2015 Intl Aegean Conference on Electrical Machines & Power Electronics (ACEMP 2015), 2015 Intl Conference on Optimization of Electrical & Electronic Equipment (OPTIM2015) & 2015 Intl Symposium on Advanced Electromechanical Motion Systems (ELECTROMOTION 2015)

Side, Turkey
2-4 September 2015

PROGRAMME TIMETABLE

2 September 2015 –Wednesday

09:00 – 10:30	PLENARY SESSION I FORMAL OPENING Address of Welcome by the Conference Chairman LOCATION: ACEMP HALL CHAIR: Thomas M. Jahns, H. Bülent Ertan **Synchronous Motor Drives - A Forgotten Option 1** Thomas Lipo, University of Wisconsin-Madison, USA ***V/f and I/f control of ac Motor Drives: Recent Progress and Perspective 6*** Ion Boldea, Poltehnica of Timisoara, Romania	
10:30 - 10:45	Coffee Break	
10:45 - 12:45	ORAL 1A High Power Converter Topologies and Application (6) Room: Green I	ORAL 1B Brushless DC/Switched Reluctance Machines (5) Room: Green II
12:45 - 14:00	Lunch	
14:00 – 15:30	ORAL 2A-Special Session II Transportation Electrification (5) Room: Green I	ORAL 2B Induction Motors Design & Control (5) Room: Green II
15:30 – 16:00	Coffee Break	
16:00 – 17:45	ORAL 3A Control and Modeling of Power Converters (5) Room: Green I	ORAL 3B-Special Session III Automation, Intelligent Control and Predictive Maintenance for Distributed Renewable Energy Systems (5) Room: Green II

3 September 2015 –Thursday

09:00 – 10:30	**PLENARY SESSION II** LOCATION: ACEMP HALL CHAIR: Thomas A. Lipo, Jawad Faiz **New Reluctance machines 16** Elena Lomonova, Eindhoven University of Technology, Holland **Synchronous Reluctance Technology- The Energy and Cost Efficient Alternative for Standard Drive Application N/A** Sven Kellner, AG Digital Factory Division Motion Control **Synchronous Generators as Distributed Resources in Micro-grids 26** Tom Jahns, University of Wisconsin-Madison, USA
10:30 - 10:45	Coffee Break

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

12:45 - 14:00	Lunch
14:00 – 16:00	POSTER SESSION 1 Power Electronics (9) Renewable Electric Energy Conversion (6) Predictive Maintenance and Control of Distributed Renewable Energy Systems (3) Room: Lobby Tea and Coffee Service

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

20:00	Conference Dinner

4 September 2015 –Friday

09:00 – 10:00	PLENARY SESSION III LOCATION: ACEMP HALL CHAIR: Carmen Gerigan, Jan Vittek **Stator Flux Oriented Control for Traction Drives 35** Volker Staudt, Ruhr University Bochum, Germany **Systematic Evaluation and Improvement of Acoustic Behaviour of Electric Drive Trains 43** 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 (5) Room: Green II
12:15 - 13:30	Lunch	
13:30 – 15:30	POSTER SESSION 2 Electric Machines (19) 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 (6) Room: Green I	ORAL 8B Control of Electric Machines (6) Room: Green II
	Closing Ceremony	

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

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

Chair: Sergey Ryvkin, Timur Aydemir

Room: Green 1

1. **Pre-charging of MMC and power-up of a MMC-based multiterminal HVDC transmission system   50**
   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   56**
   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   62**
   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   68**
   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   76**
   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   81**
   Mohammad Hassan Hedayati, Vinod John, Indian Institute of Science (IISc), India

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

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

Chair: Elena Lomonova, Murat Barut

Room: Green 2

1. **Dual Stator/Rotor Brushless DC Motors: A Review of Comprehensive Modelling Based on Parametric Approach and Coupled Circuit Model   87**
   Durmuş Uygun, Selim Solmaz, Yücel Çetinceviz, Gediz University, Turkey

2. **Brushless Direct Current Motor Efficiency Characterization   94**
   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   100**
   mohammadali abbasian, Hadi Jalali, Islamic Azad University Khomeini shahr Branch, Iran

4. **Electromagnetic and Structural Analysis of a Variable Reluctance Synchronous Machine   105**
   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   111**
   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: Bülent Şarlioğlu

Room: Green 1

1. **The Stability Research of High-speed Railway EMUs and Traction Network Cascade System   117**
   Zhigang Liu, Guinan Zhang, Yicheng Liao, Southwest Jiaotong University, China

2. **Benchmarking of electric and hybrid vehicle electric machines, power electronics, and batteries   123**
   Bulent Sarlioglu, Casey T. Morris, Di Han, Silong Li, University of Wisconsin-Madison, USA

3. **Novel Dual Rotor Single Stator Axial Flux Switching Permanent Magnet Machine with Even Harmonic Elimination Topology   131**
   Ju Hyung Kim, Yingjie Li, Bulent Sarlioglu, University of Wisconsin-Madison, USA

4. **A Supervisory Controller for a Hybrid Energy Storage System with Two Propulsion Machines in Electric Vehicles   138**
   Huseyin A. Yavaşoglu, Junyi Shen, Chuan Shi, Alireza Khaligh, Istanbul Technical University, Turkey

5. **Smart-For-Two Electric Conversion: The Electric Machine   143**
   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: Daniel Andreescu, Ahmed Hamida Boudinar

Room: Green 2

1. **Parameters Calculation of Single- and Double-Cage Models for Induction Motors from Manufacturer Data   149**
   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   155**
   Emrah Zerdali, Murat Barut, Nigde University, Turkey

3. **Numerical multi-objective optimization of a squirrel cage induction motor for industrial application   160**
   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   166**
   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   172**
   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: Volker Staudt, Levent Eren

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   177**
   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   184**
   Bence Kurucso, Alfred Peschka, Peter Stumpf, Istvan Nagy, Istvan Vajk, Budapest University of Technology and Economics, Hungary

3. **Control and Modeling of Push-Pull Forward Three-Level Converter for Microgrid   191**
   Zhilei Yao, Jing Xu, Josep M. Guerrero, Yancheng Institute of Technology, china

4. **Analysis, Modeling and Simulation of a DC Supply with Load Power Control   198**
   Clement Festila, Eva-H Dulf, Roxana Both, Technical University of Cluj-Napoca, Romania

5. **A Generalized Control Approach for Photovoltaic Grid-Tie Micro-inverters   204**
   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: Sorina Costinas, Iulia Stamatescu

Room: Green 2

1. **A Novel Hybrid Approach to Improve the Accuracy of Load Forecasting by IOWA   211**
   Pooria Lajevardy, Fereshteh-Azadi Parand, Hossein Rahimi, Allameh Tabatabai University, Iran

2. **Model Predictive Control Applied for Building Thermal Control   217**
   Giorgian Neculoiu, Valentin Dache, Grigore Stamatescu, Valentin Sgarciu, Politehnica University of Bucharest, Romania

3. **Temperature Control of a Greenhouse Heated by Renewable Energy Sources   223**
   Ramona-Oana Grigoriu, Alina Voda, Arghira Nicoleta, Vasile Calofir, Sergiu-Stelian Iliescu, Politeh JANnica University of Bucharest, Romania

4. **Development of New Protection Solutions for the Renewable Energy Power Plants   229**
   Valentin Vilcu, Transelectrica National Dispatcher, Romania

5. **Analysis of Fly-Back PV Microinverter and Optimizing Control System Using Finite Gradient Descent Method   235**
   Mahshid Khoshlessan, Behzad Asaei, Babak Farhangi, University of Tehran, Iran

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

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

Chair: Mihaela Popescu, Zhilei Yao

Room: Green 1

1. **A Review of the Condition Monitoring of Capacitors in Power Electronic Converters   241**
   Hammam Soliman, Huai Wang, Frede Blaabjerg, Aalborg University, Denmark

2. **Analysis of the properties of damped LCL filters including measurement-based assessment   248**
   Axel Rothstein, Volker Staudt, Volker Trapp, Hans Peter Kratz, Ruhr University, Germany

3. **Ground Leakage Current Reduction in Single-Phase Grid-Connected Power Converter   252**
   Mohammad Hassan Hedayati, Vinod John, Indian Institute of Science (IISc), India

4. **A Survey on the Reliability of Power Electronics in Electro-Mobility Applications   258**
   Brwene Gadalla, Erik Schaltz, Frede Blaabjerg, Aalborg University, Denmark

5. **Characterisation of 10 kV 10 A SiC MOSFET   265**
   Emanuel-Petre Eni, Bogdan Ioan Incau, Tamas Kerekes, Remus Teodorescu, Stig Munk-Nielsen, Aalborg University, Denmark

6. **Comparing Different Switching Techniques For Silicon Carbide MOSFET Assisted Silicon IGBT Based Hybrid Switch   271**
   Sadık Özdemir, Fatih Acar, Uğur Savaş Selamoğulları, Yildiz Technical University, Turkey

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

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

Chair: Thomas Herold, Brian P. Ruddy

Room: Green 2

1. **Drivetrain Integrated Dc-Dc Converter utilizing the Zero Sequence Current of the Starter-Generator in 48V Network Vehicles   277**
   Murat Senol, Rik W. De Doncker, ISEA, RWTH-Aachen, Germany

2. **Overall performances of a high-speed propulsion system through simulation approach   286**
   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   292**
   İlhami Çolak, Murat Şahin, Semih Çakıroğlu, Zafer Esen, Gelişim Univesity, Turkey

4. **Considering Half Bridge Converters for Switched Reluctance Motor Drive Applications   298**
   Petre Doru Teodosescu, Adrian-Cornel Pop, Tiberiu Rusu, Claudia Steluta Martis, Ioana Vintiloiu, Technical University of Cluj-Napoca, Romania

5. **Auto-tuning Fractional Order Velocity Control of a DC Motor   304**
   Eva-H. Dulf, Cristina-I. Muresan, Roxana Both, Csaba Fustos, Technical University of Cluj-Napoca, Romania

POSTER SESSION I

Chair: Sergey Ryvkin, Octavian Cornea, Lale Tükenmez Ergene, Sven Kellner
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   308**
    Mehmet Büyük, Adnan Tan, Kamil Ç. Bayındır, Mehmet Tümay, Çukurova University, Turkey

2. **Indirect Current Control in Active DC Railway Traction Substations   315**
    Mihaela Popescu, Alexandru Bitoleanu, Vlad Suru, University of Craiova, Romania

3. **Analysis of Operation of Power Components Compensation Systems at Harmonic Distortions of Mains Supply Voltage   321**
    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)

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

Chair: Sergey Ryvkin, Octavian Cornea, Lale Tükenmez Ergene, Sven Kellner

Room: Lobby

1. **Five-Level Converter with Selective Harmonic Elimination for STATCOM   329**
   Abdül Balıkçı, Eyüp Akpınar, Dokuz Eylul University, Turkey

2. **High Efficiency Single-Stage and Two-Stage Six-Switch Three-Phase PFC Buck-Type Rectifiers   335**
   Mihaela-Codruta Ancuti, Valeriu Olarescu, Ciprian Sorandaru, Sorin Musuroi

3. **Design of High Frequency Buck Converter for DC Motor Control   341**
   Lale T. Ergene, Abdullah Polat, Liridon Xheladini, Istanbul Technical University

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

5. **THD Improvement of a Bidirectional Flyback Inverter by Sliding-Mode Control   347**
   Octavian Cornea, Gheorghe-Daniel Andreescu, Catalin-Cornel Patrascu, Nicolae Muntean, Politehnica University Timisoara, Romania

6. **PWM Strategy for Improved Natural Balancing of a 4-Level H-Bridge Flying Capacitor Converter   353**
   Anar Ibrayeva, Viktor Ten, Yakov Familiant, Alexander Ruderman, Nazarbayev University, Kazakhstan

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

(TRACK-3)

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

Chair: Corneliu Marinescu, Tom M. Jahns

Room: Lobby

1. **A New Model for Output Power Calculation of Variable-Speed Wind Turbine Systems   359**
   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   365**
   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   370**
   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   376**
   Sergey Ryvkin, Miroslav Chomat, Trapeznikov Institute of Control Sciences RAS, Russian Federation

5. **Induction Motors Best Efficient Operation Points in Pumped Storage Systems   382**
   Andreea Busca-Forcos, Corneliu Marinescu, Cristian Busca, Ioan Serban, Remus Teodorescu, Transilvania University of Brasov, Romania

6. **Simulated, Hands-on and Remote Laboratories for Studding the Solar Cells   388**
   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)

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

Chair: Sergiu Stelian Iliescu, Nicoleta Arghira

Room: Lobby

1. **Yield and availability analysis of grid-connected photovoltaic systems – a case study for Iasi region, Romania   394**
   Ciprian Nemes, Sorina Costinas, Technical University of Iasi, Romania

2. **Multi-Criteria Approach for Maintenance Management in HV Substations   400**
   Sorina Costinas, Cristina Sorana Ionescu, Ioana Opris, Daniela Nistoran, Gabriela Nicoleta Sava, University Politehnica of Bucharest, Romania

3. **Predictive Control for Photovoltaic Tracking Optimization   408**
   Iulia Stamatescu, Grigore Stamatescu, Vasile Calofir, Ioana Fagarasan, Sergiu Stelian Iliescu, University Politehnica of Bucharest, Romania

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

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

Chair: Thomas A. Lipo, Thomas Herold

Room: Green 1

1. **Modification on a simple soft switched boost converter   415**
   Mohammad Mardaneh, Zhale Hashemi, Shiraz University, Iran

2. **Valley Current Mode Control of a Bi-Directional Hybrid DC-DC Converter   421**
   Dan Hulea, Nicolae Muntean, Octavian Cornea, Politehnica University Timisoara, Romania

3. **Design characteristics of SAB and DAB converters   427**
   Christian Fontana, Mattia Forato, Manuele Bertoluzzo, Giuseppe Buja, University of Padova, Italy

4. **A New ZCT-ZVT PWM Interleaved DC-DC Boost Converter   435**
   Naim Süleyman Ting, Yakup Şahin, İsmail Aksoy, Yildiz Technical University, Turkey

5. **A New Zero-Voltage-Transition PWM DC-DC Boost Converter   442**
   Naim Süleyman Ting, İsmail Aksoy, Yakup Şahin, Yildiz Technical University, Turkey

6. **Comparison of Zero Voltage Switching Phase-Shifted PWM Full Bridge DC-DC Converter Topologies   448**
   Huseyin Aksoy, M. Timur Aydemir, Gazi University, Turkey

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

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

Chair: Mircea Radulescu, Mohammadali Abbasian

Room: Green 2

1. **Optimization of Linear Permanent Magnet Synchronous Motors for Needle-free Jet Injection   455**
   Bryan P. Ruddy, Jake Boyce-Bacon, Andrew J. Taberner, The University of Auckland, New Zealand

2. **Optimization in Design of Electric Machines: Methodology and Workflow   462**
   Stjepan Stipetic, Werner Miebach, Damir Zarko, Marie Curie PostDoc Fellow, France

3. **Evaluating Hybrid Optimization Algorithms for Design of a Permanent Magnet Generator   470**
   Erlend L. Engevik, Astrid Roekke, Robert Nilssen, Norwegian University of Science and Technology, Norway

4. **A New Control Technique for Improving Dynamic Performance of Mono-Inverter Dual Parallel Induction Motors in Railway Traction Systems   478**
   Dogan Yildirim, Bulent Caglar, ASELSAN Inc., Turkey

5. **Design Optimization of Flux Barrier Synchronous Reluctance Machines   484**
   Thushanth Mohanarajah, Mahmood H. Nagrial, Jamal H. Rizk, Ali Hellany, University of Western Sydney, Australia

Oral Session 6A: Magnets and Materials. Applications in energy conversion devices

(TRACK-4)

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

Chair: Durmus Uygun, Calin Ciufudean

Room: Green 1

1. **Improved Analytical Method for Hysteresis Modelling of Soft Magnetic Materials   489**
   Septimiu Motoasca, Gheorghe Scutaru, Carmen Gerigan, Transilvania Universiti of Brasov, IEFA, Romania

2. **Electric potential assessment near distribution power lines caused by lightning surge wave propagation   495**
   Elena Larisa Mariut, Elena Helerea, Corneliu Ursachi, Transilvania University of Brasov, Romania

3. **Zero Power Control of a 3 DOF Levitated Multiple Hybrid Electromagnet Flexible Conveyor System   501**
   Ahmet Fevzi Bozkurt, Kadir Erkan, Ömer Faruk Güney, Yildiz Technical University, Turkey

4. **Selection of Soft Magnetic Materials for Particle Accelerator Magnets   507**
   Valentin Pricop, Elena Helerea, Mihai Cernat, Transilvania University of Brasov, Romania

Oral Session 6B: Fault Detection & Control

(TRACK-1 ELECTRICAL MACHINES)

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

Chair: Lucian Nicolae Tutelea, Azeddine Bendiabdellah

Room: Green 2

1. **Short-circuit Fault Diagnosis in Permanent Magnet Synchronous Motors- An Overview   513**
   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   523**
   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   529**
   Jan Vittek, Branislav Ftorek, Peter Butko, Milan Pospisil, Zilina University, Slovak Republic

4. **Wide Band Modeling of an Air-core Reactor for Fast Transient Studies   535**
   Barend van Jarsveld, Dan Valentin Nicolae, , University of Johannesburg, South Africa

5. **Fault Tolerant Control of PMSM Drive Using Sliding Mode Strategy   542**
   Hemza Mekki, Djamel Boukhetala, Mohamed Tadjine, Omar Benzineb, Larbi Chrifi-Alaoui, LCP, Ecole Nationale Polytechnique, Algeria

POSTER SESSION II

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

Chair: Mahmood Nagrial, Stjepan Stipetic, Eva Dulf, Lamia Youb
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   548**
   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   554**
   Erdal Kılıç, Hasan Rıza Özçalık, Şaban Yılmaz, Sami Sit, Kahramanmaras Sutcu Imam University, Turkey

3. **Induction motor bearing fault analysis using Root-MUSIC method   559**
   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)

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   593**
   Ana Hanic, Zlatko Hanic, Mario Vrazic, Damir Zarko, University of Zagreb, Croatia

2. **Fast and Very Fast Electromagnetic Transients of Three-phase Three Legged Transformers: Theoretical Approach and Experiments   599**
   Faouzi Aboura, Sarah Asma Touhami, Ahmed Islam Zama, Redouane Tahmi, Omar Touhami, Ecole Nationale Polytechnique, Algeria

3. **Dynamical Modeling and Analysis of Asymmetric Unbalanced Three-Phase Three Legged Transformers   605**
   Faouzi Aboura, Sarah Asma Touhami, Ahmed Islam Zama, Redouane Tahmi, Omar Touhami, Ecole Nationale Polytechnique, Algeria

4. **Current waveform optimization for ripple-free output torque of transverse flux reluctance machines   612**
   Jacek Borecki, Matthias Joost, Holger Groke, Bernd Orlik, IALB - University of Bremen, Germany

5. **Analytical Design of a PMSMs by Using Magnets Bars With Different Remanence   617**
   Brahim Ladghem Chikouche, Kamel Boughrara, Rachid Ibtiouen, univrsité md boudiaf, Algeria

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   624**
   Pavol Rafajdus, Adrian Peniak, Milan Diko, Juraj Makarovic, Peter Bubravka, Valeria Hrabovcova, University of Zilina, Slovak Republic

2. **Single-Phase Stator-Ferrite PM Double Saliency Motor Performance and Optimization   630**
   Flavio Kalluf, Aline Juliani, Aleandro Espindola, Ion Boldea, Lucian Tutelea, Andy-Sorin Isfanuti, Arthur Laureano, Marco Gianesini, Roberto Kinceler, Embraco, Brazil

3. **The Influence of the Pole Asymmetry on the BLDC Motors   636**
   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   641**
   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   646**
   Constantin Apostoaia, Mihai Cernat, Purdue University Calumet, USA

3. **The enhancements of broken bar fault detection in induction motors   652**
   Azeddine Bendiabdellah, Ahmed Hamida Boudinar, Noureddine Benouzza, Mohammed El-amine Khodja, University of Sciences and Technology of Oran, Algeria

4. **Lighting impulse voltage distribution vs. transformer insulation design   658**
   Boruz Mircea Alexandru, Mircea Paul Mihai, Mihai Catalin, University of Craiova, Romania

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

(Special Session II)

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

Chair: Daniel Fodorean, Camara Mamadou Bailo

Room: Green 2

1. **Energy Management for Hybrid Electric Vehicles using load's power fluctuating compensation-Ultracapacitors and Lithium-battery   664**
   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   670**
   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   678**
   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: Carmen Gerigan, Lale Tükenmez Ergene

Room: Green 1

1. **Irregular Wave Energy Extraction Analysis for A Slider Crank WEC Power Take-off System   684**
   Yuanrui Sang, Bora Karayaka, Yanjun Yan, James Zhang, Eduard Muljadi, Western Carolina University, USA

2. **Spatial Magnetic Field Polarization below Balanced Double-Circuit Linear Configured Power Lines for Six Phase Arrangements   691**
   Akinlolu Ponnle, Bolanle Abe, Adisa Jimoh, Tshwane University of Technology, South Africa

3. **Ageing of Photovoltaic Cells Under Concentrated Light   698**
   Daniel Tudor Cotfas, Petru Adrian Cotfas, Dan Floroian, Laura Floroian, Mihai Cernat, Transilvania University of Braso, Romania

4. **Energy Efficiency Rating of Transformers under Harmonic Balanced Regime   704**
   Radu Porumb, Cornel Toader, Nicolae Golovanov, Tudor Leonida, George Seritan, Technical University of Bucuresti, Romania

5. **Comparative Design Analysis of Ferrite-Permanent-Magnet Micro-Wind Turbine Generators   711**
   Mihai Chirca, Stefan Breban, Claudiu Oprea, Mircea M. Radulescu, Technical University of Cluj-Napoca, Romania

6. **Thermoelectric Generator Emulator for MPPT Testing   717**
   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: Dan NICOLAE, Noureddine Benouzza

Room: Green 2

1. **FPGA Implementation of a Predictive Control for a PMSM with Variable Switching Frequency   722**
   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   728**
   Ion Boldea, Lucian Nicolae Tutelea, Nicolae Muntean, Ana Adela Popa, UPT, Romania

3. **Self-Commissioning of Electrical Parameters for PMSM in Sensorless Drives   735**
   Cristian Lascu, Gheorghe-Daniel Andreescu, University Politehnica Timisoara, Romania

4. **Horizontal I-PD Position Control Of a Levitated Hybrid Electromagnet Driven By 3 Phase Ac Long Stator L-PMSM   741**
   Mirsad Bucak, Murat Atlıhan, Kadir Erkan, YildizTechnical University, Turkey

5. **A Robust Design for LPMSM with Minimum Motor Current THD Based on Improved Space Vector Modulation Technique   748**
   Jawad Faiz, Mehdi Manoochehri, Ghazanfar Shahgholian, University of Tehran, Iran

6. **Mechanisms of driver integrated blanking time compensation   755**
   Axel Rothstein, Volker Staudt, Ruhr-University Bochum, Germany