

# EVER'12 Final Program

*Thursday, March 22, 2012*

**Welcome Speech and Plenary Session 1**  
**09H00 - 10H00, Amphitheater Camille Blanc**

**Chairs: Bernard Fautrier (Monaco) and Ahmed Masmoudi (Tunisia)**

**EVER12-PS1** *Energy Management and Smart Grids*

Rosario Miceli  
University of Palermo, Italy

*10H00 - 10H30: Coffee Break*

**EV1: Lecture Session on Machine Design**  
**10H30 - 12H30, Amphitheater Camille Blanc**

**Chairs: Rosario Miceli (Italy) and Jian-Xin Shen (China)**

**EVER12-21** *Electrically Excited Wheel Hub Motors for High Speed Trains*

Michael Schier, Frank Rinderknecht, and Holger Dittus  
German Aerospace Center, Germany

**EVER12-58** *Impacts of IPM Technology for Hybrid Electric Vehicles*

M. Azizur Rahman  
Memorial University of Newfoundland, Canada

**EVER12-67** *Influence of Rotor Design on Performance of PM Machines for Heavy-Duty Traction Applications*

Jubin Jacob, Abdelhamid Kechroud, Johannes J. H. Paulides, and Elena A. Lomonova  
Eindhoven University of Technology, the Netherlands

**EVER12-100** *Analysis of Torque ripple and Magnetic Force on Teeth in IPM Machines during Flux-Weakening Operation*

K. Wang and Z. Q. Zhu  
University of Sheffield, UK  
G. Ombach and W. Chlebosz  
Brose Fahrzeugteile GmbH & Co. Kommanditgesellschaft, Germany

**EVER12-118** *On the Investigation of the Magnetic Forces of CWPMM: Comparison between Surface and Interior PM Topologies*

Imen Abdennadher and Ahmed Masmoudi  
University of Sfax, Tunisia

***REV1: Lecture Session on Static Converters***  
***10H30 - 12H30, Room Auric 4***

**Chairs: Frans Dijkhuizen (Sweden) and Włodzimierz Koczara (Poland)**

**EVER12-14** *Cascaded Converters for EVs with Single Power Source and Increased Power Quality*

Javier Pereda and Juan Dixon  
Pontificia Universidad Católica de Chile, Chile

**EVER12-53** *Reactive Power Compensator of Hydro Induction Generator*

Jarosław Tępiński, Janusz Wiśniewski, and Włodzimierz Koczara  
Warsaw University of Technology, Poland

**EVER12-71** *Matrix Converter Input and Output Currents Quality Controlled by SVM Strategy and a Fuzzy Logic Controller*

Aziz Boukadoum and Youcef Soufi  
University of Tebessa, Algeria

Tahar Bahi  
University of Annaba, Algeria

Abla Bouguerne  
University of Constantine, Algeria

Sofiane Oudina  
University of Skikda, Algeria

**EVER12-97** *Multilevel Converters: Review, Form, Function and Motivation*

Frans Dijkhuizen  
ABB Corporate Research, Sweden

**EVER12-98** *Optimal Calculation Methodology of a Powder Core Power Inductor*

Richard Demersseman and Zaatar Makni  
Valeo, France

***RE1: Lecture Special Session on Hybrid Green Energy Technologies***  
***10H30 - 12H30, Room Bosio***

**Chairs: İlhami Colak (Turkey) and Erdal Irmak (Turkey)**

**EVER12-92** *Remote Monitoring and Reporting the Parameters of a Hybrid Power System via Internet*

İlhami Colak, Erdal Irmak, Naki Guler, and Fatih Issi  
Gazi University, Turkey

**EVER12-93** *Load Fluctuations Management in the Photovoltaic-Battery-Ultracapacitor Standalone System*

Mahamadou Abdou Tankari, Gilles Lefebvre, and Yves Candau  
Créteil University, France

Mamadou Bailo Camara, Brayima Dakyo  
Le Havre University, France

**EVER12-94** *Frequency Control of the Hybrid Wind-Diesel Power System with Hydrogen Storage*

Karim Belmokhtar, Mamadou Lamine Doumbia, and Kodjo Agbossou  
Université du Québec à Trois-Rivières, Canada

**EVER12-95** *A New Quick Response Digital Average Current Mode DC-DC Converter for Hybrid Green Energy Systems*

Fujio Kurokawa and Kazuhiro Kajiwara  
Nagasaki University, Japan

**EVER12-96** *Dynamic Reactive Power Compensation System for Wind Turbines*

Ibrahim Sefa, Abdullah Ozsan, Necmi Altin, and Saban Ozdemi  
Gazi University, Turkey  
Salih Gorgunoglu  
Karabük University, Turkey

***12H30 – 13H30: Lunch***

***EV2: Poster Session on Diagnostic  
13H30 - 15H00, Conference Room Hall***

**Chairs: Youcef Soufi (Algeria) and Piotr Kołodziejek (Poland)**

**EVER12-30** *Failure Analysis for the Drive of a Permanent-Magnet Synchronous Machine Working in Field Weakening Operation*

Jorge Pontt and Víctor Guerrero  
Federico Santa Maria University, Chile

**EVER12-68** *Impact of Eccentricity on Magnetic Quantities of Induction Machine*

Moufid Mohammedi  
University of Skikda, Algeria  
Tahar Bahi  
University of Annaba, Algeria  
Youcef Soufi  
University of Tebessa, Algeria

**EVER12-69** *Detection of Eccentricity Faults in Induction Motor based on Analysis Stator current*

Abderrezak Metatla and Samia Benzahoul  
University of Skikda, Algeria  
Tahar Bahi  
University of Annaba, Algeria  
Dimitri Lefebvre  
University of Le Havre, France

**EVER12-72** *State Observer Based Rotor Fault Diagnostic of the IM Drive*

Piotr Kołodziejek  
Gdańsk University of Technology, Poland

**EVER12-101** *Time–Frequency Representation and Neural Networks for Classification of Induction Machine Faults*

Abla Bouguerne  
University of Constantine, Algeria  
Abdesselam Lebaroud  
University of Skikda, Algeria  
Aziz Boukadoum  
University of Tebessa, Algeria

**EVER12-102** *Advanced Monitoring of Rotor Broken Bar in Double Squirrel Cage Induction Machines Based on Wavelet Analysis*

Yasser Gritli  
University of Carthage, Tunisia  
Antonino Oscar Di Tommaso and Rosario Miceli  
University of Palermo, Italy  
Fiorenzo Filippetti and Claudio Rossi  
University of Bologna, Italy

***Official Plenary Session in Presence of H.S.H. Prince Albert II  
15H00 - 16H00, Amphitheater Camille Blanc***

***16H00 –16H30: Exhibition Visit in Presence of H.S.H. Prince Albert II***

***EV3: Lecture Special Session on PM Machines Using Fewer or No  
Rare Earth Magnets  
16H30 - 19H00, Amphitheater Camille Blanc***

**Chairs: Jian-Xin Shen (China) and M. Azizur Rahman (Canada)**

**EVER12-SSPM01** *Research on New Hybrid Excitation PM Synchronous Generators with Tooth Harmonic Excitation*

Wang Shanming, Qiu Arui, and Wang Xiangheng  
Tsinghua University, China  
Xia Yonghong and Huang Shaogang  
Nanchang University, China

**EVER12-SSPM02** *Modeling and Torque Balance Control of Dual-Redundancy PM Brushless DC Servo System*

Zhanqiang Luo, Deliang Liang, and Wen Ding  
Xi'an Jiaotong University, China

**EVER12-SSPM03** *New Ways to Exchange Rare Earth Materials for Fractional Horse Power Motors for Automotive Application*

Wojciech Chlebosz, Grzegorz Ombach, and Grzegorz Sawczuk  
Brose Fahrzeugteile GmbH & Co. Kommanditgesellschaft, Germany

**EVER12-SSPM04** *Reduction Possibilities of Rare Earth Material Contents for Synchronous Motors for High Demand Automotive Applications*

Grzegorz Sawczuk, Grzegorz Ombach, and Wojciech Chlebosz  
Brose Fahrzeugteile GmbH & Co. Kommanditgesellschaft, Germany

**EVER12-SSPM05** *Optimal Design of Synchronous Reluctance Machine – a Feasible Solution to Eliminating Rare Earth Permanent Magnets for Vehicle Traction Applications*

Haiwei Cai, Bo Guan, and Longya Xu  
The Ohio State University, USA  
Woongchul Choi  
Kookmin University, Korea

**EVER12-SSPM06** *Electric Motors Dedicated to Aerospace Applications: Electromagnetic and Thermal Analysis of Different Topologies*

Ikhlas Bouzidi and Ahmed Masmoudi  
University of Sfax, Tunisia  
Nicola Bianchi  
University of Padova, Italy

**EVER12-SSPM07** *Optimal Design of a Low-Cost PM Motor for Ventilation Application*

Kang Wang, Dan Shi, Can-Fei Wang, Meng-Jia Jin, and Jian-Xin Shen  
Zhejiang University, China

**EVER12-SSPM08** *Air Gap MMF Based Prediction of Eddy Current Loss in the PMs of Concentrated Winding Brushless Machines*

Asma Masmoudi and Ahmed Masmoudi  
University of Sfax, Tunisia

**EVER12-SSPM09** *Torque Ripple Analysis of an IPM AC Motor*

Dan Shi, Can-Fei Wang, Peng Li, Kang Wang, Meng-Jia Jin, and Jian-Xin Shen  
Zhejiang University, China

**EVER12-SSPM10** *Cost-effectiveness Improvement of a Novel Hybrid Excited Brushless Claw Pole Machine*

Rabeb Rebhi, Amina Ibala, and Ahmed Masmoudi  
University of Sfax, Tunisia

***EV4: Lecture Session on Machine Control  
16H30 - 18H30, Room Bosio***

**Chairs: Włodzimierz Koczara (Poland) and Zaatar Makni (France)**

**EVER12-91** *DTC Based Position Regulation of an Induction Motor: A Comparative Study*

Fatma Ben Salem and Ahmed Masmoudi  
University of Sfax, Tunisia

**EVER12-10** *Sensorless Starting System Implementation for an Internal Combustion Engine in a Series Hybrid Electric Vehicle*

Lorenzo Urrutia and Juan Dixon  
Pontificia Universidad Católica de Chile, Chile

**EVER12-12** *Sliding Mode Control of Doubly fed Induction Motor*

Youcef Soufi  
University of Tébessa, Algeria  
Salima Lekhchine and Tahar Bahi  
University of Annaba, Algeria  
Sihem Ghoudelbourk  
University of Skikda, Algeria

**EVER12-65** *Non-integer Order Robust Control of an Electrical Machine*

Samir Abdelmalek, Salah Chenikher, and Youcef Soufi  
University of Tébessa, Algeria  
Moussa Sedraoui  
University of Guelma, Algeria

**EVER12-119** *Sensorless DTC Strategy of Induction Motor Drives: Application to Electric Propulsion Systems*

Badii Bouzidi, Asma Ben Rhouma, Bassem El Badsy, and Ahmed Masmoudi  
University of Sfax, Tunisia

***RE3: Lecture Session on Green Power Supplies  
16H30 - 18H00, Room Auric 4***

**Chairs: Diego La Cascia (Italy) and Sivert Arnaud (France)**

**EVER12-17** *Comparative Study between the Fuel Cell and the Lithium-battery coupled to Ultracapacitors for Hybrid Electric Vehicles Applications*

A. Tani, M.B. Camara, and B. Dakyo  
University of Le Havre, France

**EVER12-61** *Effect of Heterogeneous Properties of Gas Diffusion Electrode on the Mechanical Behaviors of MEA in a PEMFC*

N. Wang, K.K. Poornesh, Y. Xiao, and C.D. Cho  
Inha University, Korea

**EVER12-70** *Model BG for Proton Exchange Membrane Fuel Cell (PEMFC)*

Nedjem eddine Benchouia and Lakhdar Khouchmane  
University of Skikda, Algeria

Aoul Leyes Hadjadj  
University of Annaba, Algeria

Bouziane Mahmah  
Research Center of Renewable Energy Development, Algeria

**EVER12-20** *Performance Analysis of an Electric Vehicle with Hybrid Energy Storage Unit using Battery and Supercapacitor*

Gaeun Lee, Sungyeon Ko, Seungchul Hong, Jaedo Nam, and Hyunsoo Kim  
Sungkyunkwan University, Korea

Kyunyoung Ahn  
Hyundai Motor Company, Korea

**EVER12-120** *A Small Scale Resonant Coupling Wireless Power Transmission Prototype for EV Applications*

Antonino Oscar Di Tommaso, Rosario Miceli, and Matteo Stella  
University of Palermo, Italy

***EV5: Lecture Session on Automotive Drives and Generators  
18H00 - 19H30, Room Auric 4***

**Chairs: Frank Rinderknecht (Germany) and Konstantin Boynov (The Netherlands)**

**EVER12-05** *An Interactive Platform for Switched Reluctance Motor*

Ramazan Bayindir, Orhan Kaplan, and Seyfettin Vadi  
University of Gazi, Turkey

**EVER12-33** *Electric Vehicle with Range Extender, Using a Small Engine and Disk-Type Synchronous Machine*

Carlos Castillo and Juan Dixon  
Pontificia Universidad Catolica, Chile

**EVER12-48** *Cogging Torque Exploration of Radially and Angularly Directed Fluxes in a New PM Generator with the Multiple Stators*

Erol Kurt, Serdal Arslan and Mehmet Demirtaş  
Gazi University, Turkey

**EVER12-49** *Digital Simulation of Switched Reluctance Motor Based on Analytical Model of Flux Linkage*

Ming Tang and Deliang Liang  
Xian Jiaotong University, China

**EVER12-123** *Comparative Analysis of the Switched Reluctance Motor as an Alternative to the Permanent Magnet Motor for Automotive Applications*

Konstantin O. Boynov, Abdelhamid Kechroud, Johannes J. H. Paulides, and Elena A. Lomonova  
Eindhoven University of Technology, the Netherlands

***19H00: Cocktail reception offered by the Princely Government***

***Friday, March 23, 2012***

***Plenary Session 2  
09H00 - 10H00, Amphitheater Camille Blanc***

**Chairs: Raoul Viora (Monaco) and Włodzimierz Koczara (Poland)**

**EVER12-PS2** *Permanent Magnet Flux Switching Linear Machines: Theory, Optimization and Prospective Applications*

Jian-Xin Shen  
Zhjiang University, China

***10H00 - 10H30: Coffee Break***

***REV2: Lecture Special Session on Sustainable System Education  
10H30 - 12H30, Amphitheater Camille Blanc***

**Chairs: Eva Schuepbach (Switzerland) and Urs Muntwyler (Switzerland)**

**EVER12-15** *Electrically Propelled Bike: a Comparison between Two Control Strategies*

Arnaud Sivert, Franck Betin, and Sebastien Carrière  
Institut Universitaire de Technologie de l'Aisne, France

**EVER12-36** *Educating Engineers in Sustainable Mobility*

Eva Schuepbach and Urs Muntwyler  
Bern University of Applied Sciences, Switzerland

**EVER12-39** *Learning from others: International Collaboration in the Implementing Agreement IA "Hybrid- and Electric Vehicle" of the International Energy Agency (IEA)*

Muntwyler Urs  
Berne University of Applied Sciences, Switzerland

**EVER12-60** *Do Electric Go-Karts Are Getting Better than Gas-Powered Ones?*

Arnaud Sivert and Franck Betin  
University of Picardie, France  
Jean-Paul Bécar  
University of Valenciennes, France  
Thierry Lequeu  
University of Tours, France

**EVER12-99** *Renewable Energy Vehicles – REV Perspectives in Sustainability*

Shanta Chatterji  
India



***EV6: Lecture Session on Automotive Technologies  
10H30 - 12H30, Room Auric 4***

**Chairs: Wojciech Chlebosz (Germany) and Raphael Giesecke (Finland)**

**EVER12-08** *Development of a Vehicle Velocity Estimation Algorithm and Human-in-the-Loop Simulation for an In-Wheel Electric Vehicle*

Sungyeon Ko, Jiwon Ko, Jungwook Kim, and Hyunsoo Kim  
Sungkyunkwan University, Korea

Sangmoon Lee and Jaeseung Cheon  
Advanced System Integration Team of Hyundai Mobis, Korea

**EVER12-09** *Modelling and Simulation of a Regenerative System with the Linear Induction Generator*

Adilson Melcheque Tavares  
Sul-rio-grandense Federal Institute, Brazil

Aly Ferreira Flores Filho and Yeddo Braga Blauth  
Federal University of Rio Grande do Sul, Brazil

**EVER12-23** *Electric Oil Pump Control for a Hybrid Electric Vehicle using Viscous Index*

Minseok Song, Joseph Oh, and Hyunsoo Kim  
Sungkyunkwan University, Korea

Jonghyun Kim, Youngchul Kim, Jaeshin Yi, and Yeonho Kim  
Hyundai-Kia R&D Center, Korea

**EVER12-51** *A High Efficient Energy Converter for a Hybrid Vehicle Concept – Gas Spring Focused*

Florian Kock and Frank Rinderknecht  
German Aerospace Center, Germany

**EVER12-54** *The Electric Vehicle Beyond Transport: Ideas for Features, Meanings and Services Related To Batteries on Wheels*

Raphael Giesecke  
Aalto University, Finland

**EVER12-90** *Automated Electric Vehicles: the Solution for Carsharing Operation*

Michel Parent  
INRIA, France

***12H30 - 14H00: Lunch***

***RE4: Lecture Special Session on Latest Development in  
Renewable Energy Exploitation (Part 1)  
14H00 - 16H00, Room Auric 4***

**Chairs: Elisabetta Tedeschi (Spain) and Ahmed Masmoudi (Tunisia)**

**EVER12-80** *The SRB Evacuated Flat Solar Panel*

Cristoforo Benvenuti  
SRB Energy Research SARL, Switzerland

**EVER12-81** *Innovative Implementation of Heat Storage for Balancing Electricity Grids with High Penetration of Renewable Energy Sources*

Galina Romanovsky and Joseph Mutale  
University of Manchester, UK

**EVER12-82** *All-Electric Wave Energy Converter with Stand-alone 600VDC Power System and Ultracapacitor Bank*

Jonas Sjolte, Gaute Tjensvoll, and Marta Molinas  
Norwegian University of Science and Technology, Norway

**EVER12-83** *Time Domain Modelling of the Wave-to-Wire Wave Energy Converter Bolt*

Christian McLisky Sandvik, Marta Molinas, and Jonas Sjolte  
Norwegian University of Science and Technology, Norway

**EVER12-84** *Pre-design Analysis of a Full Scale ISWEC*

Fabio Aquila, Giovanni Bracco, Ermanno Giorcelli, and Giuliana Mattiazzo  
Politecnico di Torino, Italy

***16H00 - 16H30: Coffee Break***

***RE5: Lecture Special Session on Latest Development in  
Renewable Energy Exploitation (Part 2)  
16H30 – 18H30, Room Auric 4***

**Chairs: Elisabetta Tedeschi (Spain) and Ahmed Masmoudi (Tunisia)**

**EVER12-85** *Estimation of Membrane Hydration Status for Standby Proton Exchange Membrane Fuel Cell Systems by Impedance Measurement: First Results on Stack Characterization*

Benoit Bidoggia and Søren Knudsen Kær  
Aalborg University, Denmark

**EVER12-89** *Challenges and Lessons Learned in the Deployment of an Off Shore Oscillating Water Column*

J. Kelly, D. O'Sullivan, R. Alcorn, and A.W. Lewis  
University College Cork, Ireland

**EVER12-113** *Effect of the Generator Sizing on a Wave Energy Converter Considering Different Control Strategies*

Luigi Alberti, Nicola Bianchi, and Alessandro Fasolo  
University of Padova, Italy

Elisabetta Tedeschi and Maider Santos  
Tecnalia, Spain

**EVER12-42** *Implementation of Two Approaches for Photovoltaic Array MPPT Control Technique*

Touria Hassboun, Abdelhadi Elbacha, and Mustapha El Adnani  
Cadi Ayyad University, Morocco

**EVER12-121** *Comprehensive Analytical Investigation for PV Plants and their Control System with Reduced Power Electronics Equipments*

Antonino Oscar Di Tommaso, Fabio Genduso, and Rosario Miceli  
University of Palermo, Italy

***RE6: Lecture Session on Renewable Energy and National Programs  
16H30 - 19H00, Room Bosio***

**Chairs: Sonja Lundmark (Sweeden) and Jonas Sjolte (Norway)**

**EVER12-13** *Performance Analysis of DFIG Fed by a Three Level Inverter in Wind Chain*

Youcef Soufi  
University of Tebessa, Algeria

Sihem Ghoudelbourk  
University of Skikda, Algeria

Tahar Bahi, Salima Lekhchine, and Hichem Merabet  
University of Annaba, Algeria

**EVER12-38** *Modeling and Control of Wind Power Conversion System with a Flywheel Energy Storage System and Compensation of Reactive Power*

Seifeddine Belfedhal  
University of Ibn Khaldoun Tiaret, Algeria

El-Madjid Berkouk  
Ecole Nationale Polytechnique, Algeria

**EVER12-50** *A Control Strategy to Fulfill LVRT Requirements in Wind Energy Conversion Systems*

Matías Díaz and Pablo Jara  
University of Santiago of Chile, Chile

Roberto Cárdenas  
University of Chile, Chile

**EVER12-73** *Efficiency Comparison of a 5MW Wind Turbine PMSG Equipped Generating System Using Various DC-Link Voltages*

Poopak Roshanfekar, Torbjorn Thiringer, and Sonja Lundmark  
Chalmers University of Technology, Sweden

**EVER12-29** *An Improved Dynamic Compensation Scheme for Power Distribution Systems with Renewable Generation*

P. Acuna and L. Moran

Universidad de Concepcion, Chile

M. Riveraand and J. Rodriguez

Universidad Tecnica Federico Santa Maria, Chile

J. Dixon

Pontificia Universidad Catolica de Chile, Chile

**EVER12-64** *Renewable Energy and Energy Efficiency Program in Algeria (Investigation and Perspectives)*

Djalel Dib and Youcef Soufi

University of Tebessa, Algeria

Chellai Benachiba

University of Bechar, Algeria

**EVER12-117** *Oil Service Station PV Based Power Supply: a Challenging Tunisian National Program*

Ferdaous Masmoudi and Ahmed Masmoudi

University of Sfax, Tunisia

Walid Essaadly

National Company of Oil Distribution, Tunisia

**EVER12-122** *The BEYWATCH FP 7th European Scientific Project: Dissemination and Standardization Activities, Liaison with Other Projects*

Costantino Giaconia, Diego La Cascia, and Rosario Miceli

University of Palermo, Italy

***20H30: Official Dinner***