PROGRAMME

ACEMP-OPTIM-ELECTROMOTION 2015
JOINT CONFERENCE

Aegean Conference Electrical Machines and Power Electronics
Optimization of Electrical & Electronic Equipment
International Symposium on Advanced Electromechanical Motion Systems

SİDE - TURKEY
2-4 September 2015

Organizers:

 Middle East Technical University

 Transilvania University of Brasov

 University Politechnica of Timisoara

 Technical University of Cluj-Napoca

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INTRODUCTION

The Aegean Conference on Electrical Machines and Power Electronics (ACEMP) was first organized in 1992 by the Middle East Technical University and Istanbul Technical University. The motivation at the time was to take advantage of the bridging position of Turkey between the Western and Eastern Europe and the new countries emerging to the east of Turkey, and to provide scientists a medium where they can meet and exchange ideas. Since then ACEMP became well established in the past 18 years and served its purpose.

Organizing committees of OPTIM and ACEMP conferences, have had discussions after the OPTIM'14 conference in May in Romania and have decided to make a serious effort to organize these conferences jointly in the future, thus increasing the quality, participation, international recognition and reputation of both conferences. On this occasion Electromotion is also joining this effort.

The first joint event is now taking place with the acronym "ACEMP-OPTIM-Electromotion" in Side, between 2-4 September 2015. Thank you very much for participating in this meeting.

Once again In the true tradition of ACEMP and OPTIM the conference has a set of invited papers, covering topics of much interest to the electrical machines and power electronics community. These papers are presented by worldwide known experts from Europe and United States. We thank them for participating in this meeting.

Furthermore, the conference is technically co-sponsored by IEEE-IAS, IEEE-IES IEEE-PELS and IEEE-PES. Thanks go to IEEE for supporting this meeting and to our friends who worked hard to make this possible.

Wish you all a memorable meeting.

Prof. Dr. H. Bülent Ertan

ACEMP-OPTIM-ELECTROMOTION
Conference Chair

2 September 2015 –Wednesday

09:00 – 10:30	PLENARY SESSION I FORMAL OPENING Address of Welcome by the Conference Chairman LOCATION: ACEMP HALL CHAIR: **Synchronous Motor Drives - A Forgotten Option** Thomas Lipo, University of Wisconsin-Madison, USA ***V/f and I/f control of ac Motor Drives: Recent Progress and Perspective*** Ion Boldea, Poltehnica of Timisoara, Romania
10:30 - 10:45	Coffee Break

	ORAL 1A	ORAL 1B
10:45 - 12:45	Low Power Converter Topologies and applications (6) Room: Green I	Brushless DC/Switched Reluctance Machines (5) Room: Green II

12:45 - 14:00	Lunch

	ORAL 2A-Special Session II	ORAL 2B
14:00 – 15:30	Transportation Electrification (6) Room: Green I	Induction Motors Design & Control (5) Room: Green II

15:30 – 16:00	Coffee Break

	ORAL 3A	ORAL 3B-Special Session III
16:00 – 17:45	Control and Modeling of Power Converters (6) Room: Green I	Automation, Intelligent Control and Predictive Maintenance for Distributed Renewable Energy Systems (4) Room: Green II

3 September 2015 –Thursday

09:00 – 10:30	PLENARY SESSION II LOCATION: ACEMP HALL CHAIR: **New Reluctance machines** Elena Lomonova, Eindhoven University of Technology, Holland **Synchronous Reluctance Technology- The Energy and Cost Efficient Alternative for Standard Drive Application** Sven Kellner, AG Digital Factory Division Motion Control **Synchronous Generators as Distributed Resources in Micro-grids** Tom Jahns, University of Wisconsin-Madison, USA
10:30 - 10:45	Coffee Break

	ORAL 4A	ORAL 4B
10:45 - 12:45	Power Electronics Components (5) Room: Green I	Electric Machine Drivers (6) Room: Green II

12:45 - 14:00	Lunch
14:00 – 16:00	POSTER SESSION 1 Power Electronics (18) Renewable Electric Energy Conversion (9) Predictive Maintenance and Control of Distributed Renewable Energy Systems (6) Room: Lobby Tea and Coffee Service

	ORAL 5A	ORAL 5B
16:00 – 17:45	High Power Converter Topologies and Application (6) Room: Green I	Design of Electric Machines (6) Room: Green II

20:00	Conference Dinner

4 September 2015 –Friday

09:00 – 10:00	PLENARY SESSION III LOCATION: ACEMP HALL CHAIR: **Stator Flux Oriented Control for Traction Drives** Volker Staudt, Ruhr University Bochum, Germany **Systematic Evaluation and Improvement of Acoustic Behaviour of Electric Drive Trains** Kay Hamayer, RTWH Aachen University, Germany	
10:00-10:30	Coffee Break	
10:30 - 12:15	ORAL 6A Magnets and Materials (4) Room: Green I	ORAL 6B Fault Detection & Control (4) Room: Green II
12:15 - 13:30	Lunch	
13:30 – 15:30	POSTER SESSION 2 Electric Machines (34) Room: Lobby Tea and Coffee Service	ORAL 7B-Special session II Energy Management Strategies for Hybrid Electric Vehicle (3) Room: Green II
15:30 – 17:45	ORAL 8A Energy Conversion, Processing and Storage (7) Room: Green I	ORAL 8B Control of Electric Machines (7) Room: Green II
	Closing Ceremony	

Oral Session 1A: Low Power Converter Topologies and Applications
(TRACK-2 POWER ELECTRONICS)

2 September 2015-Wednesday 10:45-12:45

Chair:

Room: Green 1

1. **Forced Commutation Quasi-Resonant Converter in Offshore-Onshore Applications**
   Horia Balan, Mircea Ioan Buzdugan, Adrian Augustin Pop, Radu Adrian Munteanu, Traian Varodi, Technical University of Cluj-Napoca, Romania

2. **Modification on a simple soft switched boost converter**
   Mohammad Mardaneh, Zhale Hashemi, Shiraz University, Iran

3. **Valley Current Mode Control of a Bi-Directional Hybrid DC-DC Converter**
   Dan Hulea, Nicolae Muntean, Octavian Cornea, Politehnica University Timisoara, Romania

4. **Design characteristics of SAB and DAB converters**
   Christian Fontana, Mattia Forato, Manuele Bertoluzzo, Giuseppe Buja, University of Padova, Italy

5. **A New ZCT-ZVT PWM Interleaved DC-DC Boost Converter**
   Naim Süleyman Ting, Yakup Şahin, İsmail Aksoy, Yildiz Technical University, Turkey

6. **A New Zero-Voltage-Transition PWM DC-DC Boost Converter**
   Naim Süleyman Ting, İsmail Aksoy, Yakup Şahin, Yildiz Technical University, Turkey

Oral Session 1B: Brushless DC/Switched Reluctance Machines
(TRACK-1 ELECTRICAL MACHINES)

2 September 2015-Wednesday   10:45-12:45

Chair:

Room: Green 2

1. **Dual Stator/Rotor Brushless DC Motors: A Review of Comprehensive Modelling Based on Parametric Approach and Coupled Circuit Model**
   Durmuş Uygun, Selim Solmaz, Yücel Çetinceviz, Gediz University, Turkey

2. **Brushless Direct Current Motor Efficiency Characterization**
   Daniel van Niekerk, Mike Case, Dan Valentin Nicolae, University of Johannesburg, South Africa

3. **Temperature Distribution Analysis of Double Switched Reluctance Machine Using Finite Element Method**
   Hadi Jalali, Islamic Azad University Khomeini shahr Branch, Iran

4. **Electromagnetic and Structural Analysis of a Variable Reluctance Synchronous Machine**
   Claudiu Oprea, Claudia Martis, Cristi Irimia, Calin Husar, Mihail Grovu, Technical University of Cluj-Napoca, Romania

5. **Evaluation of a 6 pole axial flux PM motor for Control Moment Gyroscope Application**
   Reza Zeinali, H. Bülent Ertan, Middle East Technical University, Turkey

Oral Session 2A: Transportation Electrification
(Special Session I)

2 September 2015-Wednesday 14:00-15:30

Chair:

Room: Green 1

1. **The Stability Research of High-speed Railway EMUs and Traction Network Cascade System**
   Zhigang Liu, Guinan Zhang, Yicheng Liao, Southwest Jiaotong University, China

2. **Design Considerations for Hybrid Energy Storage for Transportation Systems**
   Mustafa Farhadi, Osama Mohammed, Florida International University, USA

3. **Benchmarking of electric and hybrid vehicle electric machines, power electronics, and batteries**
   Bulent Sarlioglu, Casey T. Morris, Di Han, Silong Li, University of Wisconsin-Madison, USA

4. **Novel Dual Rotor Single Stator Axial Flux Switching Permanent Magnet Machine with Even Harmonic Elimination Topology**
   Ju Hyung Kim, Yingjie Li, Bulent Sarlioglu, University of Wisconsin-Madison, USA

5. **A Supervisory Controller for a Hybrid Energy Storage System with Two Propulsion Machines in Electric Vehicles**
   Huseyin A. Yavaşoglu, Junyi Shen, Chuan Shi, Alireza Khaligh, Istanbul Technical University, Turkey

6. **Smart-For-Two Electric Conversion: The Electric Machine**
   Lucian Manica, Valerian Croitorescu, UNIVERSITY POLITEHNICA OF BUCHAREST, Romania

Oral Session 2B: Induction Motors Design & Control
(TRACK-1 ELECTRICAL MACHINES)

2 September 2015-Wednesday   14:00-15:30

Chair:

Room: Green 2

1. **Parameters Calculation of Single- and Double-Cage Models for Induction Motors from Manufacturer Data**
   Luis Guasch-Pesquer, Lamia Youb, Adolfo Andres Jaramillo-Matta, Francisco Gonzalez-Molina, Jose Antonio Barrado-Rodrigo, Rovira i Virgili University, Spain

2. **The Optimization of EKF Algorithm based on Current Errors for Speed-Sensorless Control of Induction Motors**
   Emrah Zerdali, Murat Barut, Nigde University, Turkey

3. **Numerical multi-objective optimization of a squirrel cage induction motor for industrial application**
   Matteo De Martin, Fabio Luise, Stefano Pieri, Alberto Tessarolo, Carlo Poloni, Nidec ASI S.p.A, Italy

4. **Genetic Algorithm Based Design Optimization of a Three-Phase Induction Machine with External Rotor**
   Tamas Gyorgy, Karoly Agoston Biro, Technical University of Cluj-Napoca, Romania

5. **Speed-sensorless Direct Vector Control of Induction Motor with the EKF based stator resistance estimation on FPGA**
   Remzi Inan, Murat Barut, Nigde University, Turkey

Oral Session 3A: Control and Modeling of Power Converters
(TRACK-2 POWER ELECTRONICS)

2 September 2015-Wednesday 16:00-17:45

Chair:

Room: Green 1

1. **State of Charge Balancing Control of a Multi-Functional Battery Energy Storage System Based on a 11-Level Cascaded Multilevel PWM Converter**
   Songcen Wang, Remus Teodorescu, Laszlo Mathe, Erik Schaltz, Paul Dan Burlacu, Aalborg University, Denmark

2. **State Space Control of Quadratic Boost Converter using LQR and LQG approaches**
   Bence Kurucso, Alfred Peschka, Peter Stumpf, Istvan Nagy, Istvan Vajk, Budapest University of Technology and Economics, Hungary

3. **μ-Approach Based Robust Voltage Controller Design for a Boost Converter Used in Photovoltaic Applications**
   Mehmet Baskın, Bülent Çağlar, ASELSAN Inc., Turkey

4. **Control and Modeling of Push-Pull Forward Three-Level Converter for Microgrid**
   Zhilei Yao, Jing Xu, Josep M. Guerrero, Yancheng Institute of Technology, china

5. **Analysis, Modeling and Simulation of a DC Supply with Load Power Control**
   Clement Festila, Eva-H Dulf, Roxana Both, Technical University of Cluj-Napoca, Romania

6. **A Generalized Control Approach for Photovoltaic Grid-Tie Micro-inverters**

   Serkan ÖZtüRk, I.Çadirci, Hacettepe University, Turkey

Oral Session 3B: Automation, Remote Monitoring and Diagnosis – New Paradigms Applied to Distributed Renewable Energy Systems

(Special Session III: Intelligent Control and Predictive Maintenance for Distributed Renewable Energy Systems)

2 September 2015-Wednesday 16:00-17:45

Chair:

Room: Green 2

1. **A Novel Hybrid Approach to Improve the Accuracy of Load Forecasting by IOWA**
   Pooria Lajevardy, Fereshteh-Azadi Parand, Hossein Rahimi, Allameh Tabatabai University, Iran

2. **Model Predictive Control Applied for Building Thermal Control**
   Giorgian Neculoiu, Valentin Dache, Grigore Stamatescu, Valentin Sgarciu, Politehnica University of Bucharest, Romania

3. **Temperature Control of a Greenhouse Heated by Renewable Energy Sources**
   Ramona-Oana Grigoriu, Alina Voda, Arghira Nicoleta, Vasile Calofir, Sergiu-Stelian Iliescu, Politehnica University of Bucharest, Romania

4. **Development of New Protection Solutions for the Renewable Energy Power Plants**
   Valentin Vilcu, Transelectrica National Dispatcher, Romania

Oral Session 4A: Power Electronics Components
(TRACK-2 POWER ELECTRONICS)

3 September 2015-Thursday   10:45-12:45

Chair:

Room: Green 1

1. **A Review of the Condition Monitoring of Capacitors in Power Electronic Converters**
   Hammam Soliman, Huai Wang, Frede Blaabjerg, Aalborg University, Denmark

2. **Analysis of the properties of damped LCL filters including measurement-based assessment**
   Axel Rothstein, Volker Staudt, Volker Trapp, Hans Peter Kratz, Ruhr University, Germany

3. **Ground Leakage Current Reduction in Single-Phase Grid-Connected Power Converter**
   Mohammad Hassan Hedayati, Vinod John, Indian Institute of Science (IISc), India

4. **A Survey on the Reliability of Power Electronics in Electro-Mobility Applications**
   Brwene Gadalla, Erik Schaltz, Frede Blaabjerg, Aalborg University, Denmark

5. **Characterisation of 10 kV 10 A SiC MOSFET**
   Emanuel-Petre Eni, Bogdan Ioan Incau, Tamas Kerekes, Remus Teodorescu, Stig Munk-Nielsen, Aalborg University, Denmark

Oral Session 4B: Electric Machine Drives
(TRACK-1 ELECTRICAL MACHINES)

3 September 2015-Thursday   10:45-12:45

Chair:

Room: Green 2

1. **Drivetrain Integrated Dc-Dc Converter utilizing the Zero Sequence Current of the Starter-Generator in 48V Network Vehicles**
   Murat Senol, Rik W. De Doncker, ISEA, RWTH-Aachen, Germany

2. **Overall performances of a high-speed propulsion system through simulation approach**
   Cristi Irimia, Mihail Grovu, Calin Husar, Daniel Fodorean, Technical University of Cluj-Napoca, Romania

3. **Design of a Controller for a Limited Angle Torque Motor and Its dsPIC Implementation**
   İlhami Çolak, Murat Şahin, Semih Çakıroğlu, Zafer Esen, Gelişim Univesity, Turkey

4. **Considering Half Bridge Converters for Switched Reluctance Motor Drive Applications**
   Petre Doru Teodosescu, Adrian-Cornel Pop, Tiberiu Rusu, Claudia Steluta Martis, Ioana Vintiloiu, Technical University of Cluj-Napoca, Romania

5. **Three phase Inverter Speed Control of AC Drives Motors using DSPic microcontroller**
   Hadj Dida Abdelkader, Bourahla Mohamed, H. Bulent Ertan*, Mostapha Benghanem, University Of Sciences And Technology Of Oran Algeria Usto-Mb, Algeria, *Middle East Technical University, Turkey

6. **Fixed-Frequency Sliding Mode Control for Power Quality Improvement of a Grid-Connected Inverter**
   Pradeep Kumar Sahu, Priyabrata Shaw, Somnath Maity, NIT ROURKELA, India

POSTER SESSION I

3 September 2015-Thursday   14:00-16:00

Chair:

Room: Lobby

POSTER Session I-1: Power Electronics components
(TRACK-2 Power Electronics and Power Conversion)

1. **Analysis And Comparison Of Passive Damping Methods For Shunt Active Power Filter With Output LCl Filter**
   Mehmet Büyük, Adnan Tan, Kamil Ç. Bayındır, Mehmet Tümay, Çukurova University, Turkey

2. **Indirect Current Control in Active DC Railway Traction Substations**
   Mihaela Popescu, Alexandru Bitoleanu, Vlad Suru, University of Craiova, Romania

3. **The Linear and Nonlinear Behavior Analysis for RC-Filters**
   Eva-H Dulf, Clement Festila, Roxana Both, Technical University of Cluj-Napoca, Romania

4. **Analysis of Operation of Power Components Compensation Systems at Harmonic Distortions of Mains Supply Voltage**
   Mykhaylo Zagirnyak, Mariia Maliakova, Andrii Kalinov, Kremenchuk Mykhailo Ostrohradskyi National University, Ukraine

POSTER Session I-2: Power Converter Topologies and Applications
(TRACK-2 Power Electronics and Power Conversion)

1. **Five-Level Converter with Selective Harmonic Elimination for STATCOM**
   Abdül Balıkçı, Eyüp Akpınar, Dokuz Eylul University, Turkey

2. **High Efficiency Single-Stage and Two-Stage Six-Switch Three-Phase PFC Buck-Type Rectifiers**
   Mihaela-Codruta Ancuti, Valeriu Olarescu, Ciprian Sorandaru, Sorin Musuroi

3. **Design of a Robust Cascade Controller for Cuk Converter**
   Fiaz Ahmad, Akhtar Rasool, Shoaib Imtiaz Shaikh, Asif Sabanovic, Sabanci University, Turkey

4. **Comparing Different Switching Techniques For Silicon Carbide MOSFET Assisted Silicon IGBT Based Hybrid Switch**

   Sadık Özdemir, Fatih Acar, Uğur Savaş Selamoğulları, Yildiz Technical University, Turkey

5. **A New Soft Switched ZCZVT PWM DC-DC Boost Converter**
   Yakup Şahin, Naim Süleyman Ting, İsmail Aksoy, Yildiz Technical University, Turkey

6. **Design of High Frequency Buck Converter for DC Motor Control**
   Lale T. Ergene, Abdullah Polat, Liridon Xheladini, Istanbul Technical University

7. **The Linear and Nonlinear Behavior Analysis for RC-Filters**
   Eva-H Dulf, Clement Festila, Roxana Both, Technical University of Cluj-Napoca, Romania

8. **Stabilization of Parallel DC/DC Buck Converters Controlled over Shared Network**
   Ashraf Khalil, Jihong Wang, University of Benghazi, Libya

9. **THD Improvement of a Bidirectional Flyback Inverter by Sliding-Mode Control**
   Octavian Cornea, Gheorghe-Daniel Andreescu, Catalin-Cornel Patrascu, Nicolae Muntean, Politehnica University Timisoara, Romania

10. **PWM Strategy for Improved Natural Balancing of a 4-Level H-Bridge Flying Capacitor Converter**
    Anar Ibrayeva, Viktor Ten, Yakov Familiant, Alexander Ruderman, Nazarbayev University, Kazakhstan

POSTER Session I-3: Renewable Electric Energy Conversion, Processing and Storage
(TRACK-3)

1. **A New Model for Output Power Calculation of Variable-Speed Wind Turbine Systems**
   Ulaş Eminoğlu, Nigde University, Turkey

2. **Effect of Increasing Energy Demand on the Corrosion Rate of Buried Pipelines in the Vicinity of High Voltage Overhead Transmission Lines**
   Kazeem Adedeji, Akinnlolu Ponnle, Bolanle Abe, Adisa Jimoh, Tshwane University of Technology, South Africa

3. **Loss minimum reconfiguration through Deterministic Iterative Improvement and Simulated Annealing**
   Valentin Boicea, Radu Porumb, Tudor Leonida, University Politehnica of Bucharest, Romania

4. **Energy-Saving Sliding Mode Control for Synchronous Drive Fed by Renewable Energy Source**
   Sergey Ryvkin, Miroslav Chomat, Trapeznikov Institute of Control Sciences RAS, Russian Federation

5. **Analysis of Fly-Back PV Microinverter and Optimizing Control System Using Finite Gradient Descent Method**
   Mahshid Khoshlessan, Behzad Asaei, Babak Farhangi, University of Tehran, Iran

6. **Induction Motors Best Efficient Operation Points in Pumped Storage Systems**
   Andreea Busca-Forcos, Corneliu Marinescu, Cristian Busca, Ioan Serban, Remus Teodorescu, Transilvania University of Brasov, Romania

7. **Hybrid analytical and numerical method of calculation the single-diode model parameters**
   Abderrahim Taouni, Ahmed Abbou, Mohammed Akherraz, Abderrahmane Ouchatti, Khalid Majdoub, Morocco

8. **Simulated, Hands-on and Remote Laboratories for Studding the Solar Cells**
   Petru A. Cotfas, Daniel T. Cotfas, Carmen Gerigan, Transilvania University of Brasov, Romania

POSTER Session I-4: Predictive Maintenance and Control of Distributed Renewable Energy Systems

(Special Session-3)

1. **Voltage – Reactive Power Control In Renewables Power Plant. Technical requirements applied in Romanian Grid**
   Elena Daniela Dinu, Doina Ilisiu, National Dispatch Center CNTEE Transelectrica S.A., Romania

2. **Yield and availability analysis of grid-connected photovoltaic systems – a case study for Iasi region, Romania**
   Ciprian Nemes, Sorina Costinas, Technical University of Iasi, Romania

3. **Multi-Criteria Approach for Maintenance Management in HV Substations**
   Sorina Costinas, Cristina Sorana Ionescu, Ioana Opris, Daniela Nistoran, Gabriela Nicoleta Sava, University Politehnica of Bucharest, Romania

4. **Predictive Control for Photovoltaic Tracking Optimization**
   Iulia Stamatescu, Grigore Stamatescu, Vasile Calofir, Ioana Fagarasan, Sergiu Stelian Iliescu, University Politehnica of Bucharest, Romania

5. **Performance Evaluation of Anti-Islanding Protection Technique for Micro Grids**
   T Kandil, Al-Jouf University, Saudi Arabia

Oral Session 5A: High Power Converter Topologies and Applications
(TRACK-2 POWER ELECTRONICS)

3 September 2015-Thursday   16:00-17:45

Chair:

Room: Green 1

1. **Pre-charging of MMC and power-up of a MMC-based multiterminal HVDC transmission system**
   Martin Kleine Jäger, Axel Rothstein, Volker Staudt, Andreas Steimel, Daniel Meyer, Carsten Heising, Ruhr University, Germany

2. **A Novel Cascaded Two Transistor H-bridge Multilevel Converter Topology**
   S. M. Sajjad Rafin, Thomas Lipo, Hanyang University, Korea (South)

3. **Performances of the Eight-Switch versus Interleaved Eight-Switch Three-Phase Buck-type PFC Rectifiers**
   Codruta Ancuti, Valeriu Olarescu, Ciprian Sorandaru, Sorin Musuroi, Technical University of Timisoara, Romania

4. **Active Lifetime Extension for a 3L-NPC Inverter with Direct Torque Control**
   The Minh Phan, Huynh Anh Duy Nguyen, Mario Pacas, University of Siegen, Germany

5. **Online Selective Harmonic Minimization for Cascaded Half-Bridge Multilevel Inverter Using Artificial Neural Network**
   Payam Farhadi, Mohammad Navidi, Milad Gheydi, Mehdi Pazhoohesh, Hassan Bevrani, University of Kurdistan, Iran

6. **High Performance Parallel Single-Phase Converter Reconfiguration for Enhanced Availability**
   Mohammad Hassan Hedayati, Vinod John, Indian Institute of Science (IISc), India

Oral Session 5B: Design of Electric Machines
(TRACK-1 ELECTRICAL MACHINES)

3 September 2015-Thursday   16:00-17:45

Chair:

Room: Green 2

1. **Optimization of Linear Permanent Magnet Synchronous Motors for Needle-free Jet Injection**
   Bryan P. Ruddy, Jake Boyce-Bacon, Andrew J. Taberner, The University of Auckland, New Zealand

2. **Analytical Design of a PMSMs by Using Magnets Bars With Different Remanence**
   Brahim Ladghem Chikouche, Kamel Boughrara, Rachid Ibtiouen, univrsité md boudiaf, Algeria

3. **Optimization in Design of Electric Machines: Methodology and Workflow**
   Stjepan Stipetic, Werner Miebach, Damir Zarko, Marie Curie PostDoc Fellow, France

4. **Predicting Radial and Tangential No-Load Air-Gap Flux Density in IPMSM Using a Novel Conformal Mapping and Lumped Parameter Model**
   Hooshang Mirahki, Mehdi Moallem, Isfahan University of Technology, Iran

5. **Evaluating Hybrid Optimization Algorithms for Design of a Permanent Magnet Generator**
   Erlend L. Engevik, Astrid Roekke, Robert Nilssen, Norwegian University of Science and Technology, Norway

6. **A New Control Technique for Improving Dynamic Performance of Mono-Inverter Dual Parallel Induction Motors in Railway Traction Systems**
   Dogan Yildirim, Bulent Caglar, ASELSAN Inc., Turkey

Oral Session 6A: Magnets and Materials. Applications in energy conversion devices
(TRACK-4)

4 September 2015-Friday   10:30-12:15

Chair:

Room: Green 1

1. **Improved Analytical Method for Hysteresis Modelling of Soft Magnetic Materials**
   Septimiu Motoasca, Gheorghe Scutaru, Carmen Gerigan, Transilvania Universiti of Brasov, IEFA, Romania

2. **LTCC/PZT Technology for Automotive Actuator and Sensor Applications**
   Romeo Ciobanu, Cristina Schreiner, T.U. Iasi, Romania

3. **Electric potential assessment near distribution power lines caused by lightning surge wave propagation**
   Elena Larisa Mariut, Elena Helerea, Corneliu Ursachi, Transilvania University of Brasov, Romania

4. **Zero Power Control of a 3 DOF Levitated Multiple Hybrid Electromagnet Flexible Conveyor System**
   Ahmet Fevzi Bozkurt, Kadir Erkan, Ömer Faruk Güney, Yildiz Technical University, Turkey

Oral Session 6B: Fault Detection & Control
(TRACK-1 ELECTRICAL MACHINES)

4 September 2015-Friday   10:30-12:15

Chair:

Room: Green 2

1. **Short-circuit Fault Diagnosis in Permanent Magnet Synchronous Motors- An Overview**
   Jawad Faiz, S.A.H Exiri, University of Tehran, Iran

2. **Impact of Rotor Inter-turn Short Circuit Fault upon Performance of a Wound Rotor Induction Motor**
   Jawad Faiz, Mehran Keravand, Mahmod Ghasemi-Bijan, University of Tehran, Iran

3. **Two Approaches Comparison to Energy Optimal Position Control with Constant and Linear Torques**
   Branislav Ftorek, Peter Butko, Milan Pospisil, Zilina University, Slovak Republic

4. **Wide Band Modeling of an Air-core Reactor for Fast Transient Studies**
   Barend van Jarsveld, Dan Valentin Nicolae, , University of Johannesburg, South Africa

POSTER SESSION II

4 September 2015-Friday   13:30 – 15:30

Chair:

Room: Lobby

POSTER Session II-1: Induction Motors Design & Control
(TRACK-1 ELECTRICAL MACHINES)

1. **Torque Peak Reduction and Overload Monitoring of Induction Motors in Offshore Drilling Operations**
   Witold Pawlus, Michael R. Hansen, Geir Hovland, Martin Choux, University of Agder, Norway

2. **A Comparative Analysis of FLC and ANFIS Controller for Vector Controlled Induction Motor Drive**
   Erdal Kılıç, Hasan Rıza Özçalık, Şaban Yılmaz, Sami Sit, Kahramanmaras Sutcu Imam University, Turkey

3. **Induction motor bearing fault analysis using Root-MUSIC method**
   Ahmed Hamida Boudinar, Noureddine Benouzza, Azeddine Bendiabdellah, Mohammed El-amine Khodja, University of Sciences and Technology of Oran, Algeria

POSTER Session II-2: Control of Electric Machines
(TRACK-1 ELECTRICAL MACHINES)

1. **Sensorless Vector Controlled Synchronous Reluctance Motor Fed by Matrix Converter**
   Arzhang Yousefitalouki, Gianmario Pellegrino, Politecnico di Torino, Italy

2. **Auto-tuning Fractional Order Velocity Control of a DC Motor**
   Eva-H. Dulf, Cristina-I. Muresan, Roxana Both, Csaba Fustos, Technical University of Cluj-Napoca, Romania

3. **Comparison of SVPWM, SPWM and HCC Control Techniques in Power Control of PMSG used in Wind Turbine Systems**
   Naim Süleyman Ting, Yusuf Yasa, İsmail Aksoy, Yakup Şahin, Yildiz Technical University, Turkey

4. **Comparison of PI and Neural Fuzzy Based Closed Loop Control Methods for Permanent Magnet Synchronous Motor Fed by Matrix Converter**
   Yurdagül Bentesen Yakut, Sedat Sunter, Mehmet Özdemir, Dicle University, Turkey

POSTER Session II-3: Design of Electric Machines
(TRACK-1 ELECTRICAL MACHINES)

1. **Calculation of No-Load Saturation Curve for Wound Field Synchronous Machines Based on Magnetic Equivalent Circuits and Conformal Mapping**
   Ana Hanic, Zlatko Hanic, Mario Vrazic, Damir Zarko, University of Zagreb, Croatia

2. **Design Optimization of Flux Barrier Synchronous Reluctance Machines**
   Thushanth Mohanarajah, Mahmood H. Nagrial, Jamal H. Rizk, Ali Hellany, University of Western Sydney, Australia

3. **Fast and Very Fast Electromagnetic Transients of Three-phase Three Legged Transformers: Theoretical Approach and Experiments**
   Faouzi Aboura, Sarah Asma Touhami, Ahmed Islam Zama, Redouane Tahmi, Omar Touhami, Ecole Nationale Polytechnique, Algeria

4. **Dynamical Modeling and Analysis of Asymmetric Unbalanced Three-Phase Three Legged Transformers**
   Faouzi Aboura, Sarah Asma Touhami, Ahmed Islam Zama, Redouane Tahmi, Omar Touhami, Ecole Nationale Polytechnique, Algeria

5. **Current waveform optimization for ripple-free output torque of transverse flux reluctance machines**
   Jacek Borecki, Matthias Joost, Holger Groke, Bernd Orlik, IALB - University of Bremen, Germany

POSTER Session II-4: Brushless DC/Switched Reluctance Machines
(TRACK-1 ELECTRICAL MACHINES)

1. **Efficiency and Losses Analysis in Switched Reluctance Motors for Electric Vehicles**
Pavol Rafajdus, University of Zilina, Slovak Republic

2. **Performance Comparison Between Brushless PM and Induction Motors for Hybrid Electric Vehicle Applications**
Shahriar Sharifan, Seyyedmilad Ebrahimi, Hashem Oraee, Sharif University of Technology, Iran

3. **Single-Phase Stator-Ferrite PM Double Saliency Motor Performance and Optimization**
Flavio Kalluf, Aline Juliani, Aleandro Espindola, Ion Boldea, Lucian Tutelea, Andy-Sorin Isfanuti, Arthur Laureano, Marco Gianesini, Roberto Kinceler, Embraco, Brazil

4. **The Influence of the Pole Asymmetry on the BLDC Motors**
Lale Ergene, Ceren Özkan, Abdullah Polat, Istanbul Technical University, Turkey

POSTER Session II-5: Fault Detection & Control
(TRACK-1 ELECTRICAL MACHINES)

1. **Slot harmonic frequency detection as a technique to improve stator current spectrum approach for broken rotor bars fault diagnosis**
Noureddine Benouzza, Ahmed Hamida Boudinar, Azeddine Bendiabdellah, Mohammed El-amine Khodja, University of Sciences and Technology of Oran, Algeria

2. **Fault Detection in Synchronous Motor Drives, a Co-Simulation Approach**
Constantin Apostoaia, Mihai Cernat, Purdue University Calumet, USA

3. **A New Support Vector Machine based Eccentricity Fault Diagnosis for Inverter-Fed Induction Motors**
İlhan Aydin, Mehmet Karaköse, Erhan Akın, Alişan Sarımaden, Firat University, Turkey

4. **The enhancements of broken bar fault detection in induction motors**
Azeddine Bendiabdellah, Ahmed Hamida Boudinar, Noureddine Benouzza, Mohammed El-amine Khodja, University of Sciences and Technology of Oran, Algeria

5. **Lighting impulse voltage distribution vs. transformer insulation design**
Boruz Mircea Alexandru, Mircea Paul Mihai, University of Craiova, Romania

6. **Fault Tolerant Control of PMSM Drive Using Sliding Mode Strategy**
Hemza Mekki, Djamel Boukhetala, Mohamed Tadjine, Omar Benzineb, Larbi Chrifi-Alaoui, LCP, Ecole Nationale Polytechnique, Algeria

Oral Session 7B: Energy Management Strategies for Hybrid Electric Vehicle Application

(Special Session II)

4 September 2015-Friday   13:30-15:30

Chair:

Room: Green 2

1. **Energy Management for Hybrid Electric Vehicles using load's power fluctuating compensation-Ultracapacitors and Lithium-battery**
   Mamadou Baïlo Camara, Brayima Dakyo, University of Le Havre, France

2. **A Novel Hybrid Intelligent Method for Static Var Compensator Placement in Distribution Network with Plug-In Hybrid Electrical Vehicles Parking**
   Saeed Rezaeian Marjani, Mahzad Gheibi, Vahid Talavat, Morteza Farsadi, Urmia University, Iran

3. **Hybrid Electric Boat based on Variable Speed Diesel Generator and Lithium-battery - Using Frequency Approach for Energy Management**
   K. Bellache, M.B. Camara, B. Dakyo, University of Le Havre, France

Oral Session 8A: Renewable Electric Energy Conversion, Processing and Storage

(TRACK-3)

4 September 2015-Friday   15:30-17:45

Chair:

Room: Green 1

1. **Irregular Wave Energy Extraction Analysis for A Slider Crank WEC Power Take-off System**
   Yuanrui Sang, Bora Karayaka, Yanjun Yan, James Zhang, Eduard Muljadi, Western Carolina University, USA

2. **Partial Shading Effect on Solar PV Array**
   Abdellah Miloudi, Yahia Miloudi, Mohamed Mostefai, University Dr Tahar Moulay, Algeria

3. **Spatial Magnetic Field Polarization below Balanced Double-Circuit Linear Configured Power Lines for Six Phase Arrangements**
   Akinlolu Ponnle, Bolanle Abe, Adisa Jimoh, Tshwane University of Technology, South Africa

4. **Ageing of Photovoltaic Cells Under Concentrated Light**
   Daniel Tudor Cotfas, Petru Adrian Cotfas, Dan Floroian, Laura Floroian, Mihai Cernat, Transilvania University of Braso, Romania

5. **Energy Efficiency Rating of Transformers under Harmonic Balanced Regime**
   Radu Porumb, Cornel Toader, Nicolae Golovanov, Tudor Leonida, George Seritan, Technical University of Bucuresti, Romania

6. **Comparative Design Analysis of Ferrite-Permanent-Magnet Micro-Wind Turbine Generators**
   Mihai Chirca, Technical University of Cluj-Napoca, Romania

7. **Thermoelectric Generator Emulator for MPPT Testing**
   Elena Anamaria Man, Dezso Sera, Laszlo Mathe, Erik Schaltz, Lasse Rosendahl, Aalborg University, Denmark

Oral Session 8B: Control of Electric Machines
(TRACK-1 ELECTRICAL MACHINES)

4 September 2015-Friday   13:30 – 15:30

Chair:

Room: Green 2

1. **FPGA Implementation of a Predictive Control for a PMSM with Variable Switching Frequency**
   Fernando D. Ramirez-Figueroa, Mario Pacas, University of Siegen, Germany

2. **Controlled capacitor 1 phase a.c. PM generator FEM characterization and circuit model based performance**
   Ion Boldea, Lucian Nicolae Tutelea, Nicolae Muntean, Ana Adela Popa, UPT, Romania

3. **Self-Commissioning of Electrical Parameters for PMSM in Sensorless Drives**
   Cristian Lascu, Gheorghe-Daniel Andreescu, University Politehnica Timisoara, Romania

4. **Flux Control Range Broadening of a DESM by Geometry Optimization**
   Trung-Kien Hoang, Lionel Vido, Frederic Gillon, Mohamed Gabsi, SATIE, ENS Cachan, France

5. **Horizontal I-PD Position Control Of a Levitated Hybrid Electromagnet Driven By 3 Phase Ac Long Stator L-PMSM**
   Mirsad Bucak, Murat Atlıhan, Kadir Erkan, YildizTechnical University, Turkey

6. **A Robust Design for LPMSM with Minimum Motor Current THD Based on Improved Space Vector Modulation Technique**
   Jawad Faiz, Mehdi Manoochehri, Ghazanfar Shahgholian, University of Tehran, Iran

7. **Mechanisms of driver integrated blanking time compensation**
   Axel Rothstein, Volker Staudt, Ruhr-University Bochum, Germany