali, B. Kwon  Hankyung University, KOREA, REPUBLIC OF (SOUTH KOREA)  Optimal Design of Brushless Wound Rotor Synchronous Machine for Torque Ripple Reduction

1:30 PM - 3:00 PM  TP051-8  S. Shin, J. Lee, Y. Kim  University of Hanbat National, KOREA, REPUBLIC OF (SOUTH KOREA)  Computation on Ratio of Rotor Core and Flux Barrier for Torque Ripple Reduction of 240W ALA-SynRM

1:30 PM - 3:00 PM  TP051-9  M. Mohammadi, D. Lowther  Electrical and Computer Engineering Department, McGill University, CANADA  Finding Optimal Performance Indices of Synchronous AC Motors

1:30 PM - 3:00 PM  TP051-10  B. Xia, M. Pham, J. Yeon, C. Koh  Chungbuk National University, KOREA, REPUBLIC OF (SOUTH KOREA)  Utilizing Adaptive Dynamic Taylor Kriging Assisted Multi-Objective DE Algorithm for Optimization Design of Electromagnetic Device

POSTER SESSION 4 - TP052  Numerical Techniques  Dennis Giannacopoulos  (Symphony II & III)

Tuesday, November 15, 2016  1:30 PM - 3:00 PM


1:30 PM - 3:00 PM  TP052-2  W. Lee, H. Kim, D. Kim  Inha University, KOREA, REPUBLIC OF (SOUTH KOREA)  Axial Green Function Method for Axisymmetric Electromagnetic Field Computation

1:30 PM - 3:00 PM  TP052-3  D. Kim, B. Kang, D. Kim, H. Cho, K. Choi  Kyungpook National University, KOREA, REPUBLIC OF (SOUTH KOREA)  Hybrid Reliability Analysis Method for Electromagnetic Design Problems with Non-Gaussian Probabilistic Parameters

1:30 PM - 3:00 PM  TP052-4  S. Bilicz, Z. Badics, S. Gyimothy, B. Balint, J. Pavo  Tensor Research, LLC, HUNGARY  Modeling of Dense Windings for Resonant Wireless Power Transfer by an Integral Equation Formulation

1:30 PM - 3:00 PM  TP052-5  M. Sakashita, K. Nishi, S. Ito, T. Mifune, T. Matsuo  Kyoto University, JAPAN  Method for Current/Voltage Post-Correction for Efficient Hysteretic Magnetic Field Analysis

1:30 PM - 3:00 PM  TP052-6  N. Mahdiejadgargari, H. De Oliveira Mota, E. Da Silva, R. Da Silva Adriano, Federal University of Minas Gerais, BRAZIL  Improvement of System Quality in a Generalized Finite Element Method Using Discrete Curvelet Transform

1:30 PM - 3:00 PM  TP052-7  P. Diotko, B. Kapidani, R. Specogna, University of Udine, ITALY  Topoprocessor: an efficient computational topology toolbox for h-oriented eddy current formulations
POSTER SESSION 4 - TP061

Tuesday, November 15, 2016
1:30 PM-3:00 PM

1:30 PM - 3:00 PM  TP061-1  H. Liu, G. Jeong, S. Jung, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
PM Arrangement Design of PM-Assisted Synchronous Reluctance Motors for maximize back-EMF and Cogging Torque Reduction

1:30 PM - 3:00 PM  TP061-2  M. Chelabi, T. Hacib, Y. Le Bihan, H. Boughedda
GeePs, ALGERIA
Electromagnetism-like Mechanism Algorithm and Least Square Support Vector Machine for Estimation the Defect in Nondestructive Evaluation

1:30 PM - 3:00 PM  TP061-3  A. S. D. Lowther
Electrical and Computer Engineering Department, McGill University, CANADA
Feature Selection for Facilitation of Evolutionary Multi-Objective Design Optimization: Application to IPM motor Design Problems

1:30 PM - 3:00 PM  TP061-4  J. Lee, H. Jung, D. Woo
Seoul National University, KOREA, REPUBLIC OF (SOUTH KOREA)
A new Robust Optimization Approach Applied to Permanent Magnet Synchronous Motor

1:30 PM - 3:00 PM  TP061-5  O. Rehman, S. Yang, S. Khan
Zhejiang University, CHINA, PEOPLE'S REPUBLIC OF
An Improved Quantum Particle Swarm Optimization Applied to Inverse Problem in Electromagnetics

1:30 PM - 3:00 PM  TP061-6  C. Krasopoulos, M. Beniakar, A. Kladas
ICCS - National Technical University of Athens, GREECE
Robust Optimization of High Speed PM Motor Design

1:30 PM - 3:00 PM  TP061-7  J. Vedral, R. Musselman
US Air Force Academy, UNITED STATES OF AMERICA
Analysis of Slits in a Perfect-Absorber Element to Reduce Size

1:30 PM - 3:00 PM  TP061-8  B. Ko, D. Lee, S. Jung
SungKyunKwan University, KOREA, REPUBLIC OF (SOUTH KOREA)
MADS using Cost Patterns Analysis For the Optimal Design of Electric Machine

1:30 PM - 3:00 PM  TP061-9  K. Guo, S. Fang, H. Lin, Y. Guo, H. Yang, Y. Li
Southeast University, CHINA, PEOPLE'S REPUBLIC OF
A Nonlinear Dynamic Magnetic Network Model for Flux- Reversal Linear-Rotary Permanent Magnet Actuator Considering Local Saturation

1:30 PM - 3:00 PM  TP061-10  B. Mohamodhosen, F. Gillon, A. Tounzi, L. Chevallier, J. Korecki
Ecole Centrale de Lille, FRANCE
Topology Optimisation of a 3D Electromagnetic Device using the SIMP Density-Based Method
1:30 PM - 3:00 PM  TP062-1  M. Zhu, X. Huang  Zhejiang University, CHINA, PEOPLE’S REPUBLIC OF  Dynamic reluctance mesh modeling and losses evaluation of permanent magnet traction motor

1:30 PM - 3:00 PM  TP062-2  P. Lyu, X. Xu, S. Yan, Z. Ren  Institute of Microelectronics of Chinese Academy of Sciences, CHINA, PEOPLE’S REPUBLIC OF  3D Capacitance Computation Using Polygonal Prism Elements through Piecewise Interpolation

1:30 PM - 3:00 PM  TP062-3  C. Zhang, Y. Li, Q. Yang  Hebei University of Technology, CHINA, PEOPLE’S REPUBLIC OF  An Electromagnetic Simulation Method Considering Micro-Eddy-Current Effect

1:30 PM - 3:00 PM  TP062-4  W. Li, Y. Su, P. Wang, D. Li  Beijing Jiaotong University, CHINA, PEOPLE’S REPUBLIC OF  Stator Temperature Field of Large-Scale Air-cooled Turbine Generator Considering Main Insulation Shelling

1:30 PM - 3:00 PM  TP062-5  K. Shin, H. Park, H. Cho, K. Jung, J. Choi  Department of Electrical Engineering, Chungnam National University, KOREA, REPUBLIC OF (SOUTH KOREA)  Armature Reaction Magnetic Field and Inductance of Tubular Linear Synchronous Machines with Axially Magnetized Permanent Magnets Accounting for Flux-Passing Iron Pole Effect

1:30 PM - 3:00 PM  TP062-6  J. Sim, J. Jeong, S. Kim, J. Hong  Automotive Engineering, Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)  Analytical Modeling and Experimental Verification of Vehicle Horn Considering Skin Effect Using Coupled Electric and Magnetic Circuits

1:30 PM - 3:00 PM  TP062-7  C. Ni, Z. Zhao  North China Electric power university, CHINA, PEOPLE’S REPUBLIC OF  Inductance calculation method based on induced voltage

1:30 PM - 3:00 PM  TP062-8  C. Tian, Y. Zhong, Y. Lei, J. Yuan, B. Chen, K. Muramatsu  Wuhan University, CHINA, PEOPLE’S REPUBLIC OF  A Coupled Method for Evaluating Eddy Current Loss of NdFeB Permanent Magnets in a Saturated Core Fault Current Limiter

1:30 PM - 3:00 PM  TP062-9  Y. Zhang, C. Zhuang, R. Zeng  Tsinghua University, CHINA, PEOPLE’S REPUBLIC OF  Electrical Field Evaluation around Slender Conductors by Collocation Boundary Element Method

1:30 PM - 3:00 PM  TP062-10  L. Xu, M. Lin, X. Fu, K. Liu  Southeast University, CHINA, PEOPLE’S REPUBLIC OF  Analysis of the End Effects in Double Stator Linear-Rotary Permanent Magnet Motor with Long Mover

POSTER SESSION 4 - TP071  
Tuesday, November 15, 2016  
1:30 PM - 3:00 PM  

1:30 PM - 3:00 PM  TP071-1  J. Liu, H. Ma, P. Ju, L. Huang  Southeast University, CHINA, PEOPLE’S REPUBLIC OF  Design and Analysis of a Superconducting Induction Magnetic Levitation Device for Hydraulic Turbo-Generator
1:30 PM - 3:00 PM  TP071-2  J. Jeong, J. Lim, C. Ha, C. Kim, J. Choi
KIMM, KOREA, REPUBLIC OF (SOUTH KOREA)
Thrust and Efficiency Analysis of Linear Induction Motors for Semi-High-Speed Maglev Trains Using 2D Finite Element Models

1:30 PM - 3:00 PM  TP071-3  P. Ponomarev, J. Keränen, M. Lyly, J. Westerlund, P. Räback
VTT, FINLAND
Multi-Slice 2.5D Modelling and Validation of Skewed Electrical Machines Using Open-Source Tools

1:30 PM - 3:00 PM  TP071-4  N. Li, M. Lin, G. Yang, L. Hao
Southeast University, CHINA, PEOPLE’S REPUBLIC OF
Design and Analysis of a Hybrid Permanent Magnet Axial Field Flux-Switching Memory Machine

1:30 PM - 3:00 PM  TP071-5  J. Liu, H. Ma
Southeast University, CHINA, PEOPLE’S REPUBLIC OF
Researching Magnetic Suspension for 1000MW Hydraulic Generator Set

1:30 PM - 3:00 PM  TP071-6  A. Heya, K. Hirata, S. Ezaki, T. Ota
Osaka university, JAPAN
Dynamic Analysis of a New Three-Degree-of-Freedom Actuator for Image Stabilization

1:30 PM - 3:00 PM  TP071-7  V. Cezar, P. Lombard, A. Charnacé, O. Chadebec, L. Rouve, J. Coulomb, F. Zgainski, B. Cuillault
CNRS - University Grenoble Alpes, FRANCE
Numerical simulation of inrush currents in single-phase transformers using the Jiles-Atherton model and the finite element method

1:30 PM - 3:00 PM  TP071-8  X. Liu, S. Huang
Hunan University, CHINA, PEOPLE’S REPUBLIC OF
Magnetic field and thrust analysis of the U-channel air-core permanent magnet linear synchronous motor

1:30 PM - 3:00 PM  TP071-9  H. Park, J. Kwon, S. Ahn
The University of Suwon, KOREA, REPUBLIC OF (SOUTH KOREA)
A Simple Equivalent Circuit Model for Shielding Analysis of Magnetic Sheets

1:30 PM - 3:00 PM  TP071-10  T. Sheng, S. Niu, W. Fu
The Hong Kong Polytechnic University, HONG KONG S.A.R. (CHINA)
A Novel Design Method for the Electrical Machines with Biased DC Excitation Flux Linkage

POSTER SESSION 4 - TP072
Tuesday, November 15, 2016
1:30 PM-3:00 PM

1:30 PM - 3:00 PM  TP072-1  T. Zou, R. Qu, D. Li, D. Jiang
Huazhong University of Science & Technology, CHINA, PEOPLE’S REPUBLIC OF
A Novel Doubly Magnetic Geared Permanent Magnet Machine

1:30 PM - 3:00 PM  TP072-2  S. Yoshioka, T. Tsujigo, Y. Gotoh
Oita University, JAPAN
Proposal of Electromagnetic Inspection of Opposite Side Defect in Steel using 3-D Nonlinear FEM Taking Account of Minor loop and Residual Magnetization

1:30 PM - 3:00 PM  TP072-3  X. Wang, W. Xu
Huazhong University of Science and Technology, CHINA, PEOPLE’S REPUBLIC OF
Fast Global Terminal Sliding Mode Control Method for Torque Regulation on Disc Coreless Permanent Magnet Synchronous Motor

1:30 PM - 3:00 PM  TP072-4  X. Zhao, S. Niu
The Hong Kong Polytechnic University, HONG KONG S.A.R. (CHINA)
A Novel Coreless Contra-Rotating Axial-Flux Machine for Wind Power Applications
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<td>1:30 PM - 3:00 PM</td>
<td>TP072-5</td>
<td>Comparison of the near field coupling using spherical and spheroidal harmonics</td>
<td>F. Tavernier, Z. Li, A. Bréard, D. Voyer, C. Sartori, L. Krähenbühl</td>
<td>Ecole Centrale de Lyon, FRANCE</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP072-6</td>
<td>Analysis of the effect of not-parallel needles in electroporation</td>
<td>L. Campana, F. Dughiero, M. Forzan, R. Rizzo, E. Sieni</td>
<td>University of Padova - Department of Industrial Engineering, ITALY</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP072-7</td>
<td>Characteristics Analysis Method of Axial Flux Permanent Magnet Motor based on 2-D Finite Element Analysis</td>
<td>J. Kim, J. Lee, Y. Kim, S. Jung</td>
<td>SungKyunKwan University, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP072-8</td>
<td>3D Analysis of Inspection Method of Opposite Side Defect in Steel using AC Square Wave Magnetic Field with DC Bias Taking Account of Minor Loop</td>
<td>S. Yoshioka, Y. Gotoh</td>
<td>Oita University, JAPAN</td>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP072-9</td>
<td>The Influence of Opening Slots on Stator Surface-Mounted Permanent Magnet Machines</td>
<td>G. Zhao, W. Hua, P. Su</td>
<td>School of Electrical Engineering, Southeast University, CHINA, PEOPLE'S REPUBLIC OF</td>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP072-10</td>
<td>Coreless Multidisc Axial Flux PM Machine with Carbon Nanotube Windings</td>
<td>V. Rallabandi, N. Taran, D. Ionel, J. Eastham</td>
<td>University of Kentucky, UNITED STATES OF AMERICA</td>
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**POSTER SESSION 4 - TP081**

1:30 PM-3:00 PM

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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP081-1</td>
<td>Circular Patch Antenna Size-Reduction Technique</td>
<td>R. Musselman, J. Vedral</td>
<td>US Air Force Academy, UNITED STATES OF AMERICA</td>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP081-2</td>
<td>Overhang effect in the Axial Flux Permanent Magnet Motor</td>
<td>D. Woo</td>
<td>Yeungnam University, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP081-3</td>
<td>A Computational System Based on FEM and PSO techniques for Magnetic Field Optimization</td>
<td>N. Sadowski, A. Pires, J. Bastos, W. Carpes Jr.</td>
<td>Universidade Federal de Santa Catarina, BRAZIL</td>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP081-4</td>
<td>Design and Optimization of Interior Permanent Magnet Traction Motor for High Speed Train Considering the Short Circuit Current</td>
<td>D. Yu, J. Zhang, X. Huang, Y. Fang, Q. Lu</td>
<td>Zhejiang University, CHINA, PEOPLE'S REPUBLIC OF</td>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP081-5</td>
<td>Multi-Objective Optimization of IPMSM with Consideration of Torque Characteristics and Iron Loss</td>
<td>J. Yeon, B. Xia, L. Zhu, C. Koh</td>
<td>Chungbuk National University, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP081-6</td>
<td>Optimum Design and Calculation of d-q Axis Currents for 50kW EV Traction Motor based on Flux-Torque Controller</td>
<td>S. Lee, J. Lee, Y. Kim</td>
<td>University of Hanbat National, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP081-7</td>
<td>Hybridization Algorithm of Fireworks Optimization and Generating Set Search for Optimal Design of IPMSM</td>
<td>D. Kim, J. Kim, Y. Kim, S. Jung</td>
<td>Sungkyunkwan University, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<td>Time</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP081-8</td>
<td>A Novel Subregion-Based Multi-dimensional Optimization of Electromagnetic Devices Assisted by</td>
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<td>Kriging Surrogate Model</td>
<td>B. Xia, Z. Ren, K. Choi, C. Koh, Kangwon National University, KOREA, REPUBLIC OF (SOUTH</td>
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<td>KOREA)</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP081-9</td>
<td>Proposed of Novel Linear Oscillating Actuator's Structure using Topology Optimization</td>
<td>Y. Asai, T. Ota, T. Yamamoto, K. Hirata, Osaka University, JAPAN</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP081-10</td>
<td>Multi-objective Robust Controller Design for Electromagnetic Suspensions via LMI</td>
<td>C. Kim, K. Joo, J. Lee, Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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**POSTER SESSION 4 - TP082**

**Tuesday, November 15, 2016**

**1:30 PM-3:00 PM**

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<th>Time</th>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP082-1</td>
<td>Multi-Objective Design Optimization of Primary Core in Induction Heating Roll by Level-set Method</td>
<td>K. Hirono, R. Hoshino, S. Wakao, Y. Okamoto, W. Jeon, c/o Prof. S. Wakao, Department of</td>
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<td>Electrical Engineering and BioScience, Waseda University, JAPAN</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP082-2</td>
<td>Improved Torque and Flux Weakening Capability for Flux Modulated Machines by Injecting DC</td>
<td>S. Jia, R. Qu, D. Li, J. Li, W. Kong, Huazhong University of Science &amp; Technology, CHINA,</td>
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<td>Currents into the Armature Windings</td>
<td>PEOPLE'S REPUBLIC OF CHINA, PEOPLE'S REPUBLIC OF CHINA</td>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP082-3</td>
<td>An approach to model shaft voltage of wound rotor synchronous machines</td>
<td>K. Darques, A. Tounzi, Y. Le Menach, K. Beddek, M. Biet-Evrard, University Lille 1, FRANCE</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP082-4</td>
<td>Modeling and Analysis of Carrier Harmonic based Eddy Current Losses in Interior Permanent</td>
<td>A. Balamurali, C. Lai, V. Loukanov, N. Kar, University of Windsor, CANADA</td>
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<td>Magnet Motors</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP082-5</td>
<td>Heat Capacity increasing design of rare earth IPMSM for Temperature Rising Suppression</td>
<td>W. Lee, E. Jo, G. Kim, Changwon National University, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP082-6</td>
<td>Microwave Characterization Using Partial Least Square Regression</td>
<td>H. Sadou, T. Hacib, Y. Le Bihan, H. Acikgöz, GeePs, ALGERIA</td>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP082-7</td>
<td>Analysis and Design of Armature Magnetic Field Distribution in Permanent-Magnet Vernier Machines</td>
<td>D. Jang, J. Chang, Donga University, KOREA, REPUBLIC OF (SOUTH KOREA)</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP082-8</td>
<td>Transfer Torque Performance Comparison in Coaxial Magnetic Gears with Different Flux-Modulator</td>
<td>S. Kim, E. Park, S. Jung, Y. Kim, The Department of Electrical Engineering, Chosun University,</td>
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<td>Shapes</td>
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<td>1:30 PM - 3:00 PM</td>
<td>TP082-9</td>
<td>Effect of Deformations on Carbon-Based Transistors in Ballistic and Partially Ballistic Regimes</td>
<td>Y. Zheng, G. Valerio, Z. Ren, Sorbonne University UPMC Univ Paris 06, FRANCE</td>
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<tr>
<td>1:30 PM - 3:00 PM</td>
<td>TP082-10</td>
<td>Hybrid Analytical-FEM Methodology for Loss evaluation in Traction Motors for Electric Vehicle</td>
<td>A. Sarigiannidis, M. Beniakar, A. Kladas, ICCS-National Technical University of Athens, GREECE</td>
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<td>Applications</td>
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A Neural Network Based Surrogate Model for Predicting Noise in Synchronous Reluctance Motors

ORAL SESSION TO13
Tuesday, November 15, 2016
3:30 PM - 5:00 PM

3:15 PM - 3:35 PM TO13-1 S. Noguchi
Hokkaido University, JAPAN
Optimal Configuration Design of MRI REBCO Magnet Taking into Account Superconducting Layer

3:35 PM - 3:55 PM TO13-2 X. Zhang, X. Zhang, W. Fu
Tianjin Normal University, CHINA, PEOPLE'S REPUBLIC OF
History Based Learning Artificial Bee Colony Algorithm for Electromagnetic Inverse Problems

3:55 PM - 4:15 PM TO13-3 A. Moschoudis, G. Tsekouras, A. Kladas,
ICCS-National Technical University of Athens, GREECE
Optimal Design of Marine Electric Propulsion Salient Pole Synchronous Motor

4:15 PM - 4:35 PM TO13-4 E. Kuci, F. Henrotte, C. Geuzaine, P. Duysinx
University of Liege, BELGIUM
Shape and Topology Optimization of Electrical Machines using Lie Derivative-Based Analytical Sensitivity Analysis

4:35 PM - 4:55 PM TO13-5 A. Hackl, M. Alb, C. Magele, W. Renhart
Graz University of Technology / IGTE, AUSTRIA
Enhanced Firefly Algorithm for Optimal Design of a Disk Type Magneto-Rheologic Fluid Clutch

ORAL SESSION TO14
Tuesday, November 15, 2016
3:30 PM - 5:00 PM

3:15 PM - 3:35 PM TO14-1 Y. Gao, R. Qu, D. Li, J. Li
Huazhong University of Science & Technology, CHINA, PEOPLE'S REPUBLIC OF
Force Ripple Minimization of a Linear Vernier Permanent Magnet Machine for Direct-Drive Servo Applications

3:35 PM - 3:55 PM TO14-2 A. Mohamed, A. Berzoy, O. Mohammed
Florida International University, UNITED STATES OF AMERICA
Magnetic Design Considerations of Bidirectional Inductive Wireless Power Transfer System for EV Applications

3:55 PM - 4:15 PM TO14-3 K. Han, M. Swaminathan
Ulsan National Institute of Science and Technology, KOREA, REPUBLIC OF (SOUTH KOREA)
Combined Integral Equation Based Circuit Modeling of Interconnections in Electronic Packaging

4:15 PM - 4:35 PM TO14-4 T. Campi, S. Cruciani, G. Rodríguez, M. Feliziani
University of L'Aquila, ITALY
Coil Design of a Wireless Power Transfer Charging System for a Drone

4:35 PM - 4:55 PM TO14-5 V. Climente-Alarcon, R. Sundaria, J. Panchal, A. Arkkio
Aalto University, FINLAND
Simulation of an Induction Motors Rotor after Connection
ORAL SESSION TO15
Tuesday, November 15, 2016
3:30 PM - 5:00 PM
Numerical Techniques II
Jasmin Smajic
(Concerto B)

3:15 PM - 3:35 PM TO15-1
D. Pereira Botelho, Y. Marechal, B. Randane
G2Elab, FRANCE
Vector Interpolation on Natural Element Method: Mesh Sensitivity Analysis

3:35 PM - 3:55 PM TO15-2
P. Alotto, P. Bettini, O. Bottauscio, M. Chiampi, L. Zilberti
IST. NAZ. RICERCA METROLOGICA, ITALY
H-matrix Sparsification Applied to Bioelectromagnetic Analysis of Large Scale Human Models

3:55 PM - 4:15 PM TO15-3
N. Lima, R. Mesquita
Universidade Federal de Minas Gerais, BRAZIL
Edge Meshless Method applied to Vector Electromagnetic Problems

4:15 PM - 4:35 PM TO15-4
M. Ogino, A. Takei, S. Sugimoto
Nagoya University, JAPAN
A Domain Decomposition Method Based on an Algorithm of the MINRES method for High-Frequency Electromagnetic Field Analysis

4:35 PM - 4:55 PM TO15-5
S. Noguchi, T. Naoe, H. Igarashi, S. Matsutomo, V. Cingoski, A. Ahagon, A. Kameari
Hokkaido University, JAPAN
A New Adaptive Mesh Refinement Method in FEA Based on Conservation of Magnetic Field at Interface Between Two Elements

ORAL SESSION TO16
Tuesday, November 15, 2016
3:30 PM - 5:00 PM
Static & Quasi Static Field III
Ruth Sabariego
(Concerto C)

3:15 PM - 3:35 PM TO16-1
P. Bettini, M. Passarotto, R. Specogna
University di Padova - DII (Department of Industrial Engineering), ITALY
A volume integral formulation for solving eddy current problems on polyhedral meshes

3:35 PM - 3:55 PM TO16-2
F. Moro, L. Codecasa
Dipartimento di Ingegneria Industriale, University di Padova, ITALY
A 3D Hybrid Cell Method for Induction Heating Problems

3:55 PM - 4:15 PM TO16-3
D. Fernández, A. Akbarzadeh-Sharraf, W. Gross, D. Giannacopoulos, McGill University, CANADA
Solving Finite-Element Time-Domain Problems with GaBP

4:15 PM - 4:35 PM TO16-4
Y. Wakayama, Y. Hosobuchi, R. Shimoyama, S. Wakao, T. Tokumasu, Y. Takahashi, K. Fujiwara
c/o Prof. S. Wakao, Department of Electrical Engineering and BioScience, JAPAN
Development of Local Expansion Edge Element for Magnetic Field Analysis

4:35 PM - 4:55 PM TO16-5
M. Grinfeld, P. Grinfeld
The U.S. Army Research Laboratory, UNITED STATES OF AMERICA
Second Energy Variation in Heterogeneous Systems with Electrostatic and Magnetostatic Interaction

ORAL SESSION WO17
Wednesday, November 16, 2016
8:30 AM - 10:30 AM
Numerical Techniques II
Hajime Igarashi
(Symphony I)

8:30 AM - 8:50 AM WO17-1
S. Ikuno, G. Chen, T. Itoh, S. Nakata, K. Abe
Tokyo University of Technology, JAPAN
Variable Preconditioned Krylov Subspace Method with Communication Avoiding Technique for Electromagnetic Analysis
ORAL SESSION  WO18
Wednesday, November 16, 2016
8:30 AM - 10:30 AM

8:30 AM - 8:50 AM WO18-1  G. Escamez, B. Ramdane, G. Meunier, G. Vega, C. Bruzek, P. Tixador
Univ. Grenoble Alpes, G2Elab, FRANCE
Numerical model for quench calculations in a 10 kA MgB2 superconducting cable

8:50 AM - 9:10 AM WO18-2  K. Jacques, P. Dular, C. Geuzaine, J. Gyselinck
University of Liege, BELGIUM
Dual Magnetodynamic Finite Element Formulations with Inclusion of an Energy-Based Hysteresis Model

Aalto University, FINLAND
Demagnetization field in a uniformly magnetized ellipsoid embedded in an infinite anisotropic media

9:30 AM - 9:50 AM WO18-4  J. Vedral, R. Musselman
US Air Force Academy, UNITED STATES OF AMERICA
Simple Resolution to Parameter-Extraction Ambiguities of Inhomogeneous Materials

ORAL SESSION  WO19
Wednesday, November 16, 2016
8:30 AM - 10:30 AM

8:30 AM - 8:50 AM WO19-1  S. Wang, L. Li, X. Zhao, Y. Xie
North China Electric Power University, CHINA, PEOPLE’S REPUBLIC OF CHINA
Behavior of the Laminated Core Considering the Special Hysteresis Characteristics under AC-DC Hybrid Magnetization

8:50 AM - 9:10 AM WO19-2  G. Devornique, J. Fontchastagner, N. Takorabet
University de Lorraine - GREEN, FRANCE
Hybrid Model : Permeance Network + 3D Finite Element for Modeling Claw- Pole Synchronous Machines

9:10 AM - 9:30 AM WO19-3  S. Steentjes, P. Rasilo, A. Belahcen, R. Khouia, K. Hameyer
Aalto University, GERMANY
Anisotropic Model for Villari Effect in Non-Oriented Electrical Steel Sheets

9:30 AM - 9:50 AM WO19-4  A. Halbach, C. Geuzaine
University of Liege, BELGIUM
Multiharmonic Resolution of Nonlinearly Coupled Electrovibromechanical Systems using Domain Decomposition
V. Kotlan, I. Dolezel, R. Hamar, D. Panek
University of West Bohemia, CZECH REPUBLIC
Modeling of Selected 3D Electroheat Coupled Problems with Time-Varying Geometries

Department of Electrical Engineering, Chungnam National University, KOREA, REPUBLIC OF (SOUTH KOREA)
Design and Analysis of Magnetic Geared Permanent Magnet Machine considering Loss Reduction

X. Zhao, S. Niu
The Hong Kong Polytechnic University, HONG KONG S.A.R. (CHINA)
A New Double-Rotor Parallel Hybrid-Excitation Machine for Electric Vehicle Propulsion

W. Zhao, B. Kwon
Shandong University, KOREA, REPUBLIC OF (SOUTH KOREA)
Optimal Design of a Cost-Effective SPM Motor to Suppress Torque Pulsations Using Multi-Grade Permanent Magnets

J. Rao, R. Qu, D. Li, Y. Gao
Huazhong University of Science & Technology, CHINA, PEOPLE'S REPUBLIC OF
A Novel Surface Permanent Magnet Vernier Machine with Halbach Array Permanent Magnet in Stator Slot Opening

A. Fatemi, D. Ionel, N. Demerdash
University of Kentucky, UNITED STATES OF AMERICA
Distinguishing the Efficiency Requirements in Motoring and Generating Operations of PM Machines

Z. Li, F. Tavernier, L. Krähenbühl, D. Voyer, C. Sartori, A. Bréard
University de Lyon, Ampere (CNRS AMR5005), FRANCE
Error analysis for near-field EMC problems based on multipolar expansion approach

F. Guo, L. Jin, Q. Yang, Y. Qiu
Tianjin Polytechnic University, CHINA, PEOPLE'S REPUBLIC OF
Characteristic Analysis of Acoustic Emission Signals Induced by EMAT

T. Sheng, S. Niu, W. Fu
The Hong Kong Polytechnic University, HONG KONG S.A.R. (CHINA)
A Novel Disc Machine with Axial Biased Flux and Complementary Salient Rotors

S. Won, S. Cho, J. Bak, G. Jeong, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
PMSG design for usage of VTOL UAV in consideration of occurrence of heat according to the change of input current

T. Xia, H. Yu, L. Huang, X. Liu
Southeast University, CHINA, PEOPLE'S REPUBLIC OF
Design and optimization of a field-modulating permanent magnet tubular linear generator for direct-drive wave energy conversion

S. Jia, R. Qu, J. Li, D. Li, H. Lu
Huazhong University of Science & Technology, CHINA, PEOPLE'S REPUBLIC OF
Comparison of Stator DC Current Excited Vernier Reluctance Machines with Different Field Winding Configurations
10:30 AM-12:00 PM WP011-7 K. Lu, Y. Xia, H. Pan
Aalborg University, DENMARK
A New Type of Axial-flux Magnetic Lead Screw with Inherent Spring Characteristic

10:30 AM-12:00 PM WP011-8 J. Park, H. Kim, J. Hur
University of Ulsan, KOREA, REPUBLIC OF (SOUTH KOREA)
Characteristics of Irreversible Demagnetization in accordance with Phase Advance Angle in IPM-type BLDC Motor

10:30 AM-12:00 PM WP011-9 K. Seo, I. Park
Sungkyunkwan University, KOREA, REPUBLIC OF (SOUTH KOREA)
Characteristics of Medium-Frequency Power Apparatus with Thread-Type Magnetic Core

10:30 AM-12:00 PM WP011-10 E. Park, S. Kim, S. Jung, Y. Kim
The Department of Electrical Engineering, Chosun University, KOREA, REPUBLIC OF (SOUTH KOREA)
Study on Power Transmission Method of Dual-Stage Type Magnetic Gear for High Gear Ratio

POSTER SESSION - WP012
Wednesday, November 16, 2016
11:00 AM - 12:00 PM

10:30 AM-12:00 PM WP012-1 J. Mun, G. Park, S. Seo, Y. Kim, S. Jung
Sungkyunkwan University, KOREA, REPUBLIC OF (SOUTH KOREA)
Design Characteristics of IPMSM with Wide Constant Power Speed Range for EV Traction

10:30 AM-12:00 PM WP012-2 J. Park, K. Lee, S. Lee, S. Jung
SungKyunKwan University, KOREA, REPUBLIC OF (SOUTH KOREA)
Optimal Design of Permanent Magnet Synchronous Motor Considering Magnetic Core Characteristic for High Efficiency

10:30 AM-12:00 PM WP012-3 B. Xia, S. Hong, K. Choi, C. Koh
Chungbuk National University, KOREA, REPUBLIC OF (SOUTH KOREA)
Optimal Design of Winding Transposition of Power Transformer using Adaptive Co-Kriging Surrogate Model

10:30 AM-12:00 PM WP012-4 D. Wang, L. Jin, Q. Yang, Y. Qiu
Tianjin Polytechnic University, CHINA, PEOPLE’S REPUBLIC OF
Research on Optimization Algorithm of BP neural network for permanent magnet synchronous motor based on Cloud Computing

10:30 AM-12:00 PM WP012-5 N. Ryu, S. Lim, S. Min, K. Izui, S. Nishiwaki
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
Multi-objective Optimization of Magnetic Actuator Design Using Adaptive Weight Determination Scheme

10:30 AM-12:00 PM WP012-6 Z. Zaharis, I. Gravas, T. Yioultsis, P. Lazaridis, I. Glover, C. Skeberis, T. Xenos
University of Huddersfield, GREECE
Exponential Log-Periodic Antenna Design Using Improved Particle Swarm Optimization with Velocity Mutation

10:30 AM-12:00 PM WP012-7 S. Khan, S. Yang, O. Obaid U. Rehman, L. Wang
Zhejiang University, CHINA, PEOPLE’S REPUBLIC OF
A Particle Swarm Optimization Method Applied to Global Optimization of Inverse Problem

10:30 AM-12:00 PM WP012-8 J. Yuan, J. Zhou, Y. Gao, K. Muramatsu, W. Guan, B. Chen
Wuhan University, CHINA, PEOPLE’S REPUBLIC OF
Effect of Magnetic-valve Distribution on Reactance of Magnetic Controlled Reactor

10:30 AM-12:00 PM WP012-9 S. Yang, K. Hirata, T. Ota, Y. Kawase
Osaka University, JAPAN
Impedance Linearity of Contactless Magnetic Type Position Sensor
K. Babanezhad, J. Bigeon
INPG SA, FRANCE
HBA-1: A Hybrid Bi-Objective Optimizer for Black-Box Problems

M. Tousignant, F. Sirois, A. Kedous-Lebouc
Polytechnique Montreal, CANADA
Identification of the Preisach Model Parameters Using Only The Major Hysteresis Loop and The Initial Magnetization Curve

G. Eriksson
ABB AB, Corporate Research, SWEDEN
Performance of a Nonlinear Surface Impedance Boundary Condition for Conducting Magnetic Materials Exposed to Inhomogeneous and Nonharmonic External Fields

Y. Mine, Y. Gao, K. Muramatsu, W. Guan, C. Tian, J. Yuan, B. Chen
Saga University, JAPAN
Comparison of Hysteresis Modeling Methods Using Play Model and Free Energy Model

K. Terashima, N. Sakamoto, K. Yamaguchi, T. Uchimoto, T. Takagi
Fukushima university, JAPAN
Application of Monte Carlo method for magnetic clusters introduced thermal distributions

W. Xu, N. Duan, S. Wang, J. Zhu
Xi’an Jiaotong University, CHINA, PEOPLE’S REPUBLIC OF
A Temperature-dependent Hysteresis Model for Soft Ferrites Based on a Vectorial Elemental Operator

L. Santandrea, Y. Le Bihan, R. Corcolle, L. Daniel
GeePs-CentraleSupelec, FRANCE
Eddy Current Inspection of a ferromagnetic Material, Effect of a biaxial Stress State

F. Mendes, J. Leite, N. Batistela, N. Sadowski, F. Suárez
GRUCAD/EEL/ UFSC, BRAZIL
A New Method for Parameters Obtaining of Jiles-Atherton Hysteresis Scalar Model

J. Li, Q. Yang, Y. Li, C. Zhang, B. Qu
Hebei University of Technology, CHINA, PEOPLE’S REPUBLIC OF
Measurement and Modeling of 3-D Rotating Anomalous Loss Considering Harmonics and Skin Effect of Soft Magnetic Materials

S. Willerich, H. Herzog
Technical University of Munich, GERMANY
Interpretation of an Energy Based Hysteresis Model as a Scalar Preisach Operator

L. Gu, E. Bostanci, D. He, M. Wu
University of Texas at Dallas, UNITED STATES OF AMERICA
Evaluation of the Influence of Different Cutting Methods on Permeability and Core Losses in Magnetic Steel

T. Bauernfeind, W. Renhart, P. Alotto, O. Biro
Institute of Fundamentals and Theory in Electrical Engineering / Graz University of Technology, AUSTRIA
UHF RFID Antenna Impedance Characterization: Numerical Simulation of Interconnection Effects on the Antenna Impedance
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<th>Time</th>
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<th>Authors</th>
<th>Institution</th>
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<td>10:30 AM-12:00 PM</td>
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<td>G. Yang, W. Kong, M. Chang, X. Liu, Q. Wu</td>
<td>Harbin Institute of Technology, CHINA, PEOPLE'S REPUBLIC OF CHINA</td>
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<td><strong>Wideband Tuning Range Frequency Selective Surface Based on Liquid Crystal and Tunable Ability Analysis</strong></td>
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<td>10:30 AM-12:00 PM</td>
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<td>D. Gazzana, A. Bretas, D. Thomas, C. Christopoulos</td>
<td>University of Florida, BRAZIL</td>
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<td><strong>A Hybrid Method to Represent the Soil Ionization Phenomenon in Impulsive Grounding Systems</strong></td>
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<td>10:30 AM-12:00 PM</td>
<td>4</td>
<td>I. Soares, U. Resende</td>
<td>CEFET-MG, BRAZIL</td>
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<td><strong>Sierpinski Carpet Fractal Microstrip Arrays for Energy Harvesting Applications</strong></td>
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<td>10:30 AM-12:00 PM</td>
<td>5</td>
<td>T. Vold</td>
<td>Continuum Technology, Inc., UNITED STATES OF AMERICA</td>
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<td><strong>CEM using Hamilton's Principle with variation of the space-time vector potential</strong></td>
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<td>10:30 AM-12:00 PM</td>
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<td>P. Wang, Y. Lyu, G. Yang, F. Meng, X. Ding, K. Zhang, J. Fu, Q. Wu</td>
<td>Harbin Institute of Technology, CHINA, PEOPLE'S REPUBLIC OF CHINA</td>
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<td><strong>A Cascaded Feed Network for Beam Switching Antenna with Improved Radiation Efficiency</strong></td>
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<td>10:30 AM-12:00 PM</td>
<td>7</td>
<td>J. Choo, H. Kim, D. Kim, H. Park, Y. Cho</td>
<td>Korea Institute of Nuclear Safety, KOREA, REPUBLIC OF SOUTH KOREA</td>
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<td><strong>Shielding Effectiveness of Cabinet Used in Nuclear Power Plants</strong></td>
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<td>10:30 AM-12:00 PM</td>
<td>8</td>
<td>M. Grinfield, P. Grinfield</td>
<td>The U.S. Army Research Laboratory, UNITED STATES OF AMERICA</td>
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<td><strong>Calculus of Moving Surfaces and Singular Wave-Fronts in Ideal Magnetohydrodynamics</strong></td>
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<td>10:30 AM-12:00 PM</td>
<td>9</td>
<td>R. Obrist, J. Smajic, G. Behrmann</td>
<td>University of Applied Sciences Rapperswil HSR, SWITZERLAND</td>
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<td><strong>Simulation Based Design of GIS Sensors for PD Measurements</strong></td>
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<td>10:30 AM-12:00 PM</td>
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<td>F. Afshar, A. Akbarzadeh-Sharaf, D. Giannacopoulos</td>
<td>McGill University, CANADA</td>
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<td><strong>Wideband Finite-Difference Time-domain Modeling of Graphene via Recursive Fast Fourier Transform</strong></td>
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**POSTER SESSION - WP031**

Wednesday, November 16, 2016

11:00 AM - 12:00 PM

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<tr>
<th>Time</th>
<th>WP031</th>
<th>Authors</th>
<th>Institution</th>
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<tbody>
<tr>
<td>10:30 AM-12:00 PM</td>
<td>1</td>
<td>A. Saitoh, T. Takayama, A. Kamitani</td>
<td>Yamagata University, JAPAN</td>
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<td><strong>Combination Approach of Domain-Type and Boundary-Type Meshless Methods for Solving Hybrid Boundary Value Problem of Homogeneous and Inhomogeneous Elliptic PDEs</strong></td>
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<td>10:30 AM-12:00 PM</td>
<td>2</td>
<td>A. Tronchoni, D. Gazzana, A. Bretas, R. Leborgne</td>
<td>University of Florida, BRAZIL</td>
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<td><strong>Extended TLM-2D Numerical Technique: An Algorithm Considering Non-Homogenous Media and Ionization</strong></td>
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<td>10:30 AM-12:00 PM</td>
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<td>T. Tsuburaya, Y. Okamoto, Z. Meng</td>
<td>Fukuoka University, JAPAN</td>
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<td><strong>Parallelization Performance of Robust Incomplete Factorization Preconditioner for Real Symmetric Linear Systems Arising in Magnetic Field Analyses</strong></td>
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<td>D. Pereira Botelho, Y. Marchal, B. Ramdane</td>
<td>G2Elab, FRANCE</td>
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<td><strong>Numerical Integration on Natural Element Method: Comparative Analyses of Different Approaches</strong></td>
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<td>K. Watanabe, Y. Sakai</td>
<td>Muroran Institute of Technology, JAP</td>
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<td><strong>Fast Variable Preconditioned Conjugate Gradient Method Using Deflation technique</strong></td>
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X. Yan, X. Han, D. Wu, D. Xie, B. Bai  
Shenyang University of Technology, CHINA, PEOPLE'S REPUBLIC OF  
Research on Preconditioned Conjugate Gradient Method Based on EBE-FEM and the Application in Electromagnetic Field Analysis

D. Wang, X. Xi, Y. Pu, Y. Fang, Z. Li  
Xi'an University of Technology, CHINA, PEOPLE'S REPUBLIC OF  
Improved Parabolic Equation Method for Narrow-Band Loran-C ASF Prediction over Irregular Terrain

D. Abraham, D. Giannacopoulos  
McGill University, CANADA  
A Parallel Implementation of the Correction Function Method for Poissonâ€™s Equation with Immersed Surface Charges

B. Gonçalves, M. Afonso, E. Coppoli, B. Ramdane, Y. Marechal  
CEFET-MG, BRAZIL  
The Natural Element Method Applied to Solve an Electrical Machine Problem

S. Martin, C. Choi  
National Chiao Tung University, Dept of Electrical and Computer Engineering, TAIWAN, REPUBLIC OF CHINA  
A Mesh-Refinement Method Based on Artificial Neural Networks for Electrical Impedance Tomography

POSTER SESSION - WP032  
Wednesday, November 16, 2016  
11:00 AM - 12:00 PM

R. Torchio, P. Bettini  
Università di Padova - DII (Department of Industrial Engineering), ITALY  
PEEC-based analysis of complex fusion magnets during fast voltage transients with H-matrix compression

Y. Li, H. Lin, H. Yang, K. Guo  
Southeast University, CHINA, PEOPLE'S REPUBLIC OF  
A Novel Brushless Hybrid Excited Adjustable-Speed Eddy-CURRENT Coupling

L. Wu  
Huazhong University of Science & Technology, CHINA, PEOPLE'S REPUBLIC OF  
Low Rotor Eddy Current Losses in Servo Motors with Fractional Slot Concentrated Windings and Novel Retaining Cage

G. Jeong, H. Hwang, D. Kim, T. Kim, C. Lee  
PUSAN NATIONAL UNIVERSITY, KOREA, REPUBLIC OF (SOUTH KOREA)  
Acoustic Noise and Vibration Reduction of Flux-Switching Permanent Magnet Machine for Elevator Door Application

J. Cheaytani, A. Benabou, A. Tounzi, M. Dessoude  
University of Lille/EDF, FRANCE  
Stray load losses analysis of cage induction motor using 3-D finite element method with external circuit coupling

S. Seo, G. Park, B. Son, Y. Kim, S. Jung  
SungKyunKwan University, KOREA, REPUBLIC OF (SOUTH KOREA)  
Novel Design Method to Reduce Input Current for Multi-Operating Point IPMSM

G. Yang, L. Li, X. Zhang  
North China Electric Power University, CHINA, PEOPLE'S REPUBLIC OF  
Magnetic Characteristics Analysis of CSR of Transformer Type

M. Kim, J. Jeong, C. Ha, J. Lim, M. Won  
KIMM, KOREA, REPUBLIC OF (SOUTH KOREA)  
Experimental Verification and Electromagnetic Analysis for Force Performance of Levitation and Guidance Electromagnet in Semi-high-speed Maglev Train
10:30 AM-12:00 PM WP032-9 H. Kim, Y. Lee, K. Kim, G. Park
Pusan National University, KOREA, REPUBLIC OF (SOUTH KOREA)
**Analysis of RFECT System Based on the Eddy Current Distributions in Pipeline Inspection**

10:30 AM-12:00 PM WP032-10 H. Kim, H. Lee, G. Park
Pusan National University, KOREA, REPUBLIC OF (SOUTH KOREA)
**New Algorithm for Improvement of Sizing Accuracy of Defect Depth in MFL type Nondestructive Testing**

POSTER SESSION - WP041
Wednesday, November 16, 2016
11:00 AM-12:00 PM

10:30 AM-12:00 PM WP041-1 H. Lee, H. Liu, G. Jeong, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
**Design of High-Speed IPM-BLDC Motor with High Efficiency**

10:30 AM-12:00 PM WP041-2 H. Kuwahara, Y. Maruyama, S. Wakao, M. Takahashi, M. Yagi, T. Okutani, Y. Okamoto
c/o Prof. S. Wakao, Department of Electrical Engineering and BioScience, JAPAN
**Multi-objective Optimization of Magnetic Sensor with Conductor Plate for Rail Wheel Detection**

10:30 AM-12:00 PM WP041-3 T. Ishikawa, S. Amada, K. Segawa, N. Kurita
Gunma University, JAPAN
**Proposal of a Radial- and Axial-Flux Permanent Magnet Synchronous Generator**

10:30 AM-12:00 PM WP041-4 X. Liu, Z. Chen, S. Huang
Hunan University, CHINA, PEOPLE'S REPUBLIC OF
**Performance Evaluation of the Excitation Assistance Switched Reluctance Wind Power Generator under Open Circuit Fault**

10:30 AM-12:00 PM WP041-5 Y. Yao, Q. Lu, X. Huang, Y. Ye
Zhejiang University, CHINA, PEOPLE'S REPUBLIC OF
**Fast Calculation of Detent Force in PM Linear Synchronous Machines with Considering Magnetic Saturation**

10:30 AM-12:00 PM WP041-6 G. Zhang, W. Hua, M. Cheng
School of Electrical Engineering, Southeast University, CHINA, PEOPLE'S REPUBLIC OF
**Parameter Sensitivity Analysis and Robust Design Approach for Flux-Switching Permanent Magnet Machines**

10:30 AM-12:00 PM WP041-7 G. Ruiz-Ponce, M. Arjona, C. Hernandez
Instituto Tecnológico de La Laguna, MEXICO
**Modeling of an Axial-Type Magnetic Gear using a Reluctance-Based Magnetic Equivalent Circuit**

10:30 AM-12:00 PM WP041-8 D. Lim, D. Woo, H. Yeo, S. Jung, H. Jung
Seoul National University, KOREA, REPUBLIC OF (SOUTH KOREA)
**A New Robust Surrogate-Assisted Multi-Objective Optimization Algorithm for an IPMSM Design**

10:30 AM-12:00 PM WP041-9 M. Siddiqi, W. Zhao, B. Kwon, T. Lipo
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
**Performance Comparison of Dual Airgap and Single Airgap Spoketype Vernier Permanent Magnet Machines**

10:30 AM-12:00 PM WP041-10 H. Hong, H. Liu, G. Jeong, S. Jung, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
**Design of 2-Phase Outer Rotor Coreless Torque Actuator in Hybrid Multi-D.O.F System for Gimbal Tilting**
10:30 AM-12:00 PM WP042-1 J. De Bisschop, P. Sergeant, L. Dupré
Ghent University, BELGIUM
Demagnetization Fault Detection in Axial Flux PM Machines by using Sensing Coils and an Analytical Model

10:30 AM-12:00 PM WP042-2 Y. Jiang, W. Xu, C. Ye
Huazhong University of Science and Technology, CHINA, PEOPLE’S REPUBLIC OF
Composite Field-oriented Control for Linear Induction Motor Based Super-twisting Sliding Mode Observers

10:30 AM-12:00 PM WP042-3 X. Ding, S. Ren, Y. Xiong
Beijing University, CHINA, PEOPLE’S REPUBLIC OF
Iron Loss of Electrical Steel Considering Rotational Magnetization and Laminated Direction Mechanical Stress

10:30 AM-12:00 PM WP042-4 H. Shin, J. Chang
Dong-A University, KOREA, REPUBLIC OF (SOUTH KOREA)
Comparison of the Characteristics of Coaxial Magnetic Gears with PM and AC Excitation

10:30 AM-12:00 PM WP042-5 R. Li, L. Li
State Key Laboratory of Alternate Electrical Power System with Renewable Energy Sources, North China Electric Power University, CHINA, PEOPLE’S REPUBLIC OF
Wide-band Modeling for Dual-band Coil of Wireless Power Transfer System

10:30 AM-12:00 PM WP042-6 V. Aguiar, R. Pontes, T. Fernandes Neto, R. Sousa
Federal University of Ceara, BRAZIL
Determination of the Relative Permeability to Estimate the Efficiency in Energy-Efficient Motors

10:30 AM-12:00 PM WP042-7 Y. Xiao, L. Zhou, J. Wang, R. Yang
Huazhong University of Science and Technology, CHINA, PEOPLE’S REPUBLIC OF
Transient Parameters Calculation of Salient-Pole Synchronous Machine by Finite Element Analysis

10:30 AM-12:00 PM WP042-8 D. Hu, W. Xu, R. Dian, C. Ye
Huazhong University of Science and Technology, CHINA, PEOPLE’S REPUBLIC OF
Optimal Flux Trajectory Analysis of Linear Induction Machine Considering Thrust Transient

10:30 AM-12:00 PM WP042-9 I. Kim, K. Joo, J. Lim, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
A Study on Sensorless Control that considers the Response of BLDC Motor inside the Oil Hydraulic Actuator for AWD Clutch Control

10:30 AM-12:00 PM WP042-10 B. Zhang, M. Cheng
Southeast University, CHINA, PEOPLE’S REPUBLIC OF
A Modular and Fault-tolerant Linear Flux-switching Permanent Magnet Machine with Thin Yoke

POSTER SESSION - WP051
Wednesday, November 16, 2016
1:30 PM - 3:30 PM

1:30 PM - 3:00 PM WP051-1 J. Yuan, Y. Zhong, Y. Lei, C. Tian, W. Guan, Y. Gao, K. Muramura, B. Chen
Wuhan University, CHINA, PEOPLE’S REPUBLIC OF
A Novel Topology of Hybrid Saturated Core Fault Current Limiter Considering Permanent Magnets Stability Performance

1:30 PM - 3:00 PM WP051-2 Z. Wang, W. Xu, C. Ye
Huazhong University of Science and Technology, CHINA, PEOPLE’S REPUBLIC OF
In-Wheel Outer Rotor Flux Switching Permanent Magnet Machine with Fractional-Slot Concentrated Windings for Electrical Vehicles
1:30 PM - 3:00 PM WP051-3  J. Park, K. Lee, S. Lee, S. Jung
SungKyunKwan University, KOREA, REPUBLIC OF (SOUTH KOREA)
Design and Analysis of High Speed Permanent Magnet Motor considering Thermal Influence from Impeller Load Characteristic of Turbo Blower System

1:30 PM - 3:00 PM WP051-4  H. Jun, G. Jeong, J. Lim, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
A Study on the Eddy Current Formation by Leakage Magnetic Flux on the PMSM Rotor Retaining Plate and Reduction Method

1:30 PM - 3:00 PM WP051-5  D. Kim, K. Hwang, J. Park, H. Park, S. Ahn
KAIST, KOREA, REPUBLIC OF (SOUTH KOREA)
High Efficiency Wireless Power and Force Transfer for Micro-robot using 3-Axis AC/DC Magnetic Coil

1:30 PM - 3:00 PM WP051-6  Y. Gao, K. Muramatsu, W. Guan, J. Yuan, C. Tian, B. Chen
Saga University, JAPAN
Loss and Noise Reduction of Saturable Magnetically Controlled Reactor by Improving Structure of Magnetic Valves

1:30 PM - 3:00 PM WP051-7  H. Lee, H. Liu, G. Jeong, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
Newly Proposed Hybrid Type Multi-DOF Operation Motor for Multi-Copter UAV Systems

1:30 PM - 3:00 PM WP051-8  Y. Wang, W. Fu, S. Niu
The Hong Kong Polytechnic University, HONG KONG S.A.R. (CHINA)
Design and Analysis of a Novel Dual PM Machine with Wide Speed Range

1:30 PM - 3:00 PM WP051-9  J. Yoo, T. Jung
, KOREA, REPUBLIC OF (SOUTH KOREA)
Permanent Magnet Structure Design for Cogging Torque Reduction of Outer Rotor Type Radial Flux Permanent Magnet Generator

1:30 PM - 3:00 PM WP051-10  M. He, W. Xu, C. Ye
Huazhong University of Science and Technology, CHINA, PEOPLE'S REPUBLIC OF
Novel Single Phase Doubly Salient Permanent Magnet Machine with Asymmetric Stator Poles

POSTER SESSION WP052
Wednesday, November 16, 2016
1:30 PM - 3:30 PM

1:30 PM - 3:30 PM WP052 Devices & Applications

1:30 PM - 3:30 PM WP052-1  S. Cho, H. Liu, G. Jeong, J. Lee
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
Analysis of inductance according to the applied current in Spoke type PMSM and suggestion of driving mode

1:30 PM - 3:30 PM WP052-2  V. Rallabandi, N. Taran, D. Ionel, J. Eastham
University of Kentucky, UNITED STATES OF AMERICA
Multilayer Concentrated Windings for Axial Flux PM Machines

1:30 PM - 3:30 PM WP052-3  S. Kim, E. Park, S. Lee, Y. Kim
The Department of Electrical Engineering, Chosun University, KOREA, REPUBLIC OF (SOUTH KOREA)
A Gear Efficiency Improvement in Magnetic Gear by Eddy-Current Loss Reduction

1:30 PM - 3:30 PM WP052-4  K. Kim, W. Kim, S. Park, S. Lee, H. Liu, G. Jeong
Hanyang University, KOREA, REPUBLIC OF (SOUTH KOREA)
A Study on the Relation between Electromagnetic Noise and Stator Tooth Tapering in Spoke Type Ferrite Magnet Motors
1:30 PM - 3:00 PM  WP052-5  L. Coelho, C. Richter, V. Mariani, A. Askarzadeh  
Pontifical Catholic University of Parana, BRAZIL  
**Modified Crow Search Approach Applied to Electromagnetic Optimization**

1:30 PM - 3:00 PM  WP052-6  A. Barasinski, H. Tertrais, C. Ghnatios, F. Chinesta  
Gem - ECOLE CENTRALE NANTES, FRANCE  
**Processing of a CFRP laminate part by microwaves**

1:30 PM - 3:00 PM  WP052-7  C. Gu, X. Zhang  
Tianjin Normal University, CHINA, PEOPLE’S REPUBLIC OF  
**A Novel Structure of Metamaterial with High Bandwidth for Wireless Power Transfer Systems**

1:30 PM - 3:00 PM  WP052-8  L. Sun, M. Cheng, H. Wen, L. Song  
School of Electrical Engineering, Southeast University, CHINA, PEOPLE’S REPUBLIC OF  
**Split Ratio Design Technique of the Magnetic-Gear Dual-Rotor Motor**

1:30 PM - 3:00 PM  WP052-9  P. Baumgartner, T. Bauerfeind, K. Preis, O. Bíró  
IGTE, TU Graz, AUSTRIA  
**Interactive Toolbox for the Visualization of Typical Antenna Attributes**

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**POSTER SESSION WP061**  
Wednesday, November 16, 2016  
1:30 PM - 3:30 PM  

1:30 PM - 3:00 PM  WP061-1  M. Kato, K. Hirata  
Osaka University, JAPAN  
**Dynamic Characteristics of Linear Resonant Actuator Using Electrical Resonance**

1:30 PM - 3:00 PM  WP061-2  S. Jia, R. Qu, J. Li, D. Li, W. Kong, D. Ye  
HuaZhong University of Science & Technology, CHINA, PEOPLE’S REPUBLIC OF  
**A Stator-PM Consequent-Pole Vernier Machine with Hybrid Excitation and DC-Biased Sinusoidal Current**

1:30 PM - 3:00 PM  WP061-3  K. Rönnberg, M. Beniakar  
ABB AB, Corporate Research, SWEDEN  
**A Study on Thermal Modelling of Interior Permanent Magnet Machines towards Intrinsic Fault Tolerance**

1:30 PM - 3:00 PM  WP061-4  M. Estopier Castillo, E. Clavel, N. Galopin, F. Wurtz, S. Le Garrec  
CNRS - University Grenoble Alpes, FRANCE  
**Multiphysics modeling for a new de-icing technology in aeronautics**

1:30 PM - 3:00 PM  WP061-5  Y. Lee, J. Park, C. Ha, J. Lim, C. Kim  
KIMM, KOREA, REPUBLIC OF (SOUTH KOREA)  
**Design and Control Characteristics of Guidance System for Passive Maglev Transport System**

1:30 PM - 3:00 PM  WP061-6  X. Liu, H. Yu, Z. Shi, L. Huang, N. Feng, T. Xia  
Southeast University, CHINA, PEOPLE’S REPUBLIC OF  
**Electromagnetic-fluid-thermal field Calculation and analysis of a permanent magnet linear motor**

1:30 PM - 3:00 PM  WP061-7  K. Shin, J. Choi, H. Cho  
Department of Electrical Engineering, Chungnam National University, KOREA, REPUBLIC OF (SOUTH KOREA)  
**Experimental Verification and Analytical Calculation of Local Force in Permanent Magnet Synchronous Machine**

1:30 PM - 3:00 PM  WP061-8  A. De Sao José, U. Resende, J. Ferreira, L. De Oliveira, M. Menezes, J. Mologni, J. Ribas  
CEFET-MG, BRAZIL  
**Conformity Evaluation of Radiated Immunity Standards to Modern Telecommunication Services Using Statistical Techniques**

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**Devices & Applications**  
Olivier Chadebec  
( Symphony II & III )
1:30 PM - 3:00 PM WP061-9 Y. Shin, Z. Wang, K. Kim 
Hanbat National University, KOREA, REPUBLIC OF (SOUTH KOREA) 
Novel Analysis Method on the Vibration Reduction for Interior Permanent Magnet Synchronous Motor

1:30 PM - 3:00 PM WP061-10 N. Niguchi, K. Hirata, S. Nobuhara, K. Morita
Osaka University, JAPAN
Power Generation Performance Analysis of a Hub Dynamo Considering a Magnetic Hysteresis

POSTER SESSION WP062
Wednesday, November 16, 2016
1:30 PM - 3:30 PM

1:30 PM - 3:00 PM WP062-1 B. Chen, X. Li, C. Tian, Z. Du, W. Guan, Y. Gao, K. Muramatsu, J. Yuan
Wuhan University, CHINA, PEOPLE'S REPUBLIC OF
Transient characteristics analysis of a 380V/30kVar Superconducting Controlled Reactor

1:30 PM - 3:00 PM WP062-2 H. Park, H. Jung, D. Woo
Seoul National University, KOREA, REPUBLIC OF (SOUTH KOREA)
Improved Quasi-3D Finite Element Method for an Axial Flux Permanent Magnet Motor

1:30 PM - 3:00 PM WP062-3 O. Kwon
Department of Electrical Engineering, Kyungpook National University, KOREA, REPUBLIC OF (SOUTH KOREA)
New Magnetic Vibrator of Three Degrees of Freedom in A Body

1:30 PM - 3:00 PM WP062-4 Q. Wang, S. Niu
The Hong Kong Polytechnic University, HONG KONG S.A.R. (CHINA)
Design Optimization and Comparative Analysis of Dual-Stator Flux-Modulated Machines

1:30 PM - 3:00 PM WP062-5 H. Ennassiri, M. Benhamida, M. Dhifli, G. Barakat, Y. Amara
GREAH / Le Havre university, FRANCE
Vibro-acoustic response of a discossil switching flux permanent magnet machine due to electromagnetic origin

1:30 PM - 3:00 PM WP062-6 D. Park, S. Yu, K. Kim
Hanbat National University, KOREA, REPUBLIC OF (SOUTH KOREA)
Heat Source Analysis of Induction Heater for Electric Vehicle

1:30 PM - 3:00 PM WP062-7 M. Mohammadi, D. Lowther
Electrical and Computer Engineering Department, McGill University, CANADA
A Computational Study of Efficiency Map Calculation for Synchronous AC Motor Drives including Cross Coupling and Saturation Effects

1:30 PM - 3:00 PM WP062-8 D. Jang, J. Chang
Donga University, KOREA, REPUBLIC OF (SOUTH KOREA)
Effects of Flux Modulation Poles on the Radial Magnetic Forces in Permanent Magnet Vernier Machines

1:30 PM - 3:00 PM WP062-9 D. Ahn, M. Yoon, S. Kim, J. Hong
Hanyang university, KOREA, REPUBLIC OF (SOUTH KOREA)
Welding Loss Modeling and Evaluation of Electric Motors Using Laminated Cores

1:30 PM - 3:00 PM WP062-10 P. Alotto, M. Filippini
University di Padova, Dip. Ing. Industriale, ITALY
Coaxial magnetic gear design
1:30 PM - 3:00 PM  WP071-1  H. Mahmud, W. Elmahmoud, M. Barzegaran, N. Brake
Lamar University, UNITED STATES OF AMERICA
Efficient Wireless Power Charging of Electric Vehicle by Modifying the Magnetic Characteristics of
the Transmitting Medium

1:30 PM - 3:00 PM  WP071-2  N. Hussain, J. Webb
McGill University, CANADA
Preconditioners for the nonconforming voxel edge element method

1:30 PM - 3:00 PM  WP071-3  M. Cicuttin, R. Specogna, F. Trevisan
Ecole Nationale des Ponts et Chaussées, FRANCE
Adaptivity based on the constitutive error for the Maxwell’s eigenvalue problem on polyhedral
meshes

1:30 PM - 3:00 PM  WP071-4  T. Itoh, S. Ikuno
Nihon University, JAPAN
Efficient Simulation of Electromagnetic Wave Propagation in Complex Shaped Domain by Hybrid
Method of FDTD and MTDM Based on Interpolating Moving Least-Squares Method

1:30 PM - 3:00 PM  WP071-5  S. Grubisic, A. Linhares, X. Travassos Jr., W. Carpes Jr.
Universidade Federal de Santa Catarina, BRAZIL
EMF Exposure Assessment in Proximity to Metallic Parapets

1:30 PM - 3:00 PM  WP071-6  Y. Pu, L. Zhou, X. Xi, Y. Gu
Xi’an University of Technology, CHINA, PEOPLE’S REPUBLIC OF
Loran-C Ground-wave Propagation Prediction Based on the Hybrid FDTD Algorithm

1:30 PM - 3:00 PM  WP071-7  Y. Du, B. Li
The Hong Kong Polytechnic University, HONG KONG S.A.R. (CHINA)
Hybrid MoM/FDTD Method for Thin Wire Structures with Rectangular

1:30 PM - 3:00 PM  WP071-8  A. Takei, S. Sugimoto, M. Ogino
University of Miyazaki, JAPAN
High-frequency electromagnetic field analysis using anatomical human body models

1:30 PM - 3:00 PM  WP071-9  Y. Huangfu, S. Wang
Xi'an Jiaotong University, CHINA, PEOPLE’S REPUBLIC OF
Radiated EMI Simulation for High-Power Ultra-Precision PMSM System Driven by PWM
Converter

1:30 PM - 3:00 PM  WP071-10  H. Yu, X. Ding, K. Zhuang, Q. Wu
Harbin Institute of Technology, CHINA, PEOPLE’S REPUBLIC OF
Beam Reconfigurable Antenna based on Holography Metasurfaces

POSTER SESSION  WP072  
Wednesday, November 16, 2016  
1:30 PM - 3:30 PM  

1:30 PM - 3:00 PM  WP072-1  F. Chinesta, J. Aguado, E. Abisset-Chavanne, A. Barasiński
ECN, FRANCE
Model Reduction & Manifold Learning – based Parametric Computational Electromagnetism:
Fundamentals & Applications
<table>
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<tr>
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1:30 PM - 3:00 PM WP082-2  L. Zhu, C. Koh  Chungbuk National University, KOREA, REPUBLIC OF (SOUTH KOREA)  A novel iron loss calculation algorithm using vector stop model taking account of the rotating magnetic fields

1:30 PM - 3:00 PM WP082-3  J. Leite, K. Hoffmann, F. Mendes, N. Sadowski, J. Bastos, N. Batistela  Univ. Federal de Santa Catarina, BRAZIL  Performance Comparison between Jiles-Atherton and Play Vector Hysteresis Models on Field Calculation

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Investigation on Numerical Modeling of Excess Loss in SiFe Sheet Considering Pinning Effect

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  G. Wallinger, O. Biró, Graz University of Technology, AUSTRIA
  Comparison of Two Formulations Taking Account of 3D Motion Induced Eddy Currents

- **3:35 PM - 3:55 PM WO23-2**
  A. Chiariello, F. Ledda, R. Martone, F. Pizzo, SUN - Second University of Naples, ITALY
  Fast Identification Problems in 3D Iron Core Fusion Devices

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  Wu Jimin, Wang Xinyue, Xie Yuwei, Liu Jiangfan, Wuhan University, CHINA, PEOPLE'S REPUBLIC OF
  Ionospheric Time-Delay of Satellite Signal Propagation Calculation Based on FDTD Method

- **4:15 PM - 4:35 PM WO23-4**
  A. Pels, R. Sabariego, S. Schöps, KU Leuven, GERMANY
  Solving Multivariate Partial Differential Equations using hat Finite Element basis functions

- **4:35 PM - 4:55 PM WO23-5**
  B. He, P. Zhou, C. Lu, N. Chen, D. Lin, B. Bork, Ansys, UNITED STATES OF AMERICA
  Time Decomposition Method for the Transient Simulation of Low-Frequency Electromagnetics

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  Enriched Performance Measure Approach for Efficient Reliability-Based Electromagnetic Designs

- **3:35 PM - 3:55 PM WO24-2**
  G. Pyrialakos, N. Kantartzis, T. Ohtani, Y. Kanai, T. Tsiboukis, Niigata Institute of Technology, GREECE
  Waveguide Optimization for Dielectric Media Variation Based on the FDTD Method and the Monge-Kantorovich Mass Transfer Problem

- **3:55 PM - 4:15 PM WO24-3**
  C. Da Costa Neves, Á. Ferreira Flores Filho, D. Dorrell, Laboratory of Electrical Machines, Energy and Drives, Federal University of Rio Grande do Sul, BRAZIL
  Design, Modelling and Optimization of a Pseudo Direct Drive

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Piergiorgio Alotto
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**Optimization & Design IV**

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Zhejiang University, CHINA, PEOPLE'S REPUBLIC OF  
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