



# Technical Program – ISEF'2017

## Wednesday 13th September

17:00 - 20:00 On-site Registration

## Thursday 14th September

08:00 - 18:00 On-site Registration

09:00 - 09:45 Opening Ceremony (OC)

09:45 - 10:15 Invited Lecture (IL1)

**CHAIRMAN: Sławomir Wiak**

**Toshiyuki Takagi, Hiroyuki Kosukegawa, Tetsuya Uchimoto**

Simulation and Measurement of Electromagnetic Nondestructive Testing for Carbon Fiber Reinforced Plastic

10:15 - 10:45 Coffee Break

10:45 - 11:15 Invited Lecture (IL2)

**CHAIRMAN: Jan Sykulski**

**David Alister Lowther**

The Impact of Simulation Systems on Low Frequency Electromagnetic Device Design

11:15 - 11:45 Coffee Break

11:45 - 13:15 Oral session (O1-E1)

**CHAIRMAN: Eugenio Costamagna, Jan Sikora**

**TITLE: Optimization and Computer-Aided Design**

**Paolo Di Barba, Maria Evelina Mognaschi, David Alister Lowther, Sławomir Wiak**

A new sensitivity approach in multi-objective design: an application in electromechanics

**Krzysztof Kowalski, Łukasz Knypiński, Lech Nowak**

Constrained Optimization of the Magnetostrictive Actuator With the Use of Penalty Function Method

**Goga Cvetkovski, Lidija Petkovska, Paul Lefley**

Cuckoo Search Optimal Designing of Single Phase Permanent Magnet Brushless DC Motor

**Łukasz Januszkiewicz, Sławomir Hausman, Paolo Di Barba, Łukasz Jopek**

Hierarchical multiparameter optimization of dual-band wearable antenna

**Yinjiang Li, Song Xiao, Mihai Rotaru, and Jan K. Sykulski**

Localized Probability of Improvement for Kriging based Multi-Objective Optimization

11:45 - 13:15 Oral Session (O1-E2)

**CHAIRMAN: Georges Barakat, Andrzej Demenko**

**TITLE: Permanent magnet motors - calculation and design**

**Lidija Petkovska and Goga Cvetkovski**

A Combined Performance Analysis of Small Permanent Magnet Motor

**Prithvi Bhat, Zeger Bontinck, Jacopo Corno, Herbert De Gersem, Sebastian Schöps**

Modelling of a Permanent Magnet Synchronous Machine Using Isogeometric Analysis

**Yanis Laoubi, Georges Barakat and Yacine Amara**

Quasi 3D Modeling of the Axial Flux Switching Machine using Reluctance Network Method

**I. P. Wiltuschnig; P. R. Eckert; A. F. Flores Filho; D. G. Dorrell**

Comparison of Traditional, quasi-Halbach Array and Interior Permanent Magnet Configurations for Outer Rotor Brushless AC Machines

**Gregor Glehn, Kay Hameyer, Mattia Filippini, Piergiorgio Alotto**

Analysis of impulse-magnetization in rare-earth permanent magnets

13:15 - 14:45 Lunch

14:45 - 16:00 Poster Session (P1-A)

**CHAIRMAN: Lidija Petkovska, Nouredine Takorabet, Andrzej Waindok**

**TITLE: Artificial and computational intelligence and Bioelectromagnetism and electromagnetic hazards and Software methodology and visualization**

**D. Doufene S. Bouazabia A.A. Ladjici A. Haddad**

Polluted Insulator Optimization using Neural Network Combined with Genetic Algorithms

**Łukasz Knypiński**

Application of Bat Algorithm in the Optimal Design of Rotor Geometry of Line-Start Permanent Magnet Synchronous Motor

	<p><b>Marek Dudzik, Ryszard Mielnik, Zofia Wróbel</b> Preliminary analysis of the effectiveness of the use of artificial neural networks for modeling time-voltage signal of the combination wave generator</p> <p><b>Theerasak Patcharoen, Suniti Yoomak, Atthapol Ngaopitakkul, and Chaichan Pothisarn</b> Simulation Study for Detection and Classification the Transient Capacitor Inrush Current Using Discrete Wavelet Transform and Artificial Intelligence</p> <p><b>Dominik Szajerman, Sławomir Opałka, Adrian Smagur, Adam Wojciechowski</b> Effective BCI mental tasks classification with adaptively solved convolutional neural networks</p> <p><b>Kalliopi Kravari, Theodoros Kosmanis, A.N. Papadimopoulos</b> Towards an IOT-enabled Intelligent Energy Management System</p> <p><b>Rabah Benkercha, Samir Moulahoum, Nadir Kabache</b> Combination of Artificial Neural Network and Flower Pollination Algorithm for Modelling Fuzzy Logic MPPT Controller</p> <p><b>Kazimierz Kiełkiewicz</b> Fuzzy Logic Controller for modified Bat Algorithm</p> <p><b>P. Di Barba, M. E. Mognaschi, L.G. Campana, M. Bullo, A. Bernardis, F. Dughiero, M. Forzan, P. Sgarbossa, E. Sieni</b> Electroporation of inhomogeneous samples: from conduction field to equivalent resistance</p> <p><b>A. Krawczyk, P. Murawski, E. Korzeniewska, E. Łada-Tondyra</b> New Magnetotherapeutical Devices Experimental and simulation results</p> <p><b>Adam Pelikant</b> Big Data object-oriented representation based on genom data searching system</p> <p><b>Anna Rogalska, Piotr Napieralski</b> A model of saliency-based visual attention for movie retrospection</p> <p><b>Dominik Szajerman, Piotr Napieralski</b> Joint analysis of simultaneous EEG and eye tracking data for video images</p> <p><b>Michał Kowalczyk, Piotr Napieralski</b> Noise resistant method enabling detection of vertical disparity in three-dimensional visualizations</p> <p><b>Seda HABERGOTUREN ATEŞ, Ertugrul AKSOY, Suleyman KUZU, Nursel AKCAM</b> Analysis of Apollonius Circles Fractals as Frequency Selective Surface</p> <p><b>KAMRAN Dawood, Bora Albayaci, Mehmet Aytac Cinar, Olus Sonmez</b> Modelling of the Transformer using Numerical and Analytical Methods</p>
14:45 - 16:00	<p>Poster Session (P1-B)</p> <p><b>CHAIRMAN: Xose M. Lopez-Fernandez, Mariusz Jagieła, Krzysztof Majer</b> <b>TITLE: Electrical machines, transformers, actuators, micromachines</b></p> <p><b>Borys V. Klymenko, Aleksander V. Yeresko, Michael G. Pantelyat</b> Electromagnetic Actuators for Medium Voltage Vacuum Switching Devices: Classification, Design, Controlling</p> <p><b>Krzysztof Makowski, Aleksander Leicht</b> Field-Circuit Computation and Measurements of Performance Characteristics of a Self-Excited Single-Phase Induction Generator</p> <p><b>Noboru Niguchi, Katsuhiro Hirata, Akira Kohara</b> Current Superimposition Variable Flux Reluctance Motor with 8 Salient Poles</p> <p><b>Johannes Germishuizen, Ronald Tanner</b> Inductance Determination from the Two-Dimensional PM Motor Characteristics</p> <p><b>Masayuki Kato, Katsuhiro Hirata, and Kensuke Fujita</b> Dynamic Characteristics of Three-Degree-of-Freedom Resonant Actuator</p> <p><b>Masayuki Kato, and Katsuhiro Hirata</b> Characteristic Evaluation of Electro Mechanical Resonance for Linear Oscillatory Actuator Considering Reverse Current Phenomenon</p> <p><b>Yoshihiro Kawase, Tadashi Yamaguchi, Masao Morikita, Koshiro Matsuda, Keiichi Morinaga</b> Reduction of Eddy Current Loss of Axial Gap-Type Motor by Division of Permanent Magnet</p> <p><b>Z. Gmyrek, M. Lefik, A. Cavagnino, L. Ferraris</b> Comparison of the Fractional Power LSSR Motor with Cores Made of Various Magnetic Materials</p> <p><b>Hae-Joong Kim, Jae-Won Moon</b> Winding Layout for a Concentrated Multiple-layer Fractional-Slot Winding Machine</p> <p><b>Atsushi Nakajima, Katsuhiro Hirata, Noboru Niguchi, and Masayuki Kato</b> Dynamic Characteristics of Triaxial Active Control Magnetic Bearing with Asymmetric Structure</p> <p><b>Hironori Suzuki, Katsuhiro Hirata, Noboru Niguchi, Akira Kohara</b> Magnetic Interference in Novel Motor with Two Controllable Rotors</p> <p><b>Hu Yuhui, Wu Hongzhen</b> Research on AMT Shifting Quality with Motor Torque Synchronization</p>

	<p><b>Marek Paweł Ciurys</b> Electromagnetic phenomena analysis in brushless DC motor with speed control using PWM method</p> <p><b>Frantisek Mach, Ivo Dolezel, Vaclav Kotlan, Lenka Sroubova</b> N-body Simulation of Electrically Charged Plastic Particles Motion in Free-fall Electrostatic Separator</p> <p><b>Jan Fessel, Frantisek Mach, Jiri Navratil</b> Numerical and Experimental Analysis of Electrostatic Adhesion Force Generated by Interdigital Electrodes</p>
16:00 - 16:30	<b>Coffee Break</b>
16:30 - 18:00	<p><b>Oral session (O2-E1)</b> <b>CHAIRMAN: Aimeng Wang, Lech Nowak</b> <b>TITLE: Optimization and Computer-Aided Design</b></p> <p><b>Paolo Di Barba, Maria Evelina Mognaschi, Sławomir Wiak, Marek Przybylski, Barbara Slusarek</b> Wind-driven optimization for the design of switched reluctance motors</p> <p><b>Hiroshi Masuda, Yutaro Kanda, Yoshifumi Okamoto, Kazuki Hirono, Reona Hoshino, Shinji Wakao, and Tomonori Tsuburaya</b> Topology Optimization of Induction Heating Model Using Sequential Linear Programming Based on Move Limit with Adaptive Relaxation</p> <p><b>Łukasz Januszkiwicz, Sławomir Hausman, Paolo Di Barba</b> Cost-effective design optimization of a wearable wideband microwave antenna</p> <p><b>J. Fontchastagner, T. Lubin, S. Mezani, D. Netter, and N. Takorabet</b> Optimal Design of an Axial-Flux Eddy-Current Magnetic Coupling</p> <p><b>Song Xiao, Kunlun Zhang, Guoqing Liu, Yongzhi Jing, Jan K. Sykulski</b> Optimal Design of a Hybrid Suspension Magnet for Middle-Low-Speed Maglev Trains</p>
16:30 - 18:00	<p><b>Oral session (O2-E2)</b> <b>CHAIRMAN: Yoshihiro Kawase, Paweł Witczak</b> <b>TITLE: Induction machines design and simulation</b></p> <p><b>Tadashi Yamaguchi, Yoshihiro Kawase, Hirofumi Asai, Masahide Shibata, Naotaka Toida, Tomoyasu Furukawa, Hiroshi Kawano</b> 3-D Finite Element Analysis of Interbar Current of Skewed Squirrel-cage Induction Motor Taking into Account of Contact Resistance</p> <p><b>K. Smółka, Z. Gmyrek</b> Dynamics of the Line-start Reluctance Motor with SMC Rotor</p> <p><b>M. Nell, G. von Pfingsten and K. Hameyer</b> Approach for the Rapid Characterization and Control of an Induction Machine</p> <p><b>Daniel Roger, Sonia Ait-Amar and Ewa Napieralska</b> A method to reduce partial discharges in motor windings fed by PWM inverters</p> <p><b>V. Mallard, C. Demian, J-F. Brudny and G. Parent</b> The use of segmented-shifted GO sheets in magnetic circuits of small AC motors</p>
18:00 - 19:15	<p><b>Poster Session (P2-A)</b> <b>CHAIRMAN: Jingsong Li, Ivan Yatchev, Adam Pelikant</b> <b>TITLE: Field theory and advanced computation in electromagnetism and Equivalent circuit modelling of field problems</b></p> <p><b>Hirokatsu Katagiri, Kazuki Semba, Hiroyuki Sano, Takashi Yamada</b> Fast Calculation of Copper Loss in Three-Phase Synchronous Motor by Zooming Method</p> <p><b>Witold MAZGAJ, Agnieszka BANACH, Zbigniew SZULAR</b> Calculations of magnetic field distribution in dynamo steel sheets taking into account their texture</p> <p><b>Wojciech Machczyński, Jan Szymenderski, Krzysztof Budnik</b> Polarization potential along underground pipeline of complex geometry generated by stochastic stray currents from D.C. traction</p> <p><b>Adrián de Pablo Sánchez, José Miguel Monzón-Verona, Leopoldo Simón Rodríguez, Pablo Ignacio González Domínguez</b> Finite Formulation in Parallel Computation. Application to Electromagnetic Field in 3-D</p> <p><b>Michelle Barbosa Guimarães, Sandro Trindade Mordente Gonçalves, Márcio Matias Afonso</b> Analysis of Stability, Efficiency and Accuracy in the Solution of Matrix Systems in Electromagnetic Cavity Using the FDTD-ADI/LOD Method</p> <p><b>Bárbara Mara Ferreira Gonçalves, Márcio Matias Afonso, Eduardo H. da Rocha Coppoli, Brahim Ramdane, Yves Marechal</b> The Electrical Machine Problem solved by a Mixed Finite and Natural Element Method</p> <p><b>Jankowski Piotr, Wołoszyn Mirosław</b> Analysis of ship's magnetic field with consideration of inner ferromagnetic devices</p> <p><b>M. Curti, J. W. Jansen, E. A. Lomonova</b> Convergence Analysis of Spectral Element Method for Electromechanical Devices</p> <p><b>Yingying Wang, Jiansheng Yuan</b> Calculation Approach of Reluctance in the Magnetic Circuit of Transformer Employed to Convert into Equivalent Electric Circuit</p> <p><b>Aimeng Wang, Jia Zhang</b> A Novel Reactive Power Control Strategy in Virtual Flux Droop Control</p>

	<p><b>H.Bouaouaou D.Lalili Z.Belli</b> Predictive Control of a Grid-Connected Multi-Level Photovoltaic Inverter</p> <p><b>Ilona Iatcheva</b> Electromagnetic Field Modeling and Determination of Parameters in Teaching Electrical Engineering</p> <p><b>Smółka K., Firyh-Nowacka A., Lefik M.</b> Comparative study of electrospinning systems using 3-D computer models</p> <p><b>Duygu Bayram, Ozgur Ustun</b> An Approach to Optimal Design of Double-Sided Coreless Linear Motor</p>
18:00 - 19:15	<p>Poster Session (P2-B)</p> <p><b>CHAIRMAN: Daniel Roger, Do-Kwan Hong, Leszek Szychta</b> <b>TITLE: Electrical machines, transformers, actuators, micromachines</b></p> <p><b>Yoshihiro Kawase, Tadashi Yamaguchi, Hirofumi Asai, Masahide Shibata, Naotaka Toida, Tomoyasu Furukawa, Hiroshi Kawano</b> Interbar Current Analysis of Skewed Squirrel-cage Induction Motor Using 3-D Parallel Finite Element Method</p> <p><b>Peyman Naderi</b> Double Cage Induction Machines Modeling by Magnetic Equivalent Circuit</p> <p><b>C. G. C. Neves; A. F. F. Filho</b> Pseudo Direct Drive Simulation and Analysis</p> <p><b>Marcos Susin; Marilia A. da Silveira; Aly F. Flores Filho; David G. Dorrell</b> Modeling, Design and Testing of a Planar Actuator with an Ironless Armature and Orthogonal Windings</p> <p><b>C. G. C. Neves; M. F. Goettens; A. F. F. Filho</b> Construction of a Coaxial Magnetic Gear</p> <p><b>A. Zanatta; B. Boff; P. R. Eckert; A. F. Flores Filho; D. G. Dorrell</b> Tubular Linear Permanent Magnet Synchronous Machine Applied to Semi-Active Suspension Systems</p> <p><b>Akira Kohara, Katsuhiko Hirata, Noboru Niguchi, and Kazuaki Takahara</b> AC/DC Current Ratio in a Current Superimposition Variable Flux Reluctance Machine</p> <p><b>N. Naoe and A. Imazawa</b> Experimental Research of a Core-less Linear Generator with Applied Halbach Magnet Array</p> <p><b>Kazumi Kurihara, Naoki Kurihara, and Tomotsugu Kubota</b> Energy-Saving Operation of the Hysteresis Motor Utilizing Overexcitation Phenomenon</p> <p><b>Kassem Roumani and Benedikt Schmuelling</b> Performance Comparison of Internal Magnet and Inset Surface Magnet Low Voltage PMSM for In-Wheel Direct-Drive Application</p> <p><b>Mirosław Wcislik, Karol Suchenia</b> Energy Effectivity of Switchable Reluctance Motor</p> <p><b>Bourahla Kheireddine, Belli Zoubida, Tarik Hacib and Imad Achoui</b> Improvements of Bat Algorithm Using Crossover Technique and Hybridization with Nelder Mead Simplex Method</p> <p><b>Christian Heister, Markus Henke</b> A Fast Analytical Calculation Methodology for Topology Studies of Flux Reversal Machines</p> <p><b>Krzysztof Majer</b> Magnetizing Currents of Transformers Operating with Submagnetizing of DC Flux</p> <p><b>Emile DEVILLERS, Jean LE BESNERAIS, Michel HECQUET, Jean-Philippe LECOINTE</b> Effect of the load angle on radial and tangential magnetic forces in SPMSM</p> <p><b>D. Kamińska, T. Sapiński, M. Kucharczyk-Pośpiech, M. Wilczyński, N. Aitken, A. Della Rocca, R. Wietsma</b> Virtual Reality as a Tool in Mechatronics Education</p>
19:45 - 21:45	Welcome Reception
<b>Friday 15th September</b>	
08:00 - 18:00	On-site Registration
09:00 - 10:15	<p>Poster Session (P3-A)</p> <p><b>CHAIRMAN: Tony Almeida, Ivan Yatchev, Stanisław Pawłowski</b> <b>TITLE: Propagation of radio waves – systems, modelling, applications Electromagnetic compatibility Electromagnetic phenomena in electrical power systems</b></p> <p><b>Marcin Leplawy, Piotr Lipiński, Krzysztof Lichy</b> Hybrid localization indoor system using WiFi and magnetometer sensor</p> <p><b>Çetin Kurnaz, Doğan Yıldız, Serap Karagöl</b> Assessment of Short/Long Term Electric Field Strength Measurements for a Pilot District</p> <p><b>Guilherme L. F. Brandão; Úrsula C. Resende; Fabiano S. Bicalho; Gabriel A. T. Almeida; Marcio M. Afonso</b> Parallel Association of Rectennas for Electromagnetic Energy Harvesting</p>

	<p><b>Athanasios N. Papadimopoulos, Nikolaos V. Kantartzis, and Theodoros D. Tsioukias</b> Optimally-Designed Metamaterial Slabs for Enhanced Receiving Performance of Patch Antennas</p> <p><b>Łukasz Januszkiewicz, Sławomir Hausman, Paolo Di Barba</b> Objective-alternance optimization of wireless body area sensor network</p> <p><b>Jukkrit Jiraprasertwong and Chaiyan Jettanasen</b> The Impact of EMI Filter Performance in the System without and with Grounding</p> <p><b>Piyawit Sripodok, Chaiyan Jettanasen</b> Study and Attenuation of Electromagnetic Interferences Generated by High-Frequency Switching Devices</p> <p><b>Natthanon Phannil, Chaiyan Jettanasen</b> EMI Analysis of Conducted and Radiated Electromagnetic Interference Generated by a Photovoltaic Power Inverter</p> <p><b>Roman Sikora, Przemysław Markiewicz, Wiesława Pabjańczyk</b> Multivariable polynomial fitting of controlled single-phase nonlinear load of input current total harmonic distortion</p> <p><b>Pablo González Domínguez, Adrián de Pablo Sánchez, José Miguel Monzón-Verona, Leopoldo Simón Rodríguez</b> Thermal Constitutive Matrix Applied to Asynchronous Electrical Machine Using the Cell Method</p> <p><b>Khadija SOFI, Hassan EL IDRISSE, Abdelkrim HAMZAOU, Mohammed HAMZAOU, Larbi CHRIFI ALAOU, Fatiha BOUGRIOUA, Denis JOUAFFRE, Mattieu MOREL and Dominique HAYE</b> Current and temperature distribution in a massive one turn coil used in electromagnetic pulse generator</p> <p><b>P. H. C. Santos, M. M. Afonso, R. Alipio, M. O. Schroeder</b> Transmission Lines Optimization By The Elitist Non-Dominated Multi-Objective Evolutionary Algorithm</p> <p><b>João Diogo Pires da Costa Filipe, Tony Richard de Oliveira de Almeida</b> Numerical modelling of magnetic induction heating of a tubular implant for hyperthermia procedures</p> <p><b>Yoshihiro Kawase, Tadashi Yamaguchi, Masaya Murashita, Shota Tsukada, Tomohiro Ota, Takeshi Yamamoto</b> 3-D Electromagnetic Field Analysis of Wireless Power Transfer System Using K computer</p> <p><b>Moustafa Sahnoune Chaouche, Samir Moulahoum, Hamza Houassine</b> Three Phase Transformer Modelling by Frequency Response Analysis Measurement</p>
09:00 - 10:15	<p>Poster Session (P3-B)</p> <p><b>CHAIRMAN: Ilona Iatcheva, Yacine Amara, Barbara Ślusarek</b> <b>TITLE: Electromagnetism in materials (new materials, measurements, modelling, computation) and Design and computation of specific electromagnetic devices</b></p> <p><b>Valentin Ionita, Lucian Petrescu, Emil Cazacu</b> Improved Losses Estimation in Soft Magnetic Cores for Non-Sinusoidal Voltages</p> <p><b>Christoph Jörgens, Markus Clemens</b> Breakdown Voltage of High Voltage Direct Current Cable Insulations Considering Space Charges</p> <p><b>Hector Rolando Anocibar; Aly Ferreira Flores Filho</b> Magnetic Properties of Ferromagnetic Materials Machined by Wire Electrical Discharge Machining</p> <p><b>Roman Gozdur, Piotr Gębara, Krzysztof Chwastek</b> Modeling hysteresis curves of La(FeCoSi)<sub>13</sub> compound near the transition point with the GRUCAD model</p> <p><b>Jingsong Li, Shanming Wang, Qingxin Yang, Yongjian Li</b> Losses Modelling Based on Domain Wall Processes and Validation Considering Rotational Excitation of Electrical Steel Sheets</p> <p><b>A. Thul, S. Boehmer, S. Steentjes, P. Klimczyk, P. Denke, K. Hameyer</b> A transient model for rotational single sheet testers including nonlinearity</p> <p><b>Kaiji MIYATA, Rei YAMAURA, and Yoshifumi OKAMOTO</b> Magnetic Field Analysis with Magnetic Hysteresis Model Using 2-D FEM Based on Chua Type Model</p> <p><b>R. Pawlak, M. Lebioda, M. Tomczyk, J. Rymaszewski, E. Korzeniewska, M. Walczak</b> Surface heat sources on textile composites - modeling and implementation</p> <p><b>Pietrzak L, Wiak S., Smolka K, Was L, Raniszewski G, Szymanski L, Kolacinski Z.</b> Multiwalled carbon nanotube based supercapacitors - numerical approach</p> <p><b>Doğa Ceylan, Ozan Keysan</b> Effect of Conducting Containment on Electromagnetic Launcher Efficiency</p> <p><b>Marcin Wardach, Piotr Paplicki, Ryszard Palka</b> U-Shape Flux Barriers and Axial Flux Magnetic Bridges in Hybrid Excited Machine</p> <p><b>Marcin Wardach</b> Hybrid Claw Pole Machine with Skewed and Non-Skewed Permanent Magnets on Rotor</p> <p><b>Elzbieta Lesniewska and Regina Rajchert</b> Influence of Different Load of the Secondary Winding on Measurement Properties of Current Transformers with Core Made from Different Magnetic Materials</p> <p><b>Andrzej Waindok, Paweł Piekielny</b> Analysis of an Iron-Core and Ironless Railguns Powered Sequentially</p>

10:15 - 10:45	<b>Coffee Break</b>
10:45 - 11:15	<b>Invited Lecture (IL3)</b> <b>CHAIRMAN: Krzysztof Komeza</b>  <b>Andrzej Krawczyk, Ewa Korzeniewska</b> Life and Discoveries of Michael Faraday
11:15 - 12:45	<b>Oral Session (O3-E1)</b> <b>CHAIRMAN: Manuel Pineda-Sanchez, Maria Dems</b> <b>TITLE: Noise and vibrations of electrical machines I</b>  <b>Pawel Witczak, Michal Swiatkowski</b> Modelling Axial Vibration in Windings of Power Transformer  <b>J.F. Brudny, F. Morganti, J-Ph. Lecoq</b> PWM AC drives: use of carriers of different frequencies to control the magnetic noise  <b>Janis Marks, Sandra Vitolina</b> Magnetostriction model of large power transformer magnetic core  <b>H.Ennassiri, M.A. Benhamida, Y. Amara, G. Barakat, J. H. Paulides</b> Influence of contact coefficients on vibrational behavior of PM machines in a complete study  <b>Krzysztof Wierzcholski, Andrzej Miszczak</b> Electro-magneto-hydrodynamic lubrication
11:15 - 12:45	<b>Oral Session (O3-E2)</b> <b>CHAIRMAN: David Lowther, Zbigniew Gmyrek</b> <b>TITLE: Field theory and advanced computation in electromagnetism</b>  <b>Eugenio Costamagna, Paolo Di Barba</b> Two-Stage Schwarz-Christoffel and Finite-Element Simulations: Modeling Inhomogeneous Dielectrics  <b>Ryszard Sikora, Stanisław Pawłowski</b> Erroneous and Questionable Applications of Fractional Derivatives to Electromagnetism  <b>Athanasios N. Papadimopoulos and Nikolaos V. Kantartzis</b> High-Order Stochastic-FDTD Schemes for Electromagnetic Field Statistical Uncertainties  <b>Wiak S., Kołaciński Z., Szymański Ł., Smółka K., Firyk-Nowacka A., Pietrzak Ł.</b> Computer models of nanotubes with ferromagnetic filler used in induction heating process  <b>H. Menana, K. Berger, B. Douine, M. Hinaje and J. Lévêque</b> Eddy current modeling in composite materials: CFRPs and multifilamentary HTS tapes
12:45 - 13:15	<b>Invited Lecture (IL4)</b> <b>CHAIRMAN: Sławomir Hausman</b>  <b>Józef Modelski, Yevhen Yashchyshyn</b> Terahertz Radioelectronics - Expectations, Possibilities and Limitations
13:15 - 14:45	<b>Lunch</b>
14:45 - 16:00	<b>Poster Session (P4-A)</b> <b>CHAIRMAN: Tadashi Yamaguchi, Johannes Germishuizen, Jerzy Zgraja</b> <b>TITLE: Electrical machines, transformers, actuators, micromachines</b>  <b>Dawid Wajnert, Bronisław Tomczuk</b> Analysis of spatial thermal field in a magnetic bearing  <b>Andrzej Waindok, Bronisław Tomczuk</b> Field Analysis & Eddy Current Losses Calculation in Five-Phase Tubular Actuator  <b>Krzysztof Makowski, Aleksander Leicht</b> Analysis of Short-Circuit Transients at Terminals of Self-Excited Single-Phase Induction Generator  <b>Daniel Roger, Ewa Napieralska</b> A method for determining the voltage distribution in the windings of high temperature inverter-fed motors  <b>Cezary Jędrzycka, Wojciech Szeląg, Michał Gwóźdź, Michał Krystkowiak</b> Analysis of electromagnetic phenomena in the two-winding permanent magnet synchronous generator  <b>Aimeng Wang, Jiayu Guo</b> A Novel Hybrid Genetic Algorithm for Optimal Design of Interior Permanent Magnet Machine  <b>Aimeng Wang, Mengyuan Li, Shuhui Dong</b> Investigation of PM Machines With Different Winding Configurations and Stator Teeth Width  <b>M.A. Benhamida, H.Ennassiri, Y. Amara, G. Barakat</b> Reluctance Network & Lumped Mechanical Models for the modeling of concentrated Flux synchronous machine  <b>Mattia Filippini, Piergiorgio Alotto, Gregor Glehn, Kay Hameyer</b> Magnetic transmission gear finite element simulation considering the iron pole's hysteresis

	<p><b>Jacek Horiszny</b> Analysis of Leakage Flux in Deenergized Transformer</p> <p><b>Adrijana Milevska, Lidija Petkovska and Goga Cvetkovski</b> Performance Analysis of a Single-Sided Linear Induction Motor Considering Specific Phenomena</p> <p><b>Bartłomiej Melka, Jacek Smolka, Janusz Hetmanczyk</b> Numerical modelling of heat and fluid transfer at the low and high rotational speed of the PM BLDC motors with heat dissipation improvement</p> <p><b>Andrejs Podgornovs, Rahims Geidarovs</b> Synchronous and asynchronous machines' vectogram analysis of load and no load mode using numerical methods' modeling</p> <p><b>S. Bazhar, B. Ristagno, J. Fontchastagner, N. Takorabet, N. Labbe</b> New Topology of Direct Current Claw-Pole machines for Stop-Start application</p> <p><b>Geoffrey Devornique, Julien Fontchastagner, Denis Netter, Nouredine Takorabet</b> Three dimensional Pole Shape Optimization of Claw Pole Machines based on Hybrid model</p> <p><b>Ozgur Ustun, Duygu Bayram, Burcu Durak, Omer Cihan Kivanc</b> Comparison of Different Line Start Interior Permanent Magnet Synchronous Motor Types with Respect to IE4 Efficiency Class</p>
14:45 - 16:00	<p>Poster Session (P4-B)</p> <p><b>CHAIRMAN: Łukasz Szymański, Nobuyuki Naoe, Mirosław Wołoszyn</b> <b>TITLE: Nondestructive testing (methodology, measurement, diagnosis, testing) Optimization and computer aided design</b></p> <p><b>Tomasz Rymarczyk, Przemysław Adamkiewicz, Jan Sikora</b> Measuring System Based on Electrical Tomography for Monitoring of Landfills and Flood Embankments</p> <p><b>Tomasz Rymarczyk, Katarzyna Szulc</b> Reconstruction of Conductivity Distribution in Electrical Impedance Tomography by Topological Derivative</p> <p><b>Tomasz Rymarczyk, Jakub Szumowski, Karol Duda, Paweł Tchórzewski, Przemysław Adamkiewicz, Jan Sikora</b> Applying ECT Solution to Control and Optimization Test Flow System</p> <p><b>Tomasz Rymarczyk, Przemysław Adamkiewicz, Paweł Tchórzewski, Karol Duda, Jakub Szumowski, Jan Sikora</b> Tomographic Data Acquisition Systems for Building Condition Analysis</p> <p><b>Przemysław Lopato</b> Terahertz Computed Tomography with Pulsed Excitation and Multi-parametric Reconstruction</p> <p><b>Przemysław Lopato, Michał Herbko</b> Direction Sensitive Deformation Measurement by Circular Microstrip Sensor</p> <p><b>Grzegorz Psuj</b> Multivariate Fusion of Nondestructive Inspection Data for Assessment of Fatigue Damage in Steel Components</p> <p><b>Grzegorz Psuj, Mateusz Biernacki, Kacper Kruczyński</b> Application of deep learning procedure to magnetic multi-sensor matrix transducer data for the need of defect characterization in steel elements</p> <p><b>Mieczysław Zając, Maciej Sułowicz</b> The study of a periodic signal energy flow between adjacent frequency bandwidths in a diagnostic system of an induction motor</p> <p><b>Wojciech Pietrowski, Konrad Górny</b> Wavelet Torque Analysis and Neural Network in Detection of Induction Motor Inter-Turn Short-Circuit</p> <p><b>Yuhui Hu, Tianxiao Yu</b> Research on Mode-Switch Control of Single-Shaft Parallel Hybrid Electric Vehicle</p> <p><b>A. L. Paganotti, M. M. Afonso, M. A. O. Schroeder, R. S. Alipio, E. N. Gonçalves</b> A Non Conventional Configuration of Transmission Lines Conductors Achieved by An Enhanced Differential Evolution Optimization Method</p> <p><b>Grzegorz Raniszewski</b> Magnetic field in arc discharge systems for carbon nanotubes synthesis</p> <p><b>A. Sancarlos-González, M. Pineda-Sanchez, R. Puche-Panadero, A. Sapena-Bañó, M. Riera-Guasp, J. Martinez-Roman, J. Perez-Cruz</b> Computation of the Impedance of Rectangular Conductors as a Function of the Frequency using a Parametric Proper Generalized Decomposition</p> <p><b>Maria Dems, Damian Jabłoński</b> Information system supporting automatic design of induction motors</p>
16:00 - 16:30	Coffee Break
16:30 - 18:00	<p>Oral session (O4-E1)</p> <p><b>CHAIRMAN: Paolo Di Barba, Elżbieta Szycha</b> <b>TITLE: Field theory and advanced computation in electromagnetism</b></p> <p><b>Jingsong Li, Shanming Wang, Qingxin Yang, Yongjian Li</b> Skin Effect and Eddy Current Loss in Electrical Steel Sheets under Applied Excitation Fields</p>

	<p><b>Rafał M. Wojciechowski, Cezary Jędryczka</b> Description of the windings of the electromagnetic energy converters using the modified T0 method</p> <p><b>Woloszyn Mirosław, Jankowski Piotr</b> Simulation of ship's deperming process using Opera 3D</p> <p><b>G. von Pfingsten, M. Nell and K. Hameyer</b> Hybrid Simulation Approaches for Induction Machine Calculation: Reduction of Computational Effort by Coupling Static FEA with Transient FEA and Analytic Formulations</p> <p><b>Geoffrey Lossa; Olivier deblecker; Zacharie De Grève</b> Influence of Material Uncertainties on the RLC Parameters of Wound Inductors Using the Finite Element Method</p>
16:30 - 18:00	<p>Oral session (O4-E2) <b>CHAIRMAN: Jean-Philippe Lecoq, Paweł Witzak</b> <b>TITLE: Noise and vibrations of electrical machines II</b></p> <p><b>N. Lanciotti, J. Ojeda, M. Gabsi, T. Boukhobza</b> Open-phase fault detection using vibrations in five-phase flux switching machine</p> <p><b>Bertrand CASSORET, Gregory BAUW, Raphael ROMARY, Olivier NINET</b> Damper winding for noise and vibration reduction of induction machine under sinusoidal conditions</p> <p><b>Doudou Sarr Lo, Yacine Amara, Georges Barakat and Ferhat Chabour</b> Reduction of Cogging Force in Linear Tubular Flux Switching Permanent-Magnet Machines</p> <p><b>A.Rezig, W. Boudendouna, Z.Belli, A.Djerdir, A.N'Diaye</b> Investigation of Optimal Control for Vibration and Noise Reduction in Switched Reluctance Motors</p>
20:00 - 23:00	Gala Dinner
<b>Saturday 16th September</b>	
08:30 - 13:00	On-site Registration
09:30 - 10:45	<p>Poster Session (P5-A) <b>CHAIRMAN: Kazumi Kurihara, Ryszard Pawlak, Jerzy Barglik</b> <b>TITLE: Electrical machines, transformers, actuators, micromachines</b></p> <p><b>Reza Ghandehari, Ali Mirzakhani</b> A Method for Detecting the Rotor Electromagnetic Flux of Double Fed Induction Generator</p> <p><b>Teodor Wisniewski, Jean-Claude Vannier, Jacques Saint-Michel, Xavier Jannot</b> Novel approach to wound-rotor synchronous machine dq modeling with dampers for transient analysis</p> <p><b>Ying Wang, Xiaofen Geng, Chun Liu, and Yongzhi Jing</b> Research on contactless power of urban rail train based on double-fed linear motor</p> <p><b>Belli Zoubida</b> Magnet Eddy current Power Losses in Interior Permanent Magnet Machine at High Frequency</p> <p><b>B. Boff, A. Zanatta, A. Flores Filho, P. Eckert, D. G. Dorrell</b> End Effect Flux and Inductances in Long- Armature Linear Electromagnetic Actuators</p> <p><b>T. B. Portilho, A-S. A. Luiz, M. M. Stopa, G. V. Ramos</b> A Low Cost Three-Level High Power Rectifier for Active Power Factor Compensation</p> <p><b>T. B. Portilho, A-S. A. Luiz, M. M. Stopa, A. F. Cupertino</b> Performance and Efficiency Analysis of Switching Commands For Three-Level Boost Rectifier</p> <p><b>Ernest Mendrela, Mariusz Kubiczek, Maciej Gwozdziwicz</b> Electromagnetic Forces in Switched Reluctance Linear Tubular Motor for Reciprocating Pump</p> <p><b>Ali Saygin, Alper Kerem</b> Speed Control of Induction Motor By 6-Switched 3-Level Inverter</p> <p><b>Sebastian Różowicz; Szymon Tofil</b> Influence of fuel impurities on the consumption of electrodes in spark plugs</p> <p><b>L. Szychta, S. Wiak, E. Szychta</b> Nonintrusive method of residual losses estimation in squirrel cage induction motors</p> <p><b>Maria Dems , Krzysztof Komez, Hugo González Rodríguez</b> Methods for increasing the efficiency of an asynchronous motor with increased speed fed from the PWM inverter</p> <p><b>Sebastian Różowicz</b> Modelling the ignition system of combustion engines with two-port network</p> <p><b>Goryca Zbigniew, Padaszyński Kamil, Pakosz Artur</b> The influence of asymmetrical distribution of rotor's magnets on the cogging torque of the multipolar machine</p> <p><b>A. Abdi, Y. Ouazir, G. Barakat, Y. Amara</b> Permanent Magnet Linear Induction Heating Device: New Topology Enhancing Performances</p>



09:30 - 10:45	<p><b>Poster Session (P5-B)</b>  <b>CHAIRMAN: Piotr Napieralski, Valentin Ionita, Sławomir Hausman</b>  <b>TITLE: Computation of electrical machines under faulty conditions Electromagnetic components of mechatronics and microelectromechanical Sensors, Actuators, MEMS – modelling and design optimization</b></p> <p><b>Suntiti Yoomak, Jintasis Rumkidkarn, Chaichan Pothisarn, Chaiyan Jettanasen, Atthapol Ngaopitakkul, Dimas Anton Asfani</b>  Detection and Discrimination Algorithm between Internal and External Fault in Transformer using Discrete Wavelet Transform</p> <p><b>P. Bogusz, M. Korkosz, A. Powrózek, J. Prokop, P. Wygonik</b>  An analysis of influence of open-winding faults on properties of brushless DC motor with permanent magnets</p> <p><b>Ithem BOUCHARÉB, Abdesselam LEBAROU and Amar BENTOUNSI</b>  An Industrial-Based Pattern Recognition Methods: Application on 6/4 SRM Fault Tolerant Power Converter</p> <p><b>Ilona Iatcheva, Denitsa Darzhanova, Marina Manilova</b>  Investigation of Spot Resistance Welding System based on 3D Field Modeling Using FEM</p> <p><b>Mariusz Jagiela and Marcin Kulik</b>  Effects of complex motion in a new cantilever-beam nonlinear electromagnetic vibration energy harvester</p> <p><b>Bogdan Miedziński, Julian Wosik, Marcin Habrych, Vadim N. Shoffa, Vadim N. Cicerjakin</b>  Miniature DC Switch with Ball Contact Controlled by the Singular Points Location of the Energizing Magnetic Field</p> <p><b>B. Oğuz Gürses, M. Mert Çeltikoğlu, Ece Bayır, Mert Şener, Levent Çetin, Aysun Baltacı, Aylin Şendemir Ürkmez</b>  Electromagnetic Manipulation of Iron Oxide Nanoparticle-Labeled Endothelial Progenitor Cell Microtissues</p> <p><b>Yongzhi Jing, Haijun Liao, Song Xiao, Zhenzhen Liao, Chenhao Zhang, Tao Peng, Ying Wang, Kunlun Zhang</b>  Optimal Design of Gap Sensor for High-Speed Maglev Trains</p> <p><b>Sinan Ünsal, İbrahim Alişkan</b>  Performance Analysis of Fuzzy Logic Controllers Optimized with PSO Based on Different Performance Indices</p> <p><b>Aleksander Lisowiec, Andrzej Nowakowski, Grzegorz Kowalski</b>  Influence of primary conductor position on Rogowski coil measurement accuracy</p> <p><b>Ivan Yatchev, Mehmet Sen, Iosko Balabozov, Ivan Kostov</b>  Modelling of Hall Effect Based Current Sensor with Open Core Magnetic Concentrator</p> <p><b>E. Korzeniewska, A. Szczęsny, A. Krawczyk, P. Murawski, J. Mróz</b>  Analysis of the temperature field around the thin electroconductive layers formed on the substrates</p> <p><b>Firyeh-Nowacka A., Smółka K., Wiak S., Gliścińska E., Krucińska I., Chrzanowski M.</b>  Electrostatic field analysis on the basis of 3-D computer model of multicapillary stand for electrospinning</p> <p><b>Jarosław Tulicki, Maciej Sułowicz, Janusz Petryna</b>  Application of the 2D Field Model to Determine the Axial Flux Signal for the Purpose of Diagnosing Induction Motors</p> <p><b>Do-Kwan Hong, Yeon-ho Jeong, Byung-Chul Woo and Tae-Ho Kim</b>  Electric-Mechanical Performance Analysis of High Speed Motor for Electric Turbo Charger</p>
10:45 - 11:15	Coffee Break
11:15 - 12:45	<p><b>Oral Session (O5-E1)</b>  <b>CHAIRMAN: Aly Ferreira Flores Filho, Krzysztof Makowski</b>  <b>TITLE: Coupled systems and special applications</b></p> <p><b>David A Lowther</b>  The Roles of Local Force and Loss Predictions in the Multi-Physics Analysis of Electromagnetic Devices</p> <p><b>V. Kotlan, R. Hamar, D. Pánek, I. Doležel</b>  Modeling of combined laser and induction cladding on a cylindrical surface</p> <p><b>Jerzy Zgraja</b>  Simplified simulation technique of rotating, induction heated, calender rolls for simulation study of temperature field control</p> <p><b>Jerzy Barglik, Adrian Smagór, Albert Smalcerz</b>  Induction hardening of gear wheels of steel 41Cr4</p> <p><b>Bartłomiej Guzowski, Roman Gozdur, Mateusz Lakomski</b>  Optical power supply system in fiber optic networks</p>
11:15 - 12:45	<p><b>Oral Session (O5-E2)</b>  <b>CHAIRMAN: Goga Cvetkovski, Elżbieta Leśniewska</b>  <b>TITLE: Transformers modeling</b></p> <p><b>A. Poveda-Lerma, G. Serrano-Callergues, M. Riera-Guasp, M. Pineda-Sanchez, R. Puche-Panadero, J. Perez-Cruz</b>  3D Simulation of a power transformer considering lamination effects</p> <p><b>XOSE M. LOPEZ-FERNANDEZ, HUGO RODRIGUEZ-IGNACIO, CASIMIRO ALVAREZ-MARIÑO</b>  HF-Dependent Parameter Calculation by FEM for Power Transformer</p> <p><b>Yingying Wang, Hua Zhang, Qiming Zhao, Jiansheng Yuan</b>  Error of Saturation Magnetization of Core Material Influences the Solution of Transformer Inrush Current Greatly</p> <p><b>Michał Michna, Andrzej Wilk, Michał Ziółko, Marek Wołoszyk, Leon Swędrowski, Piotr Szwangruber</b></p>

Investigation of inter-turn faults in a transformer winding using a discharge method

**Jacek Horiszny**

Method of Determining Residual Fluxes in Transformer Core

12:45 - 13:30 Closing Ceremony

13:30 - 15:00 Lunch