PROGRAMME

INTERNATIONAL AEGEAN CONFERENCE on ELECTRICAL MACHINES and POWER ELECTRONICS
&
ELECTROMOTION
Joint Conference

ISTANBUL TURKEY
8-10 September 2011

Organizers:

Middle East Technical University

Bahçeşehir University

Technically SponsoredBy:

IEEE

PELS

PES Motor Sub-committee

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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. Many new conferences emerged since 1992 and ACEMP is now moving towards improving its quality. To achieve this goal ELECTROMOTION and ACEMP are jointly organized once again in 2011. Furthermore, the conference is technically co-sponsored by IEEE-PES (Electric Machinery Committee) and IEEE-PELS.

Once again 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 Asia, Europe and United States.

Some of the selected papers presented at the meeting will be given the opportunity of being published by the international scientific quarterly journal ELECTROMOTION that is indexed by INSPEC.

TOPICS

Electrical Machines: Theory, design, analysis, modeling, diagnostics, simulation, control and testing of conventional and special machines, including permanent magnet and switched reluctance machines.
Magnets and Materials: Design and applications in energy conversion devices.
Electrical Drives: Design, performance analysis, modeling and simulation, new concepts.
Power Electronics: Novel circuits, modeling, computer aided design, analysis and simulation.

LANGUAGE

The working language of the conference is English.

PROGRAMME TIMETABLE

8 September 2011 – Thursday

	ASELSAN CONFERENCE HALL		
09:00 – 10:30 hrs	FORMAL OPENING Address of Welcome by the Conference Chairman PLENARY SESSION I Chair: Prof. Dr. İ. Çolak **Active Flux Model-Based AC Sensorless Drives: A Review with IPMSM, SM and RelSM Case Studies** Prof. Dr. I. Boldea, University Politechnica of Timisoara, ROMANIA **Electric Generators and Power Electronics Converters for Wind Turbines.** Dr. D. Ionel, Vestas Technolgy R&D, USA.		
10:30 - 10:45 hrs	Coffee Break		
Chair	Prof. Dr. K. Yazid, Prof. Dr. E. Akpınar	Prof. Dr. D. Ionel, Ast. Prof.Dr.M. Caner	Prof. Dr. M. E.Tacer, Ast.Prof.Dr.S. Youcef
10:45 - 12:45 hrs	1A-Brushless DC Motors: Control	1B-Wind Energy	1C-Power Electronics
12:45 - 14:00 hrs	Lunch		
Chair	Prof. Dr. R. Kennel	Prof. Dr. R. Jardan, Ast.Prof Dr. M. Barut	Prof.Dr.M.Enokizono, Asc.Prof.Dr.L.Ergene
14:00 – 15:30 hrs	2A-Switched Reluctance Motors	2B-Power Electronics	2C- Induction Motors
15:30 – 16:00 hrs	Coffee Break		
Chair	Prof. Dr. D. Petreus, Prof. Dr. M.J.Devaney	Prof. Dr. L. Pestana, Asst. Prof. Dr. L. Eren	Prof. Dr. B. Horia, Asc.Prof.Dr.M.Aydın
16:00 – 17:30 hrs	3A-Power Electronics	3B- Switched Reluctance Motors	3C-Fault Detection
18:00 – 19:00 hrs	Bosphorus Tour		
19:15	OPENING COCKTAIL		

	ASELSAN CONFERENCE HALL		
09:00 - 10:30 hrs	PLENARY SESSION IIChair: Prof. Dr. H. B. Ertan **Research and Development of Electric Vehicle Key Technology in China** Prof. Dr. W. Xuhui, Chinese Academy of Sciences, CHINA **Survey on Electrical Powertrain Technologies** M. Karamuk, TOFAŞ R&D EE Design, TURKEY **Renault Fluence Electric Vehicle; Modeling Lithium Ion Battery and Battery Management** Oyak-Renault team, Oyak-Renault R&D, TURKEY		
10:30 - 10:45 hrs	Coffee Break		
Chair	Prof.Dr.L.Szentirmai, Prof. Dr. G. Önbilgin	Prof. Dr. B. Tahar, Asc.Prof.Dr.L.Ergene	Prof. Dr. W. Xuhui, Asc.Prof.Dr.R.Bayındır
10:45 - 12:45 hrs	4A-Induction Motors: Control	4B-Synchronous Machines	4C-Electrical Vehicles 4D- Education
12:45 - 14:00 hrs	Lunch		
Chair	Prof. Dr. I. Boldea, Ast.Prof.Dr.L.Ovacik	Prof.Dr. M.Radulescu	Prof. Dr. E. Akpınar
14:00 – 15:30 hrs	5A- Electrical Drives	5B-Power Electronics	5C-Power Quality
15:30 - 16:00 hrs	Coffee Break	Poster Session	
Chair	Prof. Dr. E. Kovacs, Prof. Dr. E. Akın	Prof. Dr. E. Afjei, Prof. Dr. E.Akpınar	Prof. Dr. R. Carlson, Prof. Dr. N. Tuncay
16:00 - 17:30 hrs	6A-Induction Motors	6B-Power Electronics	6C-Brushless DC
20:00	GALA DINNER		

10 September 2011 – Saturday

	ASELSAN CONFERENCE HALL	
09:00 - 10:30 hrs	PLENARY SESSION IIIChair: Prof. Dr. I. Boldea **Vector Magnetic Characteristic Technology for Development of IE4 Level Motor** Prof. Dr. M. Enokizono, Oita University, Faculty of Engineering, JAPAN **Internet in the service of Electrical Machinery and Drives** Prof. Dr. T. Szarka, L. Szentirmai A. Varadi, University of Miskolc, HUNGARY **Replacement of Electrical (Load) Drives by a Hardware-in-the-Loop System** Prof. Dr. R. Kennel, Technical University Munchen, GERMANY	
10:30 - 10:45 hrs	Coffee Break	
Chair	Prof. Dr. F. Rahman, Asc. Prof. Dr. R. Bayındır	Asc. Prof. Dr. M. T. Aydemir
10:45 - 12:45 hrs	7A-Permanent Magnet Machine: Design	7B- Solar Sysyems
12:45 - 14:00 hrs	Lunch	
Chair	Prof. Dr. C. Aurel, Asc. Prof. Dr. M. Aydın	Prof. Dr. J. Lettl, Asc. Prof. Dr. M. T. Aydemir
14:00 - 15:30 hrs	8A-Analysis of Electrical Machines	8B- Electrical Drives: General
15:30 - 16:00 hrs	Coffee Break	
Chair	Prof. Dr. S. Sheel, Prof. Dr. M.C. Chandorka	Prof. Dr. H. Yaguchi, Ast. Prof. Dr. L. Ovacik
16:00 - 17:30 hrs	9A- Power Electronics	9B-Electrical Machines: Design

PLENARY SESSION I
ASELSAN CONFERENCE HALL

08 September 2011 - Thursday 9:00-10:30

Chair: Prof. Dr. İ. Çolak

1 **Active Flux Model-Based AC Sensorless Drives: A Review with IPMSM, SM and RelSM Case Studies**
Prof. Dr. I. Boldea, University Politechnica of Timisoara, Romania

2 **Electric Generators and Power Electronics Converters for Wind Turbines**
Dr. D. Ionel, Vestas Technolgy R&D, USA

Session 1A: BRUSHLESSDC MOTORS: Control

08 September 2011 - Thursday 10:45-12:45

Chair: Prof. Dr. K. Yazid, Prof. Dr. E. Akpınar

1 Adaptive Nonlinear Control Combined with Unscented Kalman Filter for Permanent Magnet Synchronous Motor Fed by AC/DC/AC Converter
A. Titaouine, D. Taibi, A. Bennis, F. Benchabane, R. Boumaraf, K. Yahia,University of Biskra, Algeria

2 A Sensorless Commutation Strategy for a Brushless DC Motor Drive System Based on Detection of Back Electromagnetic Force
S.Tsotoulidis, A. Safacas, E. Mitronikas, University of Patras, Greece

3 Analysis and Design of a Nonlinear Torque Controller for PMSM Drive System
H. Hamidpour, G. Shahgholian, P. Shafaghi, Islamic Azad University, Iran

4 Direct Torque and Indirect Flux Control of Four-Switch Brushless DC Motor with Non-Sinusoidal Back-EMF without Position Sensor
G. R. Arab Markadeh, R. Heidari, S. Abazari, Y. Abdollahi, Azad University, Shahrekord University, Iran

5 Control of BLDC Motor in Presence of Static Rotor Eccentricity
S. M. Shakouhi, M. Mohamadian, S. Afjei, Tarbiat Modares University, Shahid Beheshti University, Iran

6 Robustness Adaptive Control for a PMSM
S. Rebouh, A. Kaddouri, R. Abdessemed, A. Haddoun, University of Batna, University of Moncton Canada, University of Oum El Bouaghi, Algeria

Session 1B: WIND ENERGY

08 September 2011 - Thursday 10:45-12:45

Chair:Prof. Dr. D. Ionel, Assist. Prof. Dr. M. Caner

1 Hardware in the Loop Wind Turbine Emulator
N. Muntean, L. Tutelea, D. Petrila, O. Pelan, University Politehnica, Romania

2 Maximum Power Point Tracking Based on Sliding Mode Control
K. Boulâam, A. Boukhelifa, University of Sciences and Technology Houari Boumediene, Algeria

3 Effects of Wind Turbines on Voltage Profile
T. Abedinzadeh, M. Ehsan, H. Afsharirad, M. Nazaraliloo, Islamıc Azad Universty, Iran

4 New Strategy for Optimization of Output Power of a DFIG Wind Turbine
T. Abedinzadeh, M. Ehsan, H. Afsharirad, M. Nazaraliloo, Islamıc Azad Universty, Iran

5 Energy Conversion System with Doubly-Fed Induction Generator in healthy and Fault Condition via Simulation
D.G.Giaourakis, A. N.Safacas,S.Tsotoulidis, University of Patras,Greece

6 Quality Analysis of The Energy Produced by a Wind Turbine Based on a DFIG Driven by a Matrix Converter
Y. Soufi, T. Bahi, S. Ghoudelbourk, S. Lekhchine, H. Merabet, University of Tébessa, Badji Mokhtar University, University 20 August, Industrial Technology Unit Research, Algeria

Session 1C: POWER ELECTRONICS

08 September 2011 - Thursday 10:45-12:45

Chair:Prof. Dr. M. E. Tacer, Assist. Prof. Dr. S. Youcef

1 A Novel Control Strategy for Three-Phase UPS Based on B-Spline Network
M. Niroomand, Y. Farhadi, P. Moallem, University of Isfahan, Iran

2 Novel Reduced Switches Single-Phase to Three-Phase on-line Uninterruptible Power Supply
M. Sharifian, M. Niroomand, University of Isfahan, Iran

3 Operation Analysis of an AC/DC Converter with Quasi-Active Power Factor Correction
M. Rahmatian, J. Sh. Moghani, B. Abdi, G. B. Gharehpetian, Amirkani University, Islamic Azad University, Iran

4 Compensation of dead-time Effects in Three-Level Neutral Point Clamped Inverters Based on Space Vector Pulse Width Modulation
H. Meşe, A. Ersak, Aselsan AŞ ,Middle East Technical University, Turkey

5 A New Dual-Input Hybrid Buck DC-DC Converter
M. Gavris, N. Muntean, O. Cornea, "Politehnica" University of Timisoara, Romania

6 A New Selective Harmonic Elimination Method for Wind Farm Using Permanent Magnet Synchronous Generator, Under Wind Speed Change
M. Ebadi, M. Joorabian

Session 2A: SWITCHED RELUCTANCE MOTORS

08 September 2011 - Thursday 14:00-15:30

Chair:Prof. Dr. R. Kennel

1 New Modified C-Dump Drivers with PI Capacitor Bridge for Switched Reluctance Motor
V. Najmi, A. Siadatan, E. Afjei, M.S. Afjei, Shahid Beheshti University, Azad University, Iran

2 An Innovative Bifilar Drive Circuit for Switched Reluctance Motors
S. M. Ebrahimi, V. Najmi, S.. Y. Ebrahimi, H. Oraee, Sharif University of Technology, Iran

3 Wide-Speed Range Control Strategy for a 8/6 Switched Reluctance Machine
A. C. Pop, V. Petrus, C. S. Martis, V. Iancu, J. Gyselinck, Technical University of Cluj-Napoca, Romania, Universite Libre de Bruxelles, Belgium

4 Simulation and Experimental Verification of Input/Output Currents in a Stand-Alone Switched Reluctance Generator for Different Speeds
E.Afjei, M.Asgar, A.Siadatan, H.Bagherian, Shahid Beheshti University G.C. Iran

5 A Simulink Nonlinear Model for LSRA Control Scheme Analysis
L. M. Pestana, M. do Rosaria A. Calado, S. S. Mariano, Escola Superior de Tecnologia de Viseu Campus Politecnico, Universidade da Beaira Intarior Calcada Fonte do Lameiro, Portugal

6 Design of a Tubular Switched Reluctance Linear Generator for Wave Energy Conversion Based on Ocean Wave Parameters
R. P. G. Mendes, M. R. A. Calado, S. J. P. S. Mariano, C. M. P. Cabrita

Session 2B: POWER ELECTRONICS

08 September 2011 - Thursday 14:00-15:30

Chair: Prof. Dr. R. Jardan, Assist. Prof. Dr. M. Barut

1 Stability Analysis of AC-DC Unity Power Factor PWM Boost Rectifier with Hysteresis Current Controller
K. Vardar, E. Akpınar, Dokuz Eylul University, Turkey

2 A Novel Multılevel Converter Used for Three Phase Statcom Under Unbalaced Load
A. Balikci, E. Akpınar, Dokuz Eylul University, Turkey

3 Cascaded Multilevel Inverters Fault Control
A. Farzaneh, J. Nazarzadeh, Islamic Azad University, Iran

4 Analysis and Design of A Bidirectional DC-DC Converter with Current Doubler Rectifier Used n Smart Grid
T. Patarau, D. Petreus, S. R. Daraban, R.A. Munteanu, D. Moga, A. Rusu, Technical University of Cluj-Napoca, Romania

5 A Single Phase Buck-Boost AC-AC Converter with Improved Input Current THD and Input Power Factor
A. H. Abedin, A. Kabir, E. Ahmad, D. Rahman, M. A. Choudhury, BRAC University, Bangladesh University of Engineering and Technology, Bangladesh

6 Modeling, Analysis and Control of an Isolated Boost Converter for System Level Studies
B. Zahedi, L. E. Norum,Norwegian University of Science and Technology

Session 2C: INDUCTION MOTORS

08 September 2011 - Thursday 14:00-15:30

Chair: Prof. Dr. M. Enokizono, Assoc. Prof. Dr. L. Ergene

1 **Torque Components Identification of Induction Machine by FEM**
M. Skalka, C. Ondrusek, L. Schreier, P. Michailidis, Brno University of Technology, Czech Republic

2 **Sensorless Direct Torque Control for Saturated Induction Motor using Extended Kalman Filter**
T. Djellouli, S. Moulahoum, M. S. Boucherit, N. Kabache, Dr Yahia Farès University, Algeria

3 **Complex Dynamic Models of Star And Delta Connected Multi-Phase Asynchronous Motors**
R. Zanasi, G. Azzone, University of Modena e Reggio Emilia, Italy

4 **A New Insight into Six Phase Induction Machine Modeling under Open Phase Fault Condition**
M. Deilemani, R. Kianinezhad, S. Seifossadat, M. Keramatzade, Shahid Chamran University of Ahvaz, Iran

5 **Vector Magnetic Characteristic Analysis of Induction Motor considering Effect of Harmonic Compnent due to Seconday Slot**
M. Enokizono, N. Kunihiro, Oita University, Japan

6 **The Asynchronous High Speed Motor for an Axial Compressor Application**
M.Ignat, C.Haraguta, National Institute of Electrical Engineering of Bucharest,Romania

Session 3A: POWER ELECTRONICS

08 September 2011 - Thursday 16:00-17:30

Chair: Prof. Dr. D. Petreus, Prof. Dr.M.J.Devaney

1 Optimization of Voltage Levels in Multilevel Inverters

H. Ziar, E. Afjei, A. Siadatan, S. Mansourpour, Shahid Beheshti University G.C., Islamic Azad University, Iran

2 A New Approach for SVPWM of a Three Level Inverter-Induction Motor Fed-Neutral Point Balancing Algorithm

T. G. Nathenas, G. A. Adamidis, Democritus University of Thrace, Greece

3 Effect of Mobility on (IV) Characteristics of Gaas Mesfet

Y. Saidi, W. Alliouat, I. Hamma, M. Zaabat, M. Azizi, C. Azizi, Mentouri University Constantine, Algeria

4 DC-Space Vector Abstraction in The Virtual DC-Link Matrix Converter Theory

S. Fligl, J. Lettl, A. Steimel, Czech Technical Univesity, Czech Republic, Ruhr-University Bochum, Germany

5 A Study of IGBT Rupture Phenomenon

J. Saleem, A. Majid, S. Haller, K. Bertilsson, Mid Sweden University, Sweden

6 Design of a Parameter Determination System for Non-Isolated Converter Topologies
I. Colak, E. Irmak, M. Yesilbudak, E. Kabalci, Gazi University, Nevsehir University, Turkey

Session 3B: SWITCHED RELUCTANCE MOTORS

08 September 2011 - Thursday 16:00-17:30

Chair: Prof. Dr. L. Pestana, Asst. Prof. Dr. L. Eren

1 **A New 6/4 Two Layers Switched Reluctance Motor: Concept, Simulation and Analysis**
A.Siadatan, V.Najmi, M.Asgar, E.Afjei, Islamic Azad University, Shahid Beheshti University G.C., Iran

2 **An Analytical Network for Switched Reluctance Machines with Highly Saturated Regions**
Q. Yu, C. Laudensack, D.Gerling, Universiteat der Bundeswehr Muenchen, Germany

3 **A Novel 4/4 Multilayer Switched Reluctance Motor with 4 Magnetically Independent Layers**
A.Siadatan, V.Najmi, E.Afjei, Shahid Beheshti University G.C., Iran

4 **Dynamic Model of a Three-Phase Full-Bridge Inverter-Fed Switched Reluctance Motor for Optimization Purposes**
D. Ilea, M. M. Radulescu, F. Gillon, P. Brochet, Technical University of Cluj-Napoca, Romania

5 **Magnitostatic Analysis of a Novel Three Phase 6/4 Two Layer Field-Assisted Switched Reluctance Generator**
V.Najmi, A.Siadatan, M.Asgar, E.Afjei, Shahid Beheshti University G.C, Iran

6 **Direct Torque Control of a 4-Phase Switched Reluctance Machine**
V. Petrus, A. C. Pop, C. S. Martis, V. Iancu, J. Gyselinck, Technical University of Cluj-Napoca, Romania, Universite Libre de Bruxelles, Belgium

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Session 3C: FAULT DETECTION

08 September 2011 - Thursday 16:00-17:30

Chair: Prof. Dr. B. Horia, Assoc. Prof. Dr. M. Aydın

1 Fault Identification of Rotating Electric Machines using Comparative Analysis Methods
H. Balan, I. Vadan, M. Buzdugan, A. Botezan, P. Karaissas, Technical University of Cluj Napoca, Greece

2 Numerical Modelling and Experimental Analysis of Vibratory and Acoustics Behaviours of a Special Design Squirrel-Cage Three-Phase Asynchronous Machine
R. M. Ionescu, A. Negoita, A. N'Diaye, D. Torregrossa, A. Djerdir, A. Miraoui, Gh. Scutaru, Transilvania University of Brasov Romania, University of Technology of Belfort-Montbéliard, France

3 Line Current Analysis for Bearing Fault Detection Induction Motors using Hilbert Transform Phase
Oumaamar M.E.K., Razik. H., Rezzough A.,Khezzar A. Université Henri Poincaré, Université Mentouri-Constantine Algeria, Université Claude Bernard Lyon, France

4 Turn to Turn Fault Diagnosis for Induction Machines Based on Wavelet Transformation and BP Neural Network
A. Najafi, I.Iskender, P. Farhadi, B.Najafi, Islamic Azad University Iran, Gazi University Turkey

5 Fuzzy System Based Fault Detection Method using ZCT Signals
I. Aydın, M. Karakose, E. Akın, Firat University, Turkey

6 Experimental Investigation of New Indices of Broken Rotor Bar in Induction Motor
Oumaamar M.E.K., Razik. H., Rezzough A.,Chemali H., Khezzar A., Université Henri Poincaré, Université Mentouri-Constantine Algeria, Université Claude Bernard Lyon, France

PLENARY SESSION II
ASELSAN CONFERENCE HALL

09 September 2011 - Friday 9:00-10:30

Chair: Prof. Dr. H. B. Ertan

1 Research and Development of Electric Vehicle Key Technology in China
Prof. Dr. W. Xuhui, Chinese Academy of Sciences,China

2 Survey on Electrical Powertrain Technologies
M. Karamuk, TOFAŞ R&D EE Design, Turkey

3 Renault Fluence Electric Vehicle; Modeling Lithium Ion Battery and Battery Management
Oyak-Renault team, Oyak-Renault R&D, Turkey

Session 4A: INDUCTION MOTORS: Control

09 September 2011 - Friday 10:45-12:45

Chair: Prof. Dr. L. Szentirmai, Prof. Dr. G. Önbilgin

1 Nonlinear Integral Backstepping Control for Induction Motors
F. Mehazzem, A. L. Nemmour, A. Reama, H. Benella, Oum El Bouaghi University, Constantine University,
Algeria, University Paris-Est, France

2 Improvement in Speed Control of a Six-Phase Induction Motor Using Fuzzy Control and Genetic Algorithm
A. Kargar, D. Ghanbari, N. R. Abjadi, K. Rahmati, Shahrekord University, Iran

3 Speed-Sensorless Direct Torque Control System using Bi-Input Extended Kalman Filter for Induction Motors
M. Barut, R. Demir, E. Zerdali, R. Inan, Nıgde University, Turkey

4 Speed Sensorless Field Oriented Control for Saturated Induction Motor using Extended Kalman Filter
T. Djellouli, S. Moulahoum, S. Boucherit, N. Kabache, Universite Dr. Yahia Fares, Algeria

5 Efficiency Control of Single Phase Induction Motor Drive
Y. A. Asadabadi, G. A. Markadeh, J. Soltani, R. Heidar, Shahrekord University, Azad University, Iran

6 Application of EKF to Parameters Estimation for Speed Sensorless Vector Control of Two-Phase Induction Motor
K. Yazid, K. Bouhoune, M. Menaa, A. Larabi, Universite des Sciences et de la Technologie Houari Boumediene, Algeria

Session 4B: SYNCHRONOUS MACHINES

09 September- Friday 2011 - 10:45-12:45

Chair: Prof. Dr. B. Tahar, Assoc. Prof. Dr. L. Ergene

1 Sliding Mode Control of Permanent Magnet Synchronous Motor Fed by Wind Turbine Generator Takıng Saturation Effect into Account

F. Benchabane, A.Titaouine, O. Bennis, A. Guettaf, K. Yahia, D. Taibi, University of Biskra, Algeria, University of Orléans, France

2 Modeling of Multi Open Fault Condition of Multi-Phase Permanent Magnet Synchronous Motors

M. Fei, R. Zanasi, University of Modena e Reggio Emilia, Italy

3 Eddy Current Losses in Permanent Magnets of High Speed Synchronous Generator

F. Martin, N. Bernard, M.E. Zaim, A. Tounzi, R. Fratila, University of Nantes, University of Lille Nord de France, France

4 Simulation of Dynamic Operation in Salient Pole Synchronous Machines

T. Dordea, R. Munteanu, A. Campeanu, Romanian Academy , Technical University of Cluj Napoca, University of Craiova, Romania

5 Speed Control By Sliding Mode of Synchronous Motor

T. Bahi, S. Lachtar, Y. Soufi, S. Lekchine, H. Merabet, Badji Mokhtar University, Tebessa Univesity, Industrial Technology Unit Research, Algeria

6 Control Strategy of Permanent Magnet Synchronous Generator for Stand Alone Power Generation System

N. Lachguer, M.T. Lamchich, Cadi Ayyad University, Morocco

Session 4C: ELECTRICAL VEHICLES

09 September 2011 - Friday 10:45-12:05

Chair: Prof. Dr. W. Xuhui, Assoc. Prof. Dr. R. Bayındır

1 Efficiency Optimization of a Direct Torque Controlled Induction Motor Used in Hybrid Electric Vehicles
E. Sergaki, S. D. Moustaizis, Technical University of Crete, Greece

2 Performance Evaluation of Hybrid Powertrain System Simulation Model for Toyota Prius Car
I. Sefik, T. Hiyama, Graduate School of Science and Technology Kumamoto University, Japan

3 Modeling and Control of Interleaved Multiple-Input Power Converter for Fuel Cell Hybrid Electric Vehicles
O. Hegazy, J. V. Mierlo, P. Lataire, Vrije Universiteit Brussel, Belgium

4 Modelling and Precalculation of Additional Losses of Inverter Fed Asynchronous Induction Machines for Traction Applications
F. Müllner, H. Neudorfer, E. Schmidt, Traktionssysteme Austria, Vienna University of Technology, Austria

5 Investigations on Efficiency Improvements of Electrical Propulsion System for a Light Airplane
J. Bernatt, P. Pistelok, E. Krol, Research and Development Centre of Electrical Machines Komel, Poland

Session 4D: EDUCATION

09 September 2011 - Friday 12:05-12:45

Chair: Prof. Dr. W. Xuhui, Assoc. Prof. Dr. R.Bayındır

1   **Design and Implementation of A Remote Access PLC Training Set**
I. Colak, A. Efe, Gazi University, Turkey

2   **C#.Net And Matlab Based Simulation Program For Basic Electrical Circuits**
R. Bayındır, O. Kaplan, C. Can, Gazi University, Turkey

Session 5A: ELECTRICAL DRIVES

09 September 2011 - Friday 14:00-15:30

Chair: Prof. Dr. I. Boldea, Assist. Prof. Dr. L. Ovacik

1 Four-Quadrant Operation of PMSM Drive Fed by a Matrix Converter
O. Aydogmus, S. Sunter, Fırat University, Turkey

2 Speed Control of DC Motor Using PID Controller with Buck Converter as Final Control Element: A Case Study
Dr. S. Sheel, O. Gupta, MN National Instute of Technology, India

3 Motor Current Signature Analysis via M-hannel FIR osine-Modulated Filter Banks
L. Eren, M. J. Devaney, Bahçeşehir University, Turkey, University of Missouri-Columbia, USA

4 Speed Control of Linear Induction Motor Based on Genetic-Fuzzy Algorithm
M. Abbasian, S. Shahghasemi, F. Sheikholeslam, Islamic Azad University, Iran

5 Dynamic Modeling of The Universal Motor Used in Washers
A. Polat, L. T. Ergene, A. Fırat, Istanbul Technical University, Arçelik A.Ş., Turkey

Session 5B: POWER ELECTRONICS

09 September 2011 - Friday 14:00-15:30

Chair: Prof. Dr. M. Radulescu

1 Modeling of non-ideal Improved Switched Inductor (SL) Z-source Inverter
M. A. Ismeil, R. Kennel, A. Ibrahim, M. Orabi, M. E. Ahmed, University of Technology, Germany

2 Comparison of Current Balancing Configurations for Primary Parallel Isolated Boost Converter
G. Sen, S. M. Dehghan, O. C. Thomsen, M. A. E. Andersen, L. Moller, Qom University of Technology, Iran, H2 Logic A/S, Denmark

3 Modeling and Control of Multilevel Three -Phase Current Source Inverter
R.Guedouani, B. Fiala, E.M. Berkouk, M.S. Boucherit, University of Technology and Sciences Houari Boumediene, High School of Polytechnic, Algeria

4 Operation of Three-Phase Power Factor Corrected (PFC) Rectifiers
D. Mazur, Rzeszow University of Technology, Poland

5 A Novel Bridgeless Power Factor Correction with Interleaved Boost Stages in Continuous Current Mode
Q. Li, M. A. E. Andersen, O. C. Thomas, Technical University of Denmark, Denmark

6 A Novel Topology for Producing Power Level Sinusoidal Output
H. B. Ertan, E. Doğru, Middle East Technical University, Turkey

Session 5C: POWER QUALITY

09 September 2011 - Friday 14:00-15:30

Chair: Prof. Dr. E. Akpınar

1 Comparison of Three Phase 4-Leg Shunt Active Power Filter Algorithms
C. Balanuta, G. Gurguiatu,T. Munteanu, G. Fetecau, Dunărea de Jos University, Romania

2 Advanced Active Power Filter to Improve Power Quality
G. Gurguiatu, C. Balanuta, E. Roşu, T. Munteanu, M.Dimitrescu, E. Raducan, Dunărea de Jos University of Galati, Romania

3 A Novel and Simple Technique for Compensation of Single-Phase Voltage Disturbances
D. Mirabbasi, M. Heidari, Islamic Azad University, Iran

4 Damping of Power System Oscillations with an Optimal Regulator
S.J.P.S. Mariano, J.A.N. Pombo, M.R.A. Calado, L.A.F.M. Ferreira, University of Beira Interior Covilhã, Instituto Politecnico de
Castelo Branco, Technical University of Lisbon Intituto Superior Tecnico Lisbon, Portugal

5 Unit Commitment by Dynamic Programming for Microgrid Operational Planning Optimization and Emission Reduction
H. Kanchev, B. Francois, V. Lazarov, Technical University-Sofia, Bulgaria

6 Four Wire Shunt Active Power Filter Based on Four-Leg Inverter
Kouzou A, Abu Rub H, Mahmoudi M.O, Boucherit M.S, Kennel R., Djelfa University, Algeria, Texas A&M University at Qatar, National Polytechnic School, Algeria, 4Institute for Electrical Drive Systems and Power Electronics, Germany

7 Voltage Profile Improvements of Mosul City Ring System by STATCOM Reactive Power Control
D. Al-Nimma, University of Mosul, Iraq

Poster Session

Chair: Asst. Prof. Dr. L. Eren

1   **New Real Coordinates Model for an Asymmetrical Six-Phase Induction Machine**
D. Foito, P. Silva, T. Barbosa, J. Maia, V. Fernão Pires, J. F. Martins, Instituto Politécnico de Setúbal, Universidade Nova Lisboa, Portugal

2   **A Multilevel Voltage Source Inverter for Two-Phase AC Motor Drive Systems**
M. Guerreiro, V. Fernão Pires, D. Foito, A. Cordeiro, Instituto Politécnico de Setúbal, Setúbal, Instituto Politécnico de Lisboa, Portugal

3   **Dynamical Performances of Sensorless Vector Control of Induction Motor Drive with a New Adaptive Neural Network Speed Observer**
M. Zerikat, A. Mechernène, S. Chekroun, Enset, Usto, Algeria

4   **Voltage Profile Improvements of Mosul City Ring System by STATCOM Reactive Power Control**
D. Al-Nimma, University of Mosul, Iraq

5   **Assessment of Two Control Methods for Induction Machine**
H. Chaikhy, M. Khafallah, A. Saad, K. Chikh, M. Es-Saadi, Hassan II University-ENSEM, Morocco

6   **Fuzzy Logic Control for a Speed of a Flywheel Energy Storage System Associated the Wind Generator**
I. Hamzaoui, F. Bouchafaa, A. Talha, A. Boukhlifa, University of Sciences and Technology Hourai Boumedience, Algeria

Session 6A: INDUCTION MOTORS

09 September 2011 - Friday 16:00-17:30

Chair: Prof. Dr. E. Kovacs, Prof. Dr. E. Akın

1 A Nonlinear Luenberger Observer for Sensorless Vector Control of Induction Motors
A. Savoia, M. Mengoni, L. Zarri, D. Casadei, University of Bologno, Italy

2 Investigation of Self-Excited Ultrahigh Speed Induction Generators for Distributed Generation Systems
R. K. Jardan, Z. Varga, I. Nagy, University of Budapest, Hungary

3 Induction Motors with Changeable Pole Windings in the Ratio 1:4
M. V. Cistelecan, L. Melcescu, H. B. Cosan, M. Popescu, Research Instute for Electrical Machines, Politechnica Univesity of Bucharest, Romania, Ege University, Turkey

4 Comparison of Matrix Converter Induction Motor Drive Control Methods
J. Lettl, D. Kuzmonovic, S. Fligl, Czech Technical University, Czech Republic

5 Modeling And Simulation of a Boost DC/AC Inverter Fed Induction Motor Drive
T. Surgevil, Dokuz Eylul University, Turkey

6 A New Decoupling Approach using the Fuzzy Logic in the Vector Control Block of the Single-Phase Induction Machine
K. Bouhoune, K. Yazid, M.S. Boucherit, University of the Sciences and Technology Houari Boumediene, Polytechnic National School, Algeria

Session 6B: POWER ELECTRONICS

09 September 2011 – Friday 16:00-17:30

Chair: Prof. Dr. E. Afjei, Prof. Dr. E.Akpınar

1 Modelling a 7-Level Asymmetrical H-Bridge Multilevel Inverter with PS-SPWM Control
E. Kabalci, I. Colak, R. Bayındır, C. Pavlitov, University of Nevsehir, University of Gazi, Turkey, Technical University of Sofia, Bulgaria

2 Design and Analysis of PLLs for Line-Connected Converters in Three Phase Systems
D. Vyawahare, H. Kose, M. T. Aydemir, M.C. Chandorkar, Indian Institute of Technology-Bombay, India, GESS Ortadogu Elektrik AS, Gazi University, Turkey

3 Control Strategies of Grid-Side PWM Inverter for Distributed Power Generation Systems

I. Lar, M. M. Radulescu, E. Ritchie, D. L. Irimie, Technical University of Cluj-Napoca, Romania,

Aalborg University, Denmark

4 A Simple and New Technique in Obtaining Output Voltage Having A Frequency Multiple of Input Voltage Frequency
A. Salimi, S.Mansourpour, H.Ziar, E.Afjei, Shahid Beheshti University G.C., Iran

5 Analysis of Feedback in Converter using Coreless Printed Circuit Board Transformer
A.Majid, J.Saleem, H.B.Kotte, R.Ambatipudi, S.Haller, K.Bertilsson, Mid Sweden University Sundsvall, Sweden

6 A Multi-Level Inverter System Desıgn with Multi-Winding Transformer
T. Sarıkurt, C. Sezenoğlu, A. Balıkçı, Gebze Institute of Technology, Turkey

Session 6C: BRUSHLESS DC

09 September 2011 - Friday 16:00-17:30

Chair: Prof. Dr. R. Carlson, Prof. Dr. N. Tuncay

1 Analysis of Slot-Pole Combination of Fractional-Slots PMSM for Embedded Applications
H. Dogan, F. Wurtz, A. Foggia, L.Garbuio, Grenoble Electrical Engineering Laboratory, France

2 Performance Comparison between Concentrated and Distributed Wound IPM Machines in Field Weakening Applications
L. Chong, R. Dutta, M. F. Rahman, The University of New South Wales, Australia

3 Evaluation of BLDC Motor Topologies for Control Moment Gyroscope Application
H. B. Ertan, K. Yılmaz, Middle East Technical University, Turkey

4 Sensorless Control of BLDCs for All Speed Ranges with Minimal Components
S. Dusmez, A. Khaligh, M. Krishnamurthy, E. Ugur, M. Uzunoglu, Illinois Institute of Technology, Chicago, Yildiz Technical University, Turkey

5 Speed Control for Two-Mass System Based on State Feedback Design with Integral Control
G. Shahgholian, Pegah Shafaghi, Islamic Azad University, Iran

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PLENARY SESSION III
ASELSAN CONFERENCE HALL

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10 September 2011 - Saturday 9:00-10:30

Chair: Prof. Dr. I. Boldea

1 Vector Magnetic Characteristic Technology for Development of IE4 Level Motor
Prof. Dr. M. Enokizono, Oita University, Faculty of Engineering, Japan

2 Internet in the service of Electrical Machinery and Drives
Prof. Dr. T. Szarka, L. Szentirmai A. Varadi, University of Miskolc, Hungary

3 Replacement of Electrical (Load) Drives by a Hardware-in-the-Loop System
Prof. Dr. R. Kennel, Technical University Munchen, Germany

Session 7A: PERMANENT MAGNET MACHINE: Design

10 September 2011 - Saturday 10:45-12:45

Chair: Prof. Dr. F. Rahman, Assoc. Prof. Dr. R.Bayındır

1 The Concepts of Sizing and Optimization Model: Applied to The Optimal Design of a Permanent Magnet Generator
R. Carlson, F. Wurtz , UTFPR, Brazil

2 Hybrid Analytical/FEM Optimization Design for SPMSM for Refrigerator Compressor Loads
V. Gradinaru, L. Tutelea, I. Boldea, University Politehnica of Timisoara, Romania

3 Particle-Swarm-Optimized Design of a Small Interior Permanent-Magnet Synchronous Motor for Light Electric Traction Applications
K. Magyari, M. M. Radulescu, Technical University of Cluj-Napoca, Romania

4 Permanet Magnet DC Motor Optimalization by FEM
P. Grmela, M. Mach, V. Hájek, Brno University of Technology, Czech Republic

5 Permanent Magnet Motor Design Optimization for Sensorless Control
M. Caner, C. Gerada, G. Asher, University of Nottingham, UK

6 New Infinitesimal Method for the Analysis and Synthesis of AC Machines Winding
R. Cipin, M. Patocka, Brno University of Technology, Czech Republic

Session 7B: SOLAR SYSYEMS

10 September 2011 - Saturday 10:45-12:45

Chair: Assoc. Prof. Dr. M. T. Aydemir

1 Simulation of a Stirling Engine Solar Power Generation System using Simulink

M. Z. Jahromi , M. M. H. Biokiy, R. Fadaeinedjad, Kerman Graduate University of Technology, Iran

2 Different Diode Configurations Evaluation in Photovoltaic Arrays Using Binary Coding Method

H. Ziar, E. Afjei, A. Siadatan, A. Arjhangmehr, Shahid Beheshti University G.C., Islamic Azad University, Iran

3 Design and Simulation of DC/DC Buck Converter for Stand Alone Photovoltaic Energy System with Lead Acid Battery Storage

F. Z. Amatoul, M. T. Lamchich, A. Outzourhit, Cadi Ayyad University, Morocco

4 Design of Cell and Electrolyzer Emulators for Photovoitac Applications

A.Koubaa, L. Krichen, A. Ouali, Tunisa

Session 8A: ANALYSIS OF ELECTRICAL MACHINES

10 September 2011 - Saturday 14:00-15:30

Chair: Prof. Dr. C. Aurel, Assoc. Prof. Dr. M. Aydın

1 A New Method for Leakage Inductance Calculation of Transverse Flux Machines
M. Zafarani, M. Moallem, M. A. Ghadamyari, Isfahan University of Technology, Iran

2 Enhancing Post-Fault Operation Performance of Multiphase BLDC-Machines using Transient Thermal Modeling and Optimization
J. Mayer, D. Huger, D Gerling, Universitaet der Bundeswehr Muenchen, Germany

3 Globular Actuator Group for Reversible Movement in A Complex Pipe
H. Yaguchi, N. Sato, Tohuku Gakuin University, Japan

4 Analytical Computation of The Instantaneous Transient Magnetic Flux and Eddy Currents Losses in The Armature of a Magnetic Actuator
A. Raminosoa, C. Chillet, M. Fassenet, J. P. Yonnet, Laboratoire de Génie Electrique de Grenoble, France

Session 8B: ELECTRICAL DRIVES: General

10 September 2011 -Saturday 14:00-15:30

Chair: Prof. Dr. J. Lettl, Assoc. Prof. Dr. M. T. Aydemir

1 **Performance Comparison of Inverter Control Techniques Used for the Supply of a Linear PM Synchronous Actuator**
I. Ben Salem, L. El Amraoui Ouni, F. Gillon, M. Benrejeb, P. Brochet, Ecole Nationale d'Ingenieurs de Tunis, Tunisia, Univ Lille Nord de France, France

2 **Investigation of a Simple Space Vector Modulation Algorithm for Five Level Inverters in Electric Drives**
T. G. Nathenas, G. A. Adamidis, Democritus Univesity of Thrace, Greece

3 **Effects of Interruption in Power Supply of Induction Motors in Isolated Electrical Grid**
M. M.rosevic, Z. Maljkovic, Ivan Gasparac, University of Dubrovnik, University of Zagreb, Croatia

4 **Ultracapacitor Energy Storage System for Material Handling Applications Based on Short Primary Linear Induction Drives**
T. R. Fernandes Neto, P. Mutschler, Darmstadt University of Technology, Germany

5 **Online Fine Tuning of Current PI Controllers in Spin-Dry Cycle of Washing Machines**
S. Karakas, M. Gokasan, Arcelik A.S., Istanbul Technical Universty, Turkey

Session 9A: POWER ELECTRONICS

10 September 2011 - Saturday 16:00-17:30

Chair: Prof. Dr. S. Sheel, Prof. Dr. M.C. Chandorka

1 **Novel Switching Modulation Method For 3 × 3 Matrix Converter Utilizing Neural Network:Analysis, Modeling, and Simulation**
   S. Mansourpour, E. Afjei, E.Nazemi and H.Ziar, Shahid Beheshti University G.C., Iran

2 **A Control Strategy to Enhance Dynamic Performance for Parallel Inverters in an Islanded Microgrid**
   M. Kohansal, J. S. Moghani, B. Abdi, G. B. Gharehpetian, Amirkabir University of Technology, Iran

3 **Current/Voltage Ripple Minimization Of DC/DC Interface System For Renewable Energies**
   Kouzou A, Abu Rub H, Mahmoudi M.O, Boucherit M.S, Kennel R., Djelfa University, Algeria, Texas A&M University at Qatar, National Polytechnic School, Algeria, 4Institute for Electrical Drive Systems and Power Electronics, Germany

4 **HVDC Converter Modeling for Instantaneous Voltage State Estimation**
   S. H. Hosseinian, J. Beiza, B. Vahidi, M. Kosari, Amirkabir Univesity of Technology, Iran

5 **A Single Phase AC-AC Boost Converter With Improved Input Power Factor and THD**
   Md. A. Kabir, A. H. Abedin, R. B. Mustafiz, Md. K. Islam, M. A. Choudhury, Bangladesh University, Brac University, Bangladesh

6 **A Parabolic Band Hysteresis Current Controller for Doubly Fed Induction Generators**
   Emad Hamadi, S.S. Mortazavi, Shahid Chamran University, Iran

Session 9B: ELECTRICAL MACHINES: Design

10 September 2011 - Saturday 16:00-17:30

Chair: Prof. Dr. H. Yaguchi, Assist. Prof. Dr. L. Ovacık

1 Dynamic Design Tool for Canned Switched Reluctance Machines

C. Laudensack, Q. Yu, D. Gerling, Universitaet der Bundeswehr Muenchen, Germany

2 Modeling 3D of Generator with Hybrid Excitation

J. Bernatt, P. Dukalski, S. Gawron, Research and Development of Electrical Machines Komel, Poland

3 Techno-Economic Optimization of Induction Machines: An Industrial Application

D. Samarkanov, F. Gillon, P. Brochet, D. Laloy, Universite Lille Nord de France, Ecole Centrale de Lille, Jeumont Electric, France

4 Design and Development of A Hybrid Excited Claw Pole Synchronous Machine

L. M. Melcescu, M. V. Cistelecan, M. Popescu, O. Craiu, Politechnica Univesity of Bucharest, Research Instute for Electrical Machines, Romania

5 Energy-Efficiency Optimization of Small Cage-Induction Motors

D. L. Irimie, M.M. Radulescu, I. Lar, Technical University of Cluj-Napoca, Romania