



Sixteenth International Conference on
Ecological Vehicles and Renewable Energies

EVER2021, May 5-7, 2021, Monte-Carlo (Monaco)

Final Program

(according to Monaco time which corresponds to GMT + 02H00)

Wednesday, May 5, 2021

10H00 - 11H30, Room A
Opening and First Plenary Session

Chairs: Raoul Viora (Monaco), Ahmed Masmoudi (Tunisia), Elena Lomonova (the Netherlands), and Michael Schier (Germany)

10H00-10H30 Opening

Raoul Viora
Monaco Développement Durable (MC2D), Monaco
Ilhem Kallel
IEEE Tunisia Section, Tunisia
Ahmed Masmoudi
University of Sfax, Tunisia

EVER21-PS1 Multi-3-phase Permanent Magnet Machines and Applications

Zi Qiang Zhu
University of Sheffield, UK

11H30 - 12H00: Break



12H00 - 13H00, Room A
Second Plenary Session

Chairs: Matias Diaz (Chile) and Stefano Bracco (Italy)

EVER21-PS2 *New Energy Technologies and their Integration in Distribution Grids: a Case Study*

Ilhem Slama-Belkhodja
University of Tunis El Manar, Tunisia

13H00 - 14H00: Break

14H00 - 16H00, Room A
RE1: Lecture Session on Mini-, Micro-, and SMART Grids

Chairs: Ilhem Slama-Belkhodja (Tunisia) and Matias Diaz (Chile)

EVER21-20 *Design and Technical Assessment of Local Electrical Storage Systems in Double-Fed Generators for Wind Turbine Power System Applications*

Ahmet Aksoz, Yassine Benomar, Thomas Geury, Mohamed El Baghdadi, and Omar Hegazy
Vrije Universiteit Brussel, Belgium
Salih Baris Ozturk
Istanbul Technical University, Turkey
Ilhami Colak
Nisantasi University, Turkey

EVER21-37 *A LVRT Control Strategy for a Shunt-Series Modular Multilevel Converter for Wind Energy Conversion Systems Applications*

Patricio Pizarro, Matias Diaz, and Felix Rojas
University of Santiago, Chile
Mauricio Espinoza
University of Costa Rica, Costa Rica

EVER21-41 *Performance Enhancement of a Battery-Grid Connected SiC MMC for DC Microgrid Systems*

Yang Wang, Ahmet Aksoz, Thomas Geury, Mohamed El Baghdadi, and Omar Hegazy
Vrije Universiteit Brussel, Belgium

EVER21-53 *Impact of Coupling Thermal and Electrical Carriers on the Optimal Management of a Multi-Energy Network*

Ibrahim Al Asmi, Roman Le Goff Latimier, Hamid Benahmed, and Thibaut Esence
ENS de Rennes, France

EVER21-54 *Coordinated Volt-Var Control in Microgrids*

Joao Marcus S. Callegari and Danilo I. Brandao
Federal University of Minas Gerais, Brasil
Heverton A. Pereira
Federal University of Viçosa, Brasil

EVER21-58 *Modeling, Optimization and Financial Analysis of Hybrid Renewable Energy Systems Coupled with Energy Storage*

Shirin Cupples and Amir Abtahi
Florida Atlantic University, USA
Seyed Ata Raziei
University of Dayton, USA

14H00 - 16H00, Room B

EV1: Lecture Session on Machine Design and Control (Part 1)

Chairs: Elena Lomonova (the Netherlands) and Lijian Wu (China)

EVER21-13 *Optimization Design of Outer-rotor Permanent Magnet Synchronous Motor*

Qinfen Lu
Zhejiang University, China
Lihang Zhao and Min Yang
Zhejiang Provincial Key Laboratory of Energy Conservation and Pollutant Control Technology for Thermal Power, China
Zhiqiao He and Jianzhong Ma
Zhejiang Zheneng Lanxi Electric Power Generation Co.,Ltd., China

EVER21-43 *Recent Developments of High Speed Electrical Machine Drive Systems*

Lu Wang and Z.Q. Zhu
University of Sheffield, UK
Hong Bin and L. M. Gong
Midea Group Corporate Research Center, China

EVER21-44 *Six-phase Pole Changing Winding Induction Machine with 3rd Harmonic Injection*

Srinivas Mallampalli and Z.Q. Zhu
University of Sheffield, UK
Jean Claude Mipo and Sophie Personnaz
Valeo Powertrain Electric Systems, France

EVER21-45 *A Commutation Optimization Strategy for High Speed Brushless DC Drives with Inaccurate Rotor Position Signals*

Lu Wang and Z.Q. Zhu
University of Sheffield, UK

Hong Bin and L. M. Gong
Midea Group Corporate Research Center, China

EVER21-62 *Practical Implementation of a Synchronous PWM Strategy for Low Switching Frequency FOC of IM Drives with ATSAM3X8E Microcontroller*

Antonino Oscar Di Tommaso, Rosario Miceli, and Silvana Zambito Marsala
University of Palermo, Italy

EVER21-68 *Multiphysics Modelling and Real Time Simulation of a Permanent-Magnet Synchronous Machine for Electric Vehicles*

Mohamed Amine Frikha, Yassine Benomar, Mohamed El Baghdadi, and Omar Hegazy
Vrije Universiteit Brussel, Belgium
Ahmed Masmoudi
University of Sfax, Tunisia

16H00 - 16H30: Break

16H30 - 17H50, Room A

RE2: Lecture Session on Conventional and Emerging Renewables

Chairs: Ilhem Slama-Belkhodja (Tunisia) and Vittorio Bucci (Italy)

EVER21-52 *Performance Comparison of Offline and Real-Time Models of a Power Take-Off for Qualification Activities of Wave Energy Converters*

Luca Castellini
UMBAGROUP s.p.a., Italy

Federico Gallorini and Giacomo Alessandri
VGA s.r.l., Italy

Erick Alves and Dan Montoya
Norwegian University of Science and Technology (NTNU), Norway

Elisabetta Tedeschi
Norwegian University of Science and Technology (NTNU), Norway
and
University of Trento, Italy

EVER21-22 *Tuning of Vibration Energy Harvesters by Means of Liquid Masses*

Alberto Doria, Edoardo Marconi, and Federico Moro
University of Padova, Italy

EVER21-26 *Applicability of Standard Photovoltaic Modules for an Increased Share of Renewable Energies on Board Cruise Ships*

Patrick Schwager, Kai Gehrke, and Martin Vehse
German Aerospace Center, Germany

EVER21-31 *Design and Hydro-Aero-Elastic Modeling of a Multi Leg Mooring Concept for Floating Wind Turbine Applications*

Thomas P. Mazarakos
University of West Attica, Greece
and
National Technical University of Athens, Greece
Dimitrios I. Manolas
iWind Renewables PC, Greece
and
National Technical University of Athens, Greece
Spyridon A. Mavrakos
National Technical University of Athens, Greece

16H30 - 17H50, Room B

EV2: Lecture Special Session on Electromagnetic Modelling of Electromechanics Devices and Magnetic Materials

Chairs: Elena Lomonova (the Netherlands) and Andrea Cremasco (the Netherlands)

EVER21-71 *Medium-Frequency Transformers for Fast Rise Time PWM Voltages: Modelling and Design Considerations*

A. Cremasco, S. Pourkeivannour, M. Curti, and E. A. Lomonova
Eindhoven University of Technology, the Netherlands

EVER21-72 *Semi-Analytical Modeling of a PM based 6-DOF Actuator*

G. Zuidema, D. C. J. Krop, and E. A. Lomonova
Eindhoven University of Technology, the Netherlands

EVER21-73 *Identification Procedure of an Anisotropic Vector Hysteresis Model using Uniaxial Magnetic Measurements*

Reza Zeinali, Dave Krop, and E. A. Lomonova
Eindhoven University of Technology, the Netherlands

EVER21-74 *Vector Hysteresis Modeling Coupled with a Loop-Based Magnetic Equivalent Circuit*

D. Ceylan, R. Zeinali, B. Daniels, K. O. Boynov, and E. A. Lomonova
Eindhoven University of Technology, the Netherlands



Thursday, May 6, 2021

10H00 - 11H00, Room A
Third Plenary Session

Chairs: Elena Lomonova (the Netherlands) and Zi Qiang Zhu (UK)

EVER21-PS3 *High Torque Density PM Generators for Wind Power Application*

Lijian Wu
Zhejiang University, China

11H00 - 11H30: Break

11H30 - 12H30, Room A
Fourth Plenary Session

Chairs: Urs Muntwyler (Switzerland) and Volker Landersheim (Germany)

EVER21-PS4 *Enabling the Electrification of Heavy Duty Vehicles*

Steven Wilkins
Technical University of Eindhoven, the Netherlands

12H30 - 13H30: Break

13H30 - 15H30, Room A

EV3: Lecture Session on Sustainable Mobility Concepts

Chairs: Cathrin Cailliau (Germany) and Antonino Oscar Di Tommaso (Italy)

EVER21-08 *Emissions and Total Cost of Ownership Assessment of Hybrid Propulsion Concepts for Bus Transport with CNG or Diesel Engine*

Volker Landersheim and Daria Manushyna
Fraunhofer Institute for Structural Durability and System Reliability, Germany

Dai-Duong Tran, Thomas Geury Vrije, and Omar Hegazy
Vrije Universiteit Brussel, Belgium

Tinh Pham and Steven Wilkins
Organisation for Applied Scientific Research (TNO), the Netherlands

EVER21-32 *Feasibility Study of a DC hybrid- Electric Catamaran for River Navigation*

Germano Degan, Luca Braidotti, Daniele Bosich, Giorgio Sulligoi, Vittorio Bucci, and Alberto Marino
University of Trieste, Italy

EVER21-33 *Electrification of Vessels for Garbage Collection and Treatment in Venice Lagoon*

Valentina Bortuzzo
Fratelli d'Amico Armatori S.p.A., Italy

Serena Bertagna, Matteo Doderò, Alberto Marinò, and Vittorio Bucci
University of Trieste, Italy

Jacopo Ferrari
ST Servizi Tecnici s.r.l., Italy

EVER21-46 *Concept and Design of a Shunting Locomotive equipped with a hybridized Fuel Cell Hydrogen Powertrain*

Marcel Konrad, Victoria Jäger, Johannes Pagenkopf, and Mathias Böhm
German Aerospace Center, Germany

EVER21-47 *Optimization Model for Operation of Battery Multiple Units on Partly Electrified Railway Lines*

Moritz Schenker and Florian Kühlkamp
German Aerospace Center, Germany

EVER21-50 *A Contribution to Energy Flow Control Strategy between Electric, Including Fuel Cell, Vehicles and the Energy Grid*

Michael Schier, Tobias Schneider, and Sebastian Sigle
German Aerospace Center, Germany

13H30 - 15H30, Room B

RE3: Lecture Session on Renewable Energies: Assessment, Risks, and Boosting the Market Large Scale Penetration of EVs

Chairs: Patrick Schwager (Germany) and Ilhem Slama-Belkhodja (Tunisia)

EVER21-06 *Short-Term Multi Horizons Forecasting of Solar Irradiation Based on Artificial Neural Network with Meteorological Data: Application in the North-West of Senegal*

Willy Magloire Nkouna, Françoise Grandvaux, and Laurent Tabourot
University Savoie Mont Blanc, France

Mouhamadou Falilou Ndiaye, Oumar Cisse, Momadou Bop, and Mamadou Lamine Ndiaye
University Cheikh Anta Diop, Senegal

EVER21-07 *Investigating the Influence of System Structure and Architecture in the Risks of Sector-Coupled Energy Systems with FMEA*

Herena Torio, Fateme Tootiaei, Jan Petznik, Patrik Schonfeldt, Peter Klement, Frank Schuldt, Benedikt Hanke, Karsten von Maydell, and Carsten Agert
German Aerospace Center, Germany

EVER21-24 *Analysis of the Potential for Increased Power Production in an Onshore Test Wind Farm Using Active Wake Control Methods*

Philip Krajinski, Katharina Gunther, Lars Siepelmeyer, and Constantinos Sourkounis
Ruhr University Bochum, Germany

Reyhan Nergis Oner, Mert Ozhan, and Umut Aslan
Zorlu Enerji Elektrik Uretim A.S., Turkey

EVER21-49 *Multi-criteria Decision Model for the Assessment of Offshore Wind Energy Potential of Tunisia*

Houda Zahmoul, Ahmad El Sayed, and Gokturk Poyrazoglu
Ozyegin University, Turkey

EVER21-59 *Bidirectional electric vehicles store PV energy and create new business opportunities for PV and EVs*

Urs Muntwyler, Douglas Urena Hunziker, and Eva Schüpbach
Bern University of Applied Sciences BFH, Switzerland

EVER21-67 *Electric Vehicles Powered with PV Electricity - a New Driver for Photovoltaic and EVs*

Urs Muntwyler, David Zurflüh, and Eva Schüpbach
Bern University of Applied Sciences BFH, Switzerland

15H30 - 16H00: Break

16H00 - 18H00, Room A

EV4: Lecture Session on Electric Propulsion Systems: Design, Sizing, Analysis, Optimization, and Tests

Chairs: Steven Wilkins (the Netherlands) and Michael Schier (Germany)

EVER21-03 *Development of a General Specification Sheet for Heavy-Duty Cargo Bikes*

Ralf Bogdanski, Cathrin Cailliau, Markus Seidenkranz, Marius Bayer, and Marc Reed
Nuremberg Institute of Technology, Germany

EVER21-05 *Sizing Optimization of a Charging Station Based on the Multi-Scale Current Profile and Particle Swarm Optimization: Application to Power-Assisted Bikes*

Willy Magloire Nkouna, Françoise Grandvaux, and Laurent Tabourot
University Savoie Mont Blanc, France

Mouhamadou Falilou Ndiaye and Mamadou Lamine Ndiaye
University Cheikh Anta Diop, Senegal

Mamady Condé
University Gamal Abdel Nasser, Guinea

EVER21-09 *Matlab-Based High-Performance Electric Motorbike Energy Model Utilizing Video Data*

Tudor Stinescu, Rui Zhao, F. Ballantyne, David A. Stone, and Martin P. Foster
The University of Sheffield, UK

EVER21-40 *Multiobjective GA Optimization for Energy Efficient Electric Vehicle Drivetrains*

Sajib Chakraborty, Dai-Duong Tran, Thomas Geury, Mohamed El Baghdadi, and Omar Hegazy
Vrije Universiteit Brussel, Belgium
and
Flanders Make, Belgium

Vinayak Padmaji and Javier A. Corea Araujo
Applus IDIADA Group, Spain

EVER21-48 *Analysis of Hydrogen Expansion's Potential for Fuel Cell Electric Vehicle's Efficiency*

Nicolas Muck and Steffen Wieser
German Aerospace Center, Germany

EVER21-55 *Design and Simulation of Test-Bed for Emulation of Electric Vehicle Dynamics*

Anirudh Unni, Abhimanyu S. Kumar, Rudhra Manoj, Sourav Sunil, and Jishnu Sankar VC
Amrita Vishwa Vidyapeetham University, India

16H00 - 18H00, Room B

REV1: Lecture Session on Sustainable Mobility and Energy: Sociological and Economical Aspects

Chairs: Eva Schüpbach (Switzerland) and Stefano Bracco (Italy)

EVER21-14 *A Quadruple Bottom Line of Sustainability Analysis of Ecofitting Design Concept*

Artur Grisanti Mausbach, Farhana Safa, Daniel Quinlan, Cyriel Diels, and Dale Harrow
Royal College of Art, UK

Steve Evans
University of Cambridge, UK

EVER21-16 *Ecofitting: Design Directions Upgrading Cars to Zero Emissions*

Artur Grisanti Mausbach, Farhana Safa, Daniel Quinlan, Cyriel Diels, and Dale Harrow
Royal College of Art, UK

Steve Evans
University of Cambridge, UK

EVER21-51 *On the Sociological Factors Allied to the Technical and Geographical Aspects of Wind Turbine Installations*

Riad Gharbi
University Paris 8, France

EVER21-75 *Public and Micro-Mobility Transportation Modes Comparison*

Carola Leone, Michela Longo, and Federica Foiadelli
Politecnico di Milano, Italy

EVER21-79 *On Psychological Aspects about Electric Vehicles, Part 1*

Guido Ala, Rosario Miceli, Pietro Romano, Giuseppe Schettino, and Fabio Viola
University of Palermo, Italy

EVER21-80 *Electric Vehicles and Psychology, Part 2*

Guido Ala, Rosario Miceli, Pietro Romano, Giuseppe Schettino, and Fabio Viola
University of Palermo, Italy



Friday, May 7, 2021

10H00 - 11H00, Room A
Fifth Plenary Session

Chairs: Zi Qiang Zhu (UK) and Imen Abdennadher (Tunisia)

EVER21-PS5 *Permanent Magnet Linear Machines with Primary Excitation*

Qinfen Lu
Zhejiang University, China

11H00 - 11H30: Break



11H30 - 13H30, Room A

EV5: Lecture Session on Machine Design and Control (Part 2)

Chairs: Qinfen Lu (China) and Rosario Miceli (Italy)

EVER21-60 *Enhanced Modelling for Extended Performance Analysis of Interior Permanent Magnet Synchronous Machine Drive fed with Cascaded H-Bridges Multilevel Inverter*

Antonino Oscar Di Tommaso, Rosario Miceli, Claudio Nevoloso, and Giuseppe Schettino
University of Palermo, Italy

Armin Dietz
Technische Hochschule Nürnberg, Germany

EVER21-78 *Novel Dual-PM Spoke-Type Flux-Reversal Machines*

F.R. Wei, Z.Q. Zhu, and H. Qu
University of Sheffield Sheffield, UK

EVER21-81 *Fault-Tolerant Multiphase Electric Generator Integrated in the Power Plant of an Aircraft*

J. Kammermann, I. Bolvashenkov, and H.-G. Herzog
Technical University of Munich, Germany

V. Vavilov, F. Ismagilov, and N. Tarasov
Ufa State Aviation Technical University, Russia

EVER21-82 *An Approach to Reduce the Detent Force of Double-Sided Flat Linear PMSMs*

Amal Souissi, Imen Abdennadher, and Ahmed Masmoudi
University of Sfax, Tunisia

EVER21-83 *On the Enhancement of the Thrust Production of LPMSMs: Application to Ropeless Elevators*

Amal Souissi, Imen Abdennadher, and Ahmed Masmoudi
University of Sfax, Tunisia

EVER21-87 *Analysis of Novel Dual-PM Vernier Machines*

F.R. Wei, Z.Q. Zhu, and H. Qu
University of Sheffield Sheffield, UK

11H30 - 13H30, Room B

REV2: Lecture Session on Sustainable Mobility and Energy: Actuators, Converters, and Wireless Charging

Chairs: Matias Diaz (Chile) and Constantinos Sourkounis (Germany)

EVER21-04 Wide Bandgap Semiconductor-Based Converters for EV and HEV Magnetically Coupled Resonant Wireless Power Transfer

Joao Dinis and Antonio J. Marques Cardoso
University of Beira Interior, Portugal

EVER21-35 Dynamic Converter Capacity Allocation for Multifunctional Energy Storage Systems in Oil and Gas Applications

Spyridon Chapaloglou
Norwegian University of Science and Technology, Norway
Danilo I. Brandao
Federal University of Minas Gerais, Brazil
Elisabetta Tedeschi
Norwegian University of Science and Technology, Norway
and
University of Trento, Italy

EVER21-36 Investigation of the Applicability of a Two-Motor Concept for Public Transportation Systems

Sebastian Sigle, Fabius Epple, and Patrick Dongus
German Aerospace Center, Germany

EVER21-39 Virtual Sensing-Based Control Design of a SiC Off-Board Charging System for Electric Bus Applications

Haaris Rasool, Tuan Manh Tran, Thomas Geury, Mohamed El Baghdadi, and Omar Hegazy
Vrije Universiteit Brussel (VUB), Belgium

EVER21-56 Multi-objective Sizing of Hybrid Generation Energy System for Remote Area Using Genetic Algorithm

Khaled Khezzane and Mamadou Lamine Doumbia
Université du Québec à Trois-Rivières, Canada
Farid Khoucha
Ecole Militaire Polytechnique, Algeria

EVER21-61 Fuel Cell Based Inductive Power Transfer System for Supercapacitors Constant Current Charging

Nicola Campagna, Vincenzo Castiglia, and Rosario Miceli
University of Palermo, Italy

13H30 - 14H30: Break

14H30 - 16H30, Room A

EV6: Lecture Session on Automotive Strategies, Systems, and Devices

Chairs: Rosario Miceli (Italy) and Moritz Schenker (Germany)

EVER21-18 *Comparison of Multi-Mass Models and Modal Models for State Estimation of High Power Drives*

Florian Bendrat and Constantinos Sourkounis
Ruhr University Bochum, Germany

EVER21-27 *Dashcam Video-Driven, Route Distinctive Energy Consumption Pre-Evaluation for Electrifying Public Services Fleets*

Rui Zhao, Tudor Stinescu, Erica E. F. Ballantyne, David A. Stone, and Martin P. Foster
The University of Sheffield, UK

EVER21-29 *An Anomaly Detection Study on Automotive Sensor Data Time Series for Vehicle Applications*

Cihangir Derse, Mohamed El Baghdadi, and Omar Hegazy
Vrije Universiteit Brussel, Belgium
Umut Sensoz, Hatice Nur Gezer, and Mustafa Nil
Manisa Celal Bayar University, Turkey

EVER21-34 *Comparative Analysis of Traction Inverter Controllers for the Mission-Profile Oriented Reliability and Performance Evaluation in Electric Vehicles*

Assel Zhaksylyk, Sajib Chakraborty, Ekaterina Abramushkina, Thomas Geury, Mohamed El Baghdadi, and Omar Hegazy
Vrije Universiteit Brussel, Belgium

EVER21-76 *Simulation Models for the Evaluation of Energy Consumptions of Electric Buses in Different Urban Traffic Scenarios*

Stefano Bracco, Giovanni Bianco, Silvia Siri, Cecilia Barbagelata, Consuelo Casati, and Enrico Siri
University of Genoa, Italy

EVER21-77 *Fuel Cell Electrical Vehicles as Mobile Coupled Heat- and Power Plant for Domestic Use During "Dunkelflauten"*

Tobias Tiedemann, Michael Kroener, Martin Vehse, and Carsten Agert
German Aerospace Center, Germany

14H30 - 15H50, Room B

RE4: Lecture Session on Energy Storage Systems

Chairs: Herena Torio (Germany) and Antonino Oscar Di Tommaso (Italy)

EVER21-25 *Design Strategy for a Distributed Energy storage in a Modular Mover*

Paul Schall, Sebastian Sigle, and Christian Ulrich
German Aerospace Center, Germany

EVER21-28 *Integration and Dimensioning of Battery Storage Systems in Commercial Building Applications with Renewable Powerplants and Battery Electric Vehicles*

Keno Oltmanns, Jan-Simon Telle, Thomas Steens, Benedikt Hanke, and Karsten von Maydell
German Aerospace Center, Germany

EVER21-66 *Characterizing Aging of Lithium-Ion Batteries during Long-Term Test Campaigns for Transport Applications*

Romain Tabusse, Charles Lorenzo, Daniela Chrenko, Samir Jemei, Daniel Hissel, and David Bouquain
University Bourgogne Franche-Comté, France
Samuel Hibon
Alstom, France

EVER21-85 *Impact of Constant Power Load Connection and Disconnection on Source Side Converter Transients in a DC Microgrid*

Jihen Arbi Ziani
Université de Tunis El Manar, Tunisia
and
Université de Carthage, Tunisia
Manel Jebali Ben Ghorbal, Sonia Moussa, and Ilhem Slama Belkhodja
Université de Tunis El Manar, Tunisia

See you in Monaco during EVER2022

