IEEE VPPC 2022 Preliminary Program

Wednesday, 2 November 2022

Wednesday, 2 November 2022, 10:45-12:25

Session 1, RT1

1 A Robust and Simple Long Horizon Health Estimation of Lithium-ion Batteries Using NARX Recurrent Neural Network

Safieh Bamati, Department of Electronics , Carleton University, Canada|Hicham Chaoui, Department of Electronics , Carleton University, Canada| Hamid Gualous, LUSAC Laboratory, Université de Caen Normandie, France

2 Enabling Rapid State of Health Offline Estimation of a 48V Lithium-Ion Battery Pack

Sara Luciani, Department of Mechanical and Aerospace Engineering, Politecnico di Torino, Italy|Pier Giuseppe Anselma, Department of Mechanical and Aerospace Engineering, Politecnico di Torino, Italy|Mario Silvagni, Department of Mechanical and Aerospace Engineering, Politecnico di Torino, Italy|Angelo Bonfitto, Department of Mechanical and Aerospace Engineering, Politecnico di Torino, Italy|Andrea Tonoli, Department of Mechanical and Aerospace Engineering, Politecnico di Torino, Italy

3 Observability analysis of a Li-ion cell equivalent circuit model based on interval arithmetic

Simone Fasolato, Department of Electrical, Computer and Biomedical Engineering, University of Pavia, Italy|Davide M. Raimondo, Department of Electrical, Computer and Biomedical Engineering, University of Pavia, Italy

4 Online Capacity Estimation of Lithium-ion Batteries by Partial Incremental Capacity Curve

Yixiu Wang, Chemical and Biological Engineering, The University of British Columbia, Canada|Jiangong Zhu, Clean Energy Automotive Engineering Center, Tongji University, China|Liang Cao, Chemical and Biological Engineering, The University of British Columbia, Canada|Bhushan Gopaluni, Chemical and Biological Engineering, The University of British Columbia, Canada|Yankai Cao, Chemical and Biological Engineering, The University of British Columbia, Canada

5 Battery Pack Cell Balancing using Topology Switching and Machine Learning

Yuqin Weng, Electrical and Computer Engineering, Marquette University, United States|Cris Ababei, Electrical and Computer Engineering, Marquette University, United States

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Session 2, RT3

1 DOE medium-and heavy-duty EV data collection project

Kevin Leong, CalStart, California, USA|Chase LeCroy, CalStart, California, USA|Yin Qiu, CalStart, California, USA|Cristina Dobbelaere, CalStart, California, USA

2 Energy Regeneration of Active Suspension System in Fuel Cell Vehicles

Mehdi Soleymani, Mechanical Engineering, UQTR, Canada|Arash Khalatbarisoltani, Electrical Engineering, UQTR, Canada|Mohsen Kandidayeni, Electrical Engineering, UQTR, Canada|Loic Boulon, Electrical Engineering, UQTR, Canada|Sousso Kelouwani, Mechanical Engineering, UQTR, Canada

3 Optimal control of a long haul automated articulated vehicle for tyre wear minimisation

Georgios Papaioannou, The Centre for ECO2 Vehicle Design, KTH Royal Institute of Technology, Sweden|Vallan Marroof, Department Engineering Mechanics, KTH Royal Institute of Technology, Stockholm, Sweden, Sweden|Jenny Jerrelind, Department Engineering Mechanics, KTH Royal Institute of Technology, Stockholm, Sweden, Sweden|Lars Druggu, Department Engineering Mechanics, KTH Royal Institute of Technology, Stockholm, Sweden, Sweden

4 Speed planning for connected and automated vehicles in urban scenarios using deep reinforcement learning

Jie Li, School of Mechanical Engineering, Shanghai Jiaotong University, China|Xiaodong Wu, School of Mechanical Engineering, Shanghai Jiaotong University, China|Jiawei Fan, SJTU-ParisTech Elite Institute of Technology, Shanghai Jiaotong University, China

5 Defensive driving of autonomous vehicles in mixed traffic

X. Li, University of California, Merced, USA|J. Sun, University of California, Merced, USA

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Session 3, RT6

1 A Lyapunov Optimization Approach to the Quality of Service for Electric Vehicle Fast Charging Stations

Mohammad Hossein Abbasi, Automotive Engineering, Clemson University, United States|Jiangfeng Zhang, Automotive Engineering, Clemson University, United States|Venkat Krovi, Automotive Engineering, Clemson University, United States

2 Application benchmark for quantum optimization on electromobility use case

Marika Federer, Cognitive Energy Systems, Fraunhofer IOSB-AST, Germany|Daniel Müssig, Cognitive Energy Systems, Fraunhofer IOSB-AST, Germany|Stefan Klaiber, Cognitive Energy Systems, Fraunhofer IOSB-AST, Germany|Jörg Lässig, Cognitive Energy Systems, Fraunhofer IOSB-AST, Germany|Peter Bretschneider, Cognitive Energy Systems, Fraunhofer IOSB-AST, Germany|Steve Lenk, Cognitive Energy Systems, Fraunhofer IOSB-AST, Germany

3 Coordination Strategies for Electric Vehicle Chargers Integration in Electrical Grids

Cesar Diaz-Londono, DEIB, Politecnico di Milano, Italy|giambattista gruosso, Deib, Politecnico di Milano, Italy|Paolo Maffezzoni, Deib, Politecnico di Milano, Italy|Luca Daniel, MIT, MIT, United States

4 Flexible artificial intelligence optimization for smart home energy systems with V2X

Florian Rippstein, AST, Fraunhofer IOSB, Germany|Steve Lenk, AST, Fraunhofer IOSB, Germany|Martin Rudolph, AST, Fraunhofer

IOSB, Germany|Stefan Klaiber, AST, Fraunhofer IOSB, Germany|Peter Bretschneider, AST, Fraunhofer IOSB, Germany

5 Multi-Day Stochastic Scheduling of Electric Vehicle Charging for Reliability and Convenience

Karl Schwenk, Institute for Automation and Applied Informatics, Karlsruhe Institute of Technology, Germany|Veit Hagenmeyer, Institute for Automation and Applied Info, Karlsruhe Institute of Technology, Germany|Ralf Mikut, Institute for Automation and Applied Informatics, Karlsruhe Institute of Technology, Germany

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Session 4, RT8

1 Parameter optimization for three-level inverter model Predictive control based on artificial neural network

Cheng Li , Center for Basic Research and Platform Dept., CRRC ZhuZhou Institude CO., LTD., China

2 An Improved Model Predictive Control for Three-level inverter

Zhaohui Wang, Electric Drive Control Technology Department, CRRC ZhuZhou Institude CO., LTD., China

3 Development of a short circuit simulation tool for railway DC electric traction infrastructure

Alejandro Palma, Electrical Engineering, Universidad de Oviedo, Spain|Francisco Torresano, CAF TE, CAF , Spain|Pablo Arboleya, Lemur Research Group, University of Oviedo, Spain

4 Pole Pitch Optimization of Permanent Magnet Electrodynamic Suspensions in High-Speed Transportation Systems

Louis Beauloye, Institute of Mechanics, Materials and Civil Engineering (IMMC), Université catholique de Louvain (UCLouvain), Belgium|Bruno Dehez, Institute of Mechanics, Materials and Civil Engineering (IMMC), Université catholique de Louvain (UCLouvain), Belgium

5 The research of levitation control method based on acceleration feedback linearization

Chen Qihui, Drive control department, CRRC zhuzhou institute, China|Hou Zhaowen, Drive control department, CRRC zhuzhou institute, China|Gan Weiwei, Drive control department, CRRC zhuzhou institute, China|Guo Wei, Drive control department, CRRC zhuzhou institute, China|Xu Yijing, Drive control department, CRRC zhuzhou institute, China|Chen Ke, Drive control department, CRRC zhuzhou institute, China

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Session 5, RT4

1 Control of Over-Actuated Systems - From Practical to Theoretical Concepts with Application in Hybrid Powertrain Speed Control Development

Louis Filipozzi, Mechanical and Aerospace Engineering, UC Davis, United States|Francis Assadian, Mechanical and Aerospace Engineering, UC Davis, United States

2 Energy-efficient power-split control of heterogeneous connected HEVs on urban conditions

Jie Luo, College of Information Engineering, Zhejiang University of Technology, China

3 Experimental Validation of Online Motion Planning for Semi-Autonomous Vehicles

Christoph Winter, Institute of System Dynamics and Control, German Aerospace Center (DLR), Germany|Ricardo de Castro, Department of Mechanical Engineering, University of California, Merced, United States|Tilman Bünte, Institute of System Dynamics and Control, German Aerospace Center (DLR), Germany

4 Motion control and power coordination of electric propulsion and braking distributed on multiple axles on heavy vehicles

Sachin Janardhanan, Mechanics and Maritime Sciences, Chalmers University of Technology, Sweden|Leo Laine, Group Trucks Technology, Volvo Group AB, Sweden|Mats Jonasson, Mechanics and Maritime Sciences, Chalmers University of Technology, Sweden|Bengt Jacobson, Mechanics and Maritime Sciences, Chalmers University of Technology, Sweden|Esteban Gelso, Group Trucks Technology, Volvo Group AB, Sweden

5 Optimal control of aftertreatment electric heaters for mild hybrid vehicles during cold start

Alexis Benaitier, Christian Doppler Laboratory, TU Wien, Austria|Christoph Hametner, Christian Doppler Laboratory, TU Wien, Austria|Ferdinand Krainer, Powertrain Engineering, AVL list GmbH, Austria|Stefan Jakubek, Institute of Mechanics and Mechatronics, TU Wien, Austria

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Session 6, RT5

1 A Novel Hydrogen-Based Thermal Management System for an Electric Helicopter

David Filusch, TUM School of Engineering and Design , Technical University of Munich (TUM), Germany|Jonas Zucker, -, Siemens Energy AG, Germany|Hans-Georg Herzog, TUM Schoolt of Engineering and Design (ED), Technical University of Munich (TUM), Germany

2 An analytical model to optimize the powertrain sizing of Fuel Cell Hybrid Electric Vehicles

Daniel Carlos da Silva, Mobility and Systems, IFP Energies nouvelles, France|Laid Kefsi, Mobility and Systems, IFP Energies nouvelles, France|Antonio Sciarretta, Digital Science and Technology, IFP Energies nouvelles, France

3 Component Sizing Optimization of 48V Electric Drivetrain for Urban-Sized Zero-Emissions Last-Mile Delivery and Services Vehicles

Amin GHADIRZADEH, ETEC, Vrije Universiteit Brussel, Belgium|Dai-Duong Tran, ETEC, Vrije Universiteit Brussel, Belgium|Mohamed El-Baghdadi, ETEC, Vrije Universiteit Brussel, Belgium|Omar Hegazy, ETEC, Vrije Universiteit Brussel, Belgium

4 Developing a Mesoscopic Energy Consumption Model for Battery Electric Trucks Using Real-World Diesel Truck Driving Data

Chao Wang, CECERT, University of California Riverside, United States|Peng Hao, CECERT, University of California Riverside, United States|Kanok Boriboonsomsin, CECERT, University of California Riverside, United States|Matthew Barth, CECERT, University of California Riverside, United States

5 Simulation of energy efficiency and performance of electrified powertrains in agricultural tractors

Antti Lajunen, Department of Agricultural Sciences, University of Helsinki, Finland

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Session 7, RT7

1 Evaluation of High-Efficiency Hydrogen Production from Solar Energy using Artificial Neural Network at the Université du Québec à Trois-Rivières

Ashkan Makhsoos, Institute for Hydrogen Research(IRH), Université du Québec à Trois-Rivières, Canada|Mohsen Kandidayeni, Electrical and Computer Engineering, University of Sherbrooke, Canada|Loïc Boulon, Institute for Hydrogen Research(IRH), Université du Québec à Trois-Rivières, Canada|Bruno G. Pollet, Institute for Hydrogen Research(IRH), Université du Québec à Trois-Rivières , Canada|Sousso Kelouwani, Institute for Hydrogen Research(IRH), Université du Québec à Trois-Rivières, Canada

2 Fuel Cell Ageing Prediction and Remaining Useful Life Forecasting

Karem BenChikha, Department of Electrical Engineering, Université du Québec à Trois-Rivières, Canada|Mohsen Kandidayeni, Department of Electrical and Computer Engineering, Université de Sherbrooke, Canada|Ali Amamou, Hydrogen Research Institute, Université du Québec à Trois-Rivières, Canada|Sousso Kelouwani, Department of Mechanical Engineering, Université du Québec à Trois-Rivières, Canada|Kodjo Agbossou, Hydrogen Research Institute, Université du Québec à Trois-Rivières, Canada|Afef Bennani Ben Abdelghani, Department of Electrical Engineering, University of Carthage, Tunisia

3 Optimal Sizing for MH Tank and PEM Fuel Cell Coupled Hydrogen System Affected by An Active Thermal Management system

Dan ZHU, School of Automobile, Chang'an University, China

4 Power Allocation of an Electrified Vehicle Based on Blended Reinforcement Learning With Fuzzy Logic

Razieh Ghaderi, Electrical and Computer Engineering, Université du Québec à Trois-Rivières, Canada|Mohsen Kandidayeni, Electrical and Computer Engineering, University of Sherbrooke, Canada|Loïc Boulon, Electrical and Computer Engineering, Université du Québec à Trois-Rivières, Canada|João Pedro F. Trovão, Electrical and Computer Engineering, University of Sherbrooke, Canada

5 The StasHH Fuel-Cell Module Standard

Federico Zenith, Robotics and Control, SINTEF Digital, Norway|Ruud Bouwman, Enabling Transport Solutions, VDL, Netherlands|Henrik Lundkvist, Reliable Automation, SINTEF Digital, Norway

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Session 8, RT2

1 Current Harmonic Suppression for High-speed Air Compressor based on Improved Discrete-time Current Controller and LC Filter

Yuan Zhu, School of Automotive Studies, Tongji University, China|Mingkang Xiao, School of Automotive Studies, Tongji University, China|Ling Meng, School of Automotive Studies, Tongji University, China|Ke Lu, School of Automotive Studies, Tongji University, China|Zhihong Wu, School of Automotive Studies, Tongji University, China

2 DB-DTFC for PMSM in the Stationary Reference Frame Using Reference Flux Vector Calculator

Yuefei Zuo, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore|Chenhao Zhao, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore|Huanzhi Wang, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore|Shuangchun Xie, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore|Boon Siew Han, Schaeffler Hub for Advanced Research at NTU, Schaeffler (Singapore) Pte Ltd, Singapore|Chi Cuong Hoang, Schaeffler Hub for Advanced Research at NTU, Schaeffler (Singapore) Pte Ltd, Singapore|Chok-You Chan, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore|Christopher H. T. Lee, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore

3 N-level GaN Transistor Model for Fast Simulation of Electric Vehicle based Power Electronics Systems

Mattea Eckstein, C-ALPS, Coventry University, United Kingdom|Ke Li, PEMC group, University of Nottingham, United Kingdom

4 Modeling and Speed Control for a Doubly-Salient Special Machine Employing a High-Fidelity Plant Model

Chandra Sekhar Goli, Electrical and Computer Engineering, University of North Carolina at Charlotte, United States|Somasundaram Essakiappan, Research and Development, QM Power Inc, United States|James Gafford, Energy Production & Infrastructure Center, University of North Carolina at Charlotte, United States|Dan M Ionel, Electrical and Computer Engineering, University of Kentucky, United States|Madhav Manjrekar, Electrical and Computer Engineering, University of North Carolina at Charlotte, United States|Nakul Shah, Research and Development , QM Power Inc, United States

5 PMSM with Hall Sensors- Which Control Method: Field-Oriented Control or Block Commutation?

Andreas Gerlach, Electric Drives, Electric Power Systems, Germany|Roberto Leidhold, Electric Drives, Electric Power Systems , Germany

Wednesday, 2 November 2022, 4:00-6:00

Session 9, RT1

1 An Adaptive and Fast Health Estimation of Lithium-ion Batteries Under Random Missing Data

Safieh Bamati, Department of Electronics , Carleton University, Canada|Hicham Chaoui, Department of Electronics , Carleton University, Canada|Hamid Gualous, LUSAC Laboratory, Université de Caen Normandie, France

2 An interlaced strategy for open circuit voltage and capacity estimation for lithium-ion batteries

Domenico Natella, Department of Engineering , University of Sannio, Italy|Simona Onori, Energy Resources Engineering, Stanford University, United States|Francesco Vasca, Engineering, University of Sannio, Italy

3 Fast and High Resolution Expansion Measurement at an Audi e-tron Battery Cell

Gunther Bohn, Electrical Engineering, University of Applied Sciences Würzburg-Schweinfurt, Germany|Johannes Taub, Electrical Engineering, University of Applied Sciences Würzburg-Schweinfurt, Germany|David Oeser, Technology Transfer Center for Electromobility, University of Applied Sciences Würzburg-

Schweinfurt, Germany|Andreas Ziegler, Technology Transfer Center for Electromobilit, University of Applied Sciences Würzburg-Schweinfurt, Germany

4 Reducing Charging Burden of Light Electric Vehicles by Integrated Photovoltaic Modules

Kil Young Lee, Smart Mobility Systems, Technical University of Berlin, Germany|Sangyoung Park, Smart Mobility Systems, Technical University of Berlin, Germany

5 Thermal modeling of batteries for EV energy management

Ali ABBAS, S2ET, LICIT-ECO7, ESTACA, Gustave EIFFEL University, France|Nassim RIZOUG, S2ET, ESTACA, France|Rochdi TRIGUI, LICIT-ECO7, Gustave EIFFEL University, France|Anthony BABIN, S2ET, ESTACA, France|Eduardo REDONDO-IGLESIAS, LICIT-ECO7, Gustave EIFFEL University, France|Serge PELISSIER, LICIT-ECO7, Gustave EIFFEL University, France

6 Set-based joint state and parameter estimation of a Li-ion cell using constrained zonotopes

Diego Locatelli, Department of Industrial and Information Engineering, University degli studi di Pavia , Italy|Giacomo Saccani, Department of Industrial and Information Engineering, Università degli studi di Pavia , Italy|Brenner Santana Rego, Department of Electronics Engineering, Federal University of Minas Gerais (UFMG), Brazil|Guilherme Raffo, Department of Electronics Engineering, , Federal University of Minas Gerais (UFMG), Brazil|Davide Martino Raimondo, Department of Industrial and Information Engineering, Università degli studi di Pavia, Italy

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Session 10, SS10

1 IEEE VTS Motor Vehicles Challenge 2023: A Multi-physical Benchmark Problem for Next Generation Energy Management Algorithms

Jonathan Brembeck, Institute of System Dynamics and Control (SR), German Aerospace Center (DLR), Germany|Ricardo de Castro, Department of Mechanical Engineering, University of California Merced, United States|Jakub Tobolár, Institute of System Dynamics and Control (SR), German Aerospace Center (DLR), Germany|Iman Ebrahimi, Department of Mechanical Engineering, University of California Merced, United States

2 Optimal Sizing and Management of a Hybrid Energy Storage System for Full-Electric Vehicles

Alessandro Serpi, Department of Electrical and Electronic Engineering, University of Cagliari, Italy|Mario Porru, Department of Electrical and Electronic Engineering, University of Cagliari, Italy

3 Recurrent Neural Network-based Predictive Energy Management for Hybrid Energy Storage System of Electric Vehicles

Jingda Wu, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore|Zhiyu Huang, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore|Chen Lv, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

4 Sizing and Energy Management Strategy of a Hybrid Energy Storage System for EVs

Edoardo Ferri, DEIB, Politecnico di Milano, Italy|Marzio Barresi, DEIB, Politecnico di Milano, Italy|Silvia Colnago, DEIB, Politecnico di Milano, Italy

5 Use of supercapacitors to enhance the lifetime and efficiency of road vehicle batteries

Davide del Giudice, DEIB, Politecnico di Milano, Italy|Davide De Simone, DEIB, Politecnico di Milano, Italy|Luigi Piegari, DEIB, Politecnico di Milano, Italy

6 Sizing of Battery/Supercapacitor Hybrid Energy Storage System for Electric Vehicles

Tien Nguyen-Minh, Department of Automation Engineering, Hanoi University of Science and Technology, Vietnam|Thanh Vo-Duy, Department of Automation Engineering, Hanoi University of Science and Technology, Vietnam|B?o-Huy Nguy?n, Department of Automation Engineering, Hanoi University of Science and Technology, Vietnam|Minh C. Ta, e-TESC Laboratory, University of Sherbrooke, Canada|Joao Pedro F. Trovao, e-TESC Laboratory, University of Sherbrooke, Canada

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Session 11, SS7

1 Brake Blending Design Using Distributed and Shared X-in-the-loop Test Environment

Valentin Ivanov, Automotive Engineering Group, TU Ilmenau, Germany|Viktar Beliautsou, Automotive Engineering Group, TU Ilmenau, Germany|Viktor Schreiber, Automotive Engineering Group, TU Ilmenau, Germany|Marius Heydrich, Automotive Engineering Group, TU Ilmenau, Germany|Elizaveta Gramstat, Virtual Driving Testing, EFS, Germany|Sebastian Gramstat, Development Foundation Brake, AUDI AG, Germany

2 Hardware in the Loop testing of an LQR based lateral stability control

Federico Alfatti, DIEF, Dipartimento di Ingegneria Industriale, Università degli Studi di Firenze, Italy|Margherita Montani, DIEF, Dipartimento di Ingegneria Industriale, Università degli studi di Firenze, Italy|Tommaso Favilli, DIEF, Dipartimento di Ingegneria Industriale, Università degli Studi di Firenze, Italy|Luca Pugi, DIEF, Dipartimento di Ingegneria Industriale, Università degli Studi di Firenze, Italy|Claudio Annicchiarico, -, Meccanica 42 S.r.l., Italy|Renzo Capitani, DIEF, Dipartimento di Ingegneria Industriale, Università degli Studi di Firenze, Italy

3 Validation of Integrated EV Chassis Controller Using a Geographically Distributed X-in-the-loop Network

Viktar Beliautsou, Automotive Engineering Group, TU Ilmenau, Germany|Jesus Alfonso, Mechatronics Dept., Instituto Tecnologico de Aragon, Spain|Joris Giltay, Dept. of Cognitive Robotics, Delft University of Technology, Netherlands|Florian Büchner, Automotive Engineering Group, TU Ilmenau, Germany|Barys Shyrokau, Dept. of Cognitive Robotics, Delft University of Technology, Netherlands|Jose A. Castellanos, Instituto de Investigación en Ingeniería de Aragón, Universidad de Zaragoza, Spain|Valentin Ivanov, Automotive Engineering Group, TU Ilmenau, Germany

4 Distributed PI Control Design for Ground--Aerial Cooperative Vehicle Tracking

Dinh Hoa Nguyen, Institute of Mathematics for Industry (IMI), International Institute for Carbon-Neutral Energy Research, Japan|Hung Dinh Nguyen, School of Electrical and Electronic

Engineering, Nanyang Technological University, Singapore, Singapore

5 A Multi-Agent Approach for P2P Energy Trading with EV Battery Thermal Profile Management

Anshuman Singh, School of Electrical and Electronic Engineering , Nanyang Technological University, Singapore|Mohasha Lahanda Purage, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore|Hoa Nguyen, WPI-I2CNER, and IMI, Kyushu University, Japan|Hoay Gooi, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore|Hung Nguyen, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore

6 Energy Efficiency Assessment for an Ultra-Fast Charging Station

Ciro Attaianese, Department of Electrical Engineering and Information Technology, University of Naples Federico II, Italy|Antonio Di Pasquale, Department of Electrical Engineering and Information Technology, University of Naples Federico II, Italy|Emanuele Fedele, Department of Electrical Engineering and Information Technology, University of Naples Federico II, Italy|Diego Iannuzzi, Department of Electrical Engineering and Information Technology, university of Naples Federico II , Italy|Mario Pagano, Department of Electrical Engineering and Information Technology, university of Naples Federico II , Italy|Mattia Ribera, Department of Electrical Engineering and Information Technology, university of Naples Federico II, Italy

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Session 12, SS8

1 A sorting method of retired lithium-ion batteries using the improved k-means algorithm based on the incremental capacity curve

Zuhang Chen, School of Rail Transportation, Soochow University, China|Yelin Deng, School of Rail Transportation, Soochow University, China|Honglei Li, School of Mechanical Engineering, Dalian University of Technology, China|Weiwei Liu, School of Mechanical Engineering, Dalian University of Technology, China

2 A study of the interactive effect of cathode material loss, SEI formation and lithium plating in NMC-graphite battery modeling

Boman Su, Department of Mechanical and Aerospace Engineering, Case Western Reserve University, United States|Chris Yuan, Department of Mechanical and Aerospace Engineering, Case Western Reserve University, United States|Olivia Cai, College of Computing, Georgia Institute of Technology, United States

3 Impact of battery cell imbalance on the voltage behavior of commercial Ni-MH EV/HEV battery modules

Piyushkumar Ahir, Mechanical Engineering, California State University Fresno, United States|Yuanyuan Xie, Mechanical Engineering, California State University Fresno, United States|Gemunu Happawana, Mechanical Engineering, California State University Fresno, United States

4 Input Excitation Optimization for Estimating Battery Electrochemical Parameters using Reinforcement Learning

Rui Huang, Department of Mechanical and Aerospace Engineering, University of California, Davis, United States|Jackson Fogelquist, Department of Mechanical and Aerospace Engineering, University of California, Davis, United States|Xinfan Lin, Department of Mechanical and Aerospace Engineering, University of California, Davis, United States

5 Investigating changes in transport, kinetics and heat generation over NCA/Gr-SiOx battery lifetime

Malgorzata Wojtala, Department of Engineering Science, The University of Oxford, United Kingdom|Ferran Brosa-Planella, -, WMG University of Warwick, The Faraday Institution, United Kingdom|Alana Zülke, Department of Engineering, Lancaster University, The Faraday Institution, United Kingdom|Harry Hoster, Engineering Department, Lancaster University, The Faraday Institution, The Hydrogen and Fuel Cell Center ZBT GmbH, United Kingdom|David Howey, Department of Engineering Science, The University of Oxford, The Faraday Institution, United Kingdom

6 Machine Learning Applied to Battery Prognostics based on Advanced State of Health Estimation

Kaoutar Benlamine, ICUBE, INSA, France

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Session 13, RT4

1 Battery temperature aware equivalent consumption minimization strategy for mild hybrid electric vehicle powertrains

Matteo Acquarone, Department of Energy "Galileo Ferraris" (DENERG), Politecnico di Torino, Italy|Pier Giuseppe Anselma, Department of Mechanical and Aerospace Engineering (DIMEAS), Politecnico di Torino, Italy|Federico Miretti, Department of Energy "Galileo Ferraris" (DENERG), Politecnico di Torino, Italy|Daniela Anna Misul, Department of Energy "Galileo Ferraris" (DENERG), Politecnico di Torino, Italy

2 Energy Management Strategy with Adaptive Cut-off Frequency for Hybrid Energy Storage System in Electric Vehicles

Yasser Ghoulam, Electrical Engineering, INSA Strasbourg, France|Thomas Pavot, Electrical Engineering, INSA Strasbourg, France|Lakhdar Mamouri, Electrical Engineering, Unistra, France|Tedjani Mesbahi, Electrical Engineering, INSA Strasbourg, France|Sylvain Durand, Electrical Engineering, INSA Strasbourg, France|Christophe Lallement, Electrical Engineering, INSA Strasbourg, France|Renaud Kiefer, Electrical Engineering, INSA Strasbourg, France|Edouard Laroche, Electrical Engineering, INSA Strasbourg, France

3 Modeling of the Thermal Energy Management System for Battery Electric Vehicles

Prashant Lokur, Electrical Engineering , Chalmers University of Technology , Sweden|Kristian Nicklasson, Energy and Thermal Management, China Euro Vehicle Technology, Sweden|Leo Verde, Energy and Thermal Management, China Euro Vehicle Technology, Sweden|Mikael Larsson , Energy and Thermal Management , China Euro Vehicle Technology, Sweden|Nikolce Murgovski, Electrical Engineering, Chalmers University of Technology , Sweden

4 Reinforcement Learning-based Controller for Thermal Management System of Electric Vehicles

Wansik Choi, School of Mechanical Engineering, Pusan National University, South Korea|Jae Woong Kim, Total Thermal Management Research Lab, Hyundai Motor Company, South Korea|Changsun Ahn, School of Mechanical Engineering, Pusan National University, South Korea|Juhui Gim, School of Electrical Electronics and Control Engineering, Changwon National University, South Korea

5 Reinforcement Learning-Based Energy Management System Enhancement Using Digital Twin for Electric Vehicles

Yiming Ye, Department of Automotive Engineering, Clemson University, United States|Bin Xu, School of Aerospace and Mechanical Engineering, University of Oklahoma , United States|Jiangfeng Zhang, Department of Automotive Engineering, Clemson University, United States|Benjamin Lawler, Department of Automotive Engineering, Clemson University, United States|Beshah Ayalew, Department of Automotive Engineering, Clemson University, United States

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Session 14, RT5

1 Adaptive LQR Control for a Rear-Wheel Steering Battery Electric Vehicle

Eugenio Tramacere, Center for Automotive Research and Sustainable mobility (CARS), Politecnico di Torino, Italy|Luis Miguel Molina Castellanos, Center for Automotive Research and Sustainable mobility (CARS), Politecnico di Torino, Italy|Nicola Amati, Center for Automotive Research and Sustainable mobility (CARS), Politecnico di Torino, Italy|Andrea Tonoli, Center for Automotive Research and Sustainable mobility (CARS), Politecnico di Torino, Italy|Angelo Bonfitto, Center for Automotive Research and Sustainable mobility (CARS), Politecnico di Torino, Italy

2 Design and Testing of Wireless EV Charging System with Improved Lateral Misalignment Tolerance

Mustafa Abdulhameed, Department of Electrical Engineering, American University of Sharjah, United Arab Emirates|Eiman ElGhanam, Department of Electrical Engineering, American University of Sharjah, United Arab Emirates|Ahmed H. Osman, Department of Electrical Engineering, American University of Sharjah, United Arab Emirates|Mohamed S. Hassan, Department of Electrical Engineering, American University of Sharjah, United Arab Emirates

3 Drag force parameters identification for a cargo-bike based on free deceleration measurement

Bastien Collette, AME, Gustave Eiffel University, France|Emmanuel vinot, AME, Gustave Eiffel UNiversity, France|Pierre-Olivier Vandanjon, AME, Gustave Eiffel University, France

4 Range Extension of Battery Electric Trucks in Drayage Operations with Wireless Opportunity Charging at Port Terminals

Fuad Un-Noor, Center for Environmental Research and Technology, University of California, Riverside, United States|Alexander Vu, Center for Environmental Research and Technology, University of California, Riverside, United States|Shams Tanvir, Civil and Environmental Engineering, California Polytechnic State University, United States|Zhiming Gao, National Transportation Research Center, Oak Ridge National Laboratory, United States|Matt Barth, Center for Environmental Research and Technology, University of California, Riverside, United States|Kanok Boriboonsomsin, Center for Environmental Research and Technology, University of California, Riverside, United States

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Session 15, RT2

1 A Stator Yokeless Radial Flux Dual Rotor Permanent Magnet Synchronous Motor

Minglei Yang, School of Automotive Studies, Tongji university, China|Zaimin Zhong, School of Automotive Studies, Tongji university, China|Qinglong Wang, School of Automotive Studies, Tongji university, China|Zhongshu Shao, School of Automotive Studies, Tongji university, China

2 Core Loss Distribution in a Switched Reluctance Motor – Linear and Nonlinear Analysis

Pedro Melo, Electrical Engineering, School of Engineering, Polytechnic of Porto , Portugal|Rui Araújo, Electrical Engineering, INESC TEC and Faculty of Engineering, University of Porto , Portugal

3 Analysis of Total DC-Bus Current in Single-Pulse-Operated Switched Reluctance Machine Drive

Anupam Verma, Electrical Engineering, Indian Institute of Science, India|Gopalaratnam Narayanan, Electrical Engineering, Indian Institute of Science, India

4 Transient Thermal Lumped Parameter Model of an Electrical Excited Synchronous Machine with Forced Air Cooling for Shape Optimization

Hagen Spielmann, Institute of Vehicle Concepts, German Aerospace Center (DLR), Germany

5 A New Flux-Concentrating Rotor of Double Stator and Single Rotor Axial Flux Permanent Magnet Motor for Electric Vehicle Traction Application

Shirong Ge, School of Automation, Nanjing University of science and technology, China|Weiwei Geng, School of Automation, Nanjing University of science and technology, China|Qiang Li, School of Automation, Nanjing University of science and technology, China

Thursday, 3 November 2022, 10:45-12:25

Session 16, SS6

1 Driver-in-the-Loop Simulation to Assess Steering Torque Feeling due to Torque Vectoring Control

Michele Asperti, Mechanical Engineering, Politecnico di Milano, Italy|Michele Vignati, Mechanical Engineering, Politecnico di Milano, Italy|Edoardo Sabbioni, Mechanical Engineering, Politecnico di Milano, Italy

2 Improved Vehicle Dynamics performance using In-Wheel Motor Torque Vectoring and Electromechanical Active Suspension Roll Damping

Nick De Bie, MotionS, Flanders Make VZW, Belgium|Jeroen Geysen, MotionS, Flanders Make VZW, Belgium|Bernhard E. Westerhof, MotionS, Flanders Make VZW, Belgium|Jasper De Smet, MotionS, Flanders Make VZW, Belgium

3 Reviewing control allocation using quadratic programming for motion control and power coordination of battery electric vehicles

Sachin Janardhanan, Mechanics and Maritime Sciences, Chalmers University of Technology, Sweden|Esteban Gelso, Group Trucks Technology, Volvo Group AB, Sweden|Leo Laine, Group Trucks Technology, Volvo Group AB, Sweden|Mats Jonasson, Mechanics and Maritime Sciences, Chalmers University of Technology, Sweden|Bengt Jacobson, Mechanics and Maritime Sciences, Chalmers University of Technology, Sweden

4 Tire Force Allocation with Different Vertical Load Estimation Methods for 4WID-4WIS Vehicles

Runfeng Li, School of Vehicle and Mobility, Tsinghua University, China|Yiwen Sun, School of Vehicle and Mobility, Tsinghua University, China|Ziwang Lu, School of Vehicle and Mobility, Tsinghua University, China|Guangyu Tian, School of Vehicle and Mobility, Tsinghua University, China

5 Real-time implementation of yaw rate and sideslip control through individual wheel torques

Mariagrazia Tristano, Engineering and Mathematics, Sheffield Hallam University, United Kingdom|Basilio Lenzo, Industrial Engineering, Università di Padova, Italy|Xu Xu, Engineering and Mathematics, Sheffield Hallam University, United Kingdom|Bart Forrier, TSVT Division, Siemens Digital Industries Software, Belgium|Thomas D'hondt, TSVT Division, Siemens Digital Industries Software, Belgium|Enrico Risaliti, TSVT Division, Siemens Digital Industries Software, Belgium|Erik Wilhelm, Research division, Kyburz, Switzerland

Thursday, 3 November 2022, 1:45-3:25

Session 17, SS13

1 Analysis of Power Flows in a DC Railway System with Hardware-in-the-Loop Simulation

Ryan O. Berriel, LEP, L2EP - Univ. Lille, France|David Ramsey, LEP, L2EP - Univ. Lille, France|Lauro Ferreira, LEP, L2EP - Univ. Lille, France|Alain Bouscayrol, LEP, L2EP - Univ. Lille, France|Philippe Delarue, LEP, L2EP - Univ. Lille, France|Charles Brocart, Transport, Métropole Européenne de Lille, France

2 Fast Computational Dynamic Model of Traction Drive for Electric Vehicles

Anatole Desreveaux, Group of electrical engineering of Paris, University Paris Saclay - Centrale Supelec, France|Eric Laboure, Group of electrical engineering of Paris, University Paris Saclay - Centrale Supelec, France|Olivier Bethoux, Group of electrical engineering of Paris, Sorbonne Universite, France|Clement Mayet, SATIE, Conservatoire National des Arts et Metiers (CNAM), France|Alessio Iovine, Laboratory of Signals and Systems, University Paris Saclay - Centrale Supelec, France|William Pasillas-Lepine, Laboratory of Signals and Systems, University Paris Saclay - Centrale Supelec, France|Francis Roy, Automotive Research and advanced engineering, Stellantis, France

3 HiL Testing of a High C-Rate Battery For the Nissan Leaf

Salma FADILI, L2EP, University of Lille, France|Ronan GERMAN, L2EP, University of Lille, France|Alain Bouscayrol, L2EP, University of Lille, France

4 Passive Coupling of Batteries and Supercapacitors Based on Module-Scaled Models

Théo Lenoir, GEGI, University of Sherbrooke, Canada|Pascal Messier, GEGI, University of Sherbrooke, Canada|João Pedro Trovão, GEGI, University of Sherbrooke, Canada|Félix-A. Lebel, GEGI, University of Sherbrooke, Canada

5 Steering Vector Control for Lateral Force Distribution of Electric Vehicles

An-Toan Nguyen, Electrical and Computer Engineering, Université de Sherbrooke, Canada|Binh-Minh Nguyen, Advanced Energy, The University of Tokyo, Japan|Thanh Vo-Duy, CTI Lab. for EVs, Hanoi University of Science and Technology, Vietnam|Minh C. Ta, Electrical and Computer Engineering, Université de Sherbrooke, Canada

Thursday, 3 November 2022, 1:45-3:25

Session 18, RT3

1 Azimuthal localization of a ground stationary target using Doppler and comparison with antenna-based phase method

Ashish Mishra, Radar Development, Veoneer US, LLC, United States|Michael Paradie, Radar Development, Veoneer US, LLC, United States|Stephen Osgood, Radar Development, Veoneer US, LLC, United States

2 Smart Traffic Light Controller using Visible Light Communications

Hovannes Kulhandjian, Electrical and Computer Engineering, California State University, Fresno, United States|Wyatt Greives, Electrical and Computer Engineering, California State University, Fresno, United States|Michel Kulhandjian, Electrical and Computer Engineering, Rice University, United States

3 Vehicle Teleoperation: Successive Reference-Pose Tracking to Improve Path Tracking and to Reduce Time-Delay Induced Instability

Jai Prakash, Department of Mechanical Engineering, Politecnico Di Milano, Italy|Michele Vignati, Department of Mechanical Engineering, Politecnico Di Milano, Italy|Edoardo Sabbioni, Department of Mechanical Engineering, Politecnico Di Milano, Italy|Federico Cheli, Department of Mechanical Engineering, Politecnico Di Milano, Italy

4 Versatile Safe Autonomous Intersection Management Protocol for Heterogeneous Connected Vehicles

Ashkan Gholamhosseinian, Electrical Engineering and Information Technology, Technische Universität Ilmenau, Germany|Jochen Seitz, Electrical Engineering and Information Technology, Technische Universität Ilmenau, Germany

5 Drowsy Driver Detection Using Deep Learning and Multi-Sensor Data Fusion

Hovannes Kulhandjian, Electrical and Computer Engineering, California State University, Fresno, United States|Nicolas Martinez, Electrical and Computer Engineering, California State University, Fresno, United States|Michel Kulhandjian, Electrical and Computer Engineering, Rice University, United States

Thursday, 3 November 2022, 1:45-3:25

Session 19, RT8

1 Parameter optimization for three-level inverter model Predictive control based on artificial neural network

Cheng Li , Center for Basic Research and Platform Dept., CRRC ZhuZhou Institude CO., LTD., China

2 A Systems Integration Case Study involving SCADA, Interfaces and Challenges

Kshitij Saxena, Transit and Rail, KS Consulting, Canada

3 Sustainable MVDC Railway System Integrated with Renewable Energy Sources and EV Charging Station

Hamed Jafari Kaleybar, Energy, Politecnico di Milano, Italy|Morris Brenna, Energy, Politecnico di Milano, Italy|Francesco Castelli-Dezza, Mechanical, Politecnico di Milano, Italy|Dario Zaninelli, Energy, Politecnico di Milano, Italy

4 Targeted Traction Power Modulation of High-Speed Trains for Stabilization of Electric Supply Network with the Electric Flexibility

Abdoulaye PAM, Innovation and Research, SNCF, France|Tony Letrouvé, CEDD, SNCF Reseau, France|Olivier Grellier, Innovation and Research, SNCF, France

5 Design and Analysis of Parallel Hybrid-Excited Superconducting Linear Motor for High-Speed Electromagnetic Suspension Maglev

Yiming Shen, Key Laboratory of Railway Industry of Maglev Technology (TJU), National Railway Administration of P. R. C, China|Yanxin Li, College of Electrical Engineering, Zhejiang University, China|Qinfen Lu, College of Electrical Engineering, Zhejiang University, China

Thursday, 3 November 2022, 1:45-3:25

Session 20, RT6

1 En-Route Opportunity Charging for Heavy-Duty Battery Electric Trucks in Drayage Operations: Case Study at the Southern California Ports

Jacqueline Garrido, Department of Electrical and Computer Engineering, University of California, Riverside, United States|Emmanuel Hidalgo, Department of Electrical and Computer Engineering, University of California, Riverside, United States|Matthew Barth, Department of Electrical and Computer Engineering, University of California, Riverside, United States|Kanok Boriboonsomsin, CE-CERT, Center for Environmental Research and Technology, United States

2 EVCCS: Realistic Simulation Framework for Electric Vehicle Commute and Charge

Sushil Poudel, Department of Computer Science, Tennessee Technological University, United States|Mahmoud Abouyoussef , Department of Computer Science, Tennessee Technological University, United States|Muhammad Ismail, Department of Computer Science, Tennessee Technological University Cookeville, United States

3 Grid-Favorable, Consumer-Centric, On/Off Smart Charging of Electric Vehicles in a Neighborhood

Kartik Sastry, School of Electrical and Computer Engineering, Georgia Institute of Technology, United States|Thomas Fuller, School of Chemical and Biomolecular Engineering, Georgia Institute of Technology, United States|Santiago Grijalva, School of Electrical and Computer Engineering, Georgia Institute of Technology, United States|David Taylor, School of Electrical and Computer Engineering, Georgia Institute of Technology, United States|Michael Leamy, School of Mechanical Engineering, Georgia Institute of Technology, United States

4 IEVCC - A Mesh Managed Network for Electric Vehicle Charging

Filipe Cardoso, ESTGV, Polytechnic Viseu , Portugal|Pedro Baptista, ESTGV, Polytechnic Viseu, Portugal|Marco Silva, DEE, IPC - Instituto Superior de Engenharia de Coimbra, Portugal|Filipe Caldeira, ESTGV, Polytechnic Viseu, Portugal|José Rosado, DEIS, IPC - Instituto Superior de Engenharia de Coimbra, Portugal

5 Modelling of power flow and losses in a conductive Electric Road System

David Wenander, Faculty of Engineering, Lund University, Sweden|Francisco J. Márquez-Fernández, Faculty of Engineering, Lund University, Sweden|Mats Alaküla, Faculty of Engineering, Lund University, Sweden

Thursday, 3 November 2022, 4:00-6:00

Session 21, SS1

1 A Multi-Agent Approach to Landing Speed Control with Angular Rate Stabilization for Multirotors

Binh Minh Nguyen, Advanced Energy, The University of Tokyo, Japan|Shinji Hara, Computational Intelligence and Systems Science, Tokyo Institute of Technology, Japan|Vu Phi Tran, Engineering and Information Technology, University of New South Wales, Australia

2 Effect of Battery/Supercapacitor Hybrid Storage System on Battery Voltage in Electric Vehicles

Chi Nguyen, e-TESC Lab, Université de Sherbrooke, Canada|Bao-Huy Nguyen, School of Electrical and Electronic Engineering, Hanoi

University of Science and Technology, Vietnam|Joao Trovao, e-TESC Lab, Université de Sherbrooke, Canada|Minh Ta, e-TESC Lab, Université de Sherbrooke, Canada

3 Identification of Planar Double-wishbone Suspension Mechanism Using Jacobian Approach

Guofeng Zhou, College of Engineering Science and Technology, Shanghai Ocean University, China|Shengye Jin, College of Engineering Science and Technology, Shanghai Ocean University, China|Yafei Wang, School of Mechanical Engineering, Shanghai Jiao Tong University, China|Shouqi Cao, College of Engineering Science and Technology, Shanghai Ocean University, China

4 Power Hardware-in-the-loop Simulation of Hybrid Energy Storage System Considering Supercapacitor Voltage Limitation

Lam Vu-Ngoc, School of Electrical and Electronic Engineering, Hanoi University of Science and Technology, Vietnam|Bao-Huy Nguyen, School of Electrical and Electronic Engineering, Hanoi University of Science and Technology, Vietnam|Thanh Vo-Duy, School of Electrical and Electronic Engineering, Hanoi University of Science and Technology, Vietnam|Minh Ta, e-TESC Lab, Université de Sherbrooke, Canada|Joao Trovao, e-TESC, Université de Sherbrooke, Canada

5 Robust Adaptive Learning Control for Different Classes of Dissipative Vehicle Systems

Mohamed Mabrok, Department of Mathematics, Statistics and Physics,, Qatar University, Qatar|Vu Phi Tran, School of Engineering and Information Technology, University of New South Wales at Canberra, Australia|Matthew Garratt, School of Engineering and Information Technology, University of New South Wales at Canberra, Australia|Ian Petersen, Research School of Engineering, Australian National University, Australia

6 Tire Vertical Force Estimation Method using Suspension Deformation and Stochastic Road Model in Vehicle Suspension System

Dasol Cheon, Department of Robotics Engineering, DGIST, South Korea|Wonhyeok Choi, Department of Robotics Engineering, DGIST, South Korea|Kanghyun Nam, School of Mechanical Engineering, Yeungnam University, South Korea|Sehoon Oh, Department of Robotics Engineering, DGIST, South Korea

Thursday, 3 November 2022, 4:00-6:00

Session 22, SS11

1 An Online Energy Management Strategy For Multi-Fuel Cell Stacks Systems Using Remaining Useful Life Prognostic

Wabi Réné BANKATI, Department of Electrical and Computer Engineering, Hydrogen Research Institute, Université du Québec à Trois-Rivières, Canada; FEMTO-ST Institute, FCLAB, Univ. Bourgogne Franche-Comté, CNRS, France, France|Alvaro Macias, Department of Electrical and Computer Engineering, Hydrogen Research Institute Université du Québec à Trois-Rivières, Canada|Mehdi Soleymani, Department of Electrical and Computer Engineering, Hydrogen Research Institute Université du Québec à Trois-Rivières, Canada|Loïc Boulon, Department of Electrical and Computer Engineering, Hydrogen Research Institute Université du Québec à Trois-Rivières, Canada|Samir Jemei, Energy Department, FEMTO-ST Institute, FCLAB Univ. Bourgogne Franche-Comté CNRS, France, France

2 Decentralized convex optimization-based energy management strategy for modular heavy-duty fuel cell vehicles

Hao Long, College of Mechanical and Vehicle Engineering, Chongqing University, China|Arash Khalatbarisoltani, College of Mechanical and Vehicle Engineering, Chongqing University, China|Xiaosong Hu, College of Mechanical and Vehicle Engineering, xiaosonghu@ieee.org, China

3 Parametrization, Simulation and Energy Management Evaluation of a Fuel Cell Hybrid Electric Bus

Josu Olmos, Energy Storage and Management, Ikerlan Technology Research Centre (Basque Research and Technology Alliance), Spain|Petr Hajduk, Smart Vehicle Fleets, VTT Technical Research Centre of Finland, Finland|Joel Anttila, Smart Vehicle Fleets, VTT Technical Research Centre of Finland, Finland|Valtteri Pulkkinen, Fuel Cells and Hydrogen, VTT Technical Research Centre of Finland, Finland|Rafael Åman, Smart Vehicle Fleets, VTT Technical Research Centre of Finland, Finland|Andoni Saez-de-Ibarra, Energy Storage and Management, Ikerlan Technology Research Centre (Basque Research and Technology Alliance), Spain

4 Proton Exchange Membrane Fuel Cell Signal-Based Diagnostics Using Empirical Fourier Transform

Abderazek CHEIKH, Department of Energy, FEMTO-ST Institute, FCLAB Univ. Bourgogne Franche-Comte CNRS,, France|Nadia Yousfi Steiner, Department of Energy, FEMTO-ST Institute, FCLAB Univ. Bourgogne Franche-Comte CNRS,, France|Elodie Pahon, Department of Energy, FEMTO-ST Institute, FCLAB Univ. Bourgogne Franche-Comte CNRS,, France|Michel Benne, HSE, IUT de La Réunion, Energy-Lab, Univ Reunion, France|Daniel Hissel, Department of Energy, FEMTO-ST Institute, FCLAB Univ. Bourgogne Franche-Comte CNRS,, France|Cedric Damour, Department of HSE, IUT de La Réunion, Energy-Lab,Univ Reunion, France

Thursday, 3 November 2022, 4:00-6:00

Session 23, SS

1 Carbon care action of a European research project on electrified vehicles

Amandine LEPOUTRE, L2EP, University of Lille, France|Alain BOUSCAYROL, L2EP, University of Lille, France|Cristi IRIMIA, Brasov, Slemens Industry Software, Romania|Calin HUSAR, Brasov, Siemens Industry Software, Romania|Theodoros KALOGIANNIS, Mobi Group, Vrije University of Brussels, Belgium|Mariam AHMED, VEEM, Valeo, France|Claudia MARTIS, Cluj-Napoca, University of Technology of Cluj Napoca, Romania|Dragan ZUBER, Novi Sad, Typhoon HIL, Serbia|Sven MAISEL, Battery Testing, TUV-SUD, Germany|Fei GAO, FEMTO-ST, Université de Bourgogne Franche-Comté, France|Wieteke VAN VALEN, Delft, Unireserach BV, Netherlands|Adrian BIRTAS, Bucharest, Renault Technologie Roumanie, Romania|Johan LECOUTERE, Leuven, Bluways, Belgium

2 Linear Scaling Evaluation of Losses for Automotive Traction Voltage Source Inverters

Luis Ramirez, L2EP, Universite de Lille, France|Ayoub Aroua, L2EP, Universite de Lille, France|Philippe Delarue, L2EP, Universite de Lille, France|Walter Lhomme, L2EP, Universite de Lille, France

3 Harnessing nature: Using solar and wind power with stationary battery storage for electric minibus taxis

MJ Booysen, Engineering, Stellenbosch University, South Africa|Larissa Fuessl, Electrical and Electronic Engineering, Stellenbosch University, South Africa|Bernd Thomas, Engineering, Reutlingen University, Germany

4 Suitability of On Site Solar Generation, Including Vertical Bifacial Panels, for a Charging Station Analogous to a Present Day Convenience Store

Jeremiah Reagan, Materials Biomaterials Science and Engineering, UC Merced, United States|Sarah Kurtz, Materials Biomaterials Science and Engineering, UC Merced, United States

5 Optimal Switching Angles for Switched Reluctance Generator Operating Under Modified Single-Pulse-Mode

Anupam Verma, Electrical Engineering, Indian Institute of Science, India|Gopalaratnam Narayanan, Electrical Engineering, Indian Institute of Science, India

Thursday, 3 November 2022, 4:00-6:00

Session 24, SS5

1 A Hybrid Energy Management Strategy Based on ANN and GA Optimization for Electric Vehicles

Yashar Farajpour, Department of Electronics, Carleton University, Canada|Hicham Chaoui, Department of Electronics, Carleton University, Canada|Mehdy Khayamy, Department of Electronics, Motiv Power Systems, United States|Sousso Kelouwani, Hydrogen Research Institute and the Department of Mechanical Engineering, Université du Québec à Trois-Rivières, Canada|Mohamad Alzayed, Department of Electronics, Carleton University, Canada

2 A Review of Simulation Models for CO2 Pollution Reduction in Transportation Sector

Nahid Nasrin, Department of Electrical Electronic, Communications and Systems Engineering, Universidad de Oviedo, Spain|Islam El-Sayed, Department of Electrical Electronic, Communications and Systems Engineering, Universidad de Oviedo, Spain|Jorge Garcia, Department of Electrical Electronic, Communications and Systems Engineering, Universidad de Oviedo, Spain

3 Integral sliding mode control combined with Passivity-based control applied to Fuel Cell/ Supercapacitors hybrid power system of Electric Vehicles

Hussein OBEID, University of Caen Normandy, LUSAC Laboratory, France|Salah Laghrouche, University of Bourgogne Franche-Comte, FEMTO-ST UMR CNRS, France|Mickael Hilairet, University of Bourgogne Franche-Comte, FEMTO-ST UMR CNRS, France|Yue Zhou, University of Bourgogne Franche-Comte, Femto-ST UMR CNRS, France

4 Machine Learning Approach for Charging Queue Waiting Time Prediction of Electrical Autonomous Forklifts Fleet

Bilel allani, electrical and computer engineering, hydrogen research institute, Canada|ali amamou, electrical and computer engineering, hydrogen research institute, Canada|sousso kelouwani, mechanical engineering, hydrogen research institute, Canada|messaoud ahmed ouameur, electrical and computer engineering, laboratoire des signaux et systèmes intégrés LSSI, Canada|ghofrane benarfa, electrical and computer engineering, hydrogen research institute, Canada|lotfi zeghmi, electrical and computer engineering, hydrogen research institute, Canada

5 Online Energy Management Strategy for a Fuel Cell Hybrid Self Guided Vehicle

Karem BenChikha, Department of Electrical Engineering, Université du Québec à Trois-Rivières, Canada|Ali Amamou, Hydrogen Research Institute, Université du Québec à Trois-Rivières, Canada|Sousso Kelouwani, Department of Mechanical Engineering, Université du Québec à Trois-Rivières, Canada|Afef Bennani Ben Abdelghani, Department of Electrical Engineering, University of Carthage, Tunisia|Mohsen Kandidayeni, Department of Electrical and Computer Engineering, Université de Sherbrooke, Canada|Kodjo Agbossou, Hydrogen Research Institute, Université du Québec à Trois-Rivières, Canada

Friday, 4 November 2022

Friday, 4 November 2022, 10:45-12:25

Session 25, RT1

1 Analytical analysis of stationary Li-Ion-battery storage-system efficiency on a large scale

Farzan ZareAfifi, Mechanical Engineering, University of California, Merced, United States|Sarah Kurtz, Materials Science and Engineering, University of California, Merced, United States

2 Battery Tab Cooling in Traction Battery Modules using Thermally Conductive Plastics

Johannes Liebertseder, New Drive Systems, Fraunhofer Institute for Chemical Technology, Germany|Andreas Dollinger, formerly: New Drive Systems, formerly: Fraunhofer Institute for Chemical Technology, Germany|Thomas Sorg, New Drive Systems, Fraunhofer Institute for Chemical Technology, Germany|Lars-Fredrik Berg, New Drive Systems, Fraunhofer Institute for Chemical Technology, Germany|Jens Tübke, Applied Electrochemistry, Fraunhofer Institute for Chemical Technology, Germany

3 Environmental impacts of batteries for transportation application according to different life cycle steps

Clotilde Robert, ENERGIE, GAUSSIN GROUP, FEMTO-ST, CNRS, Univ. Bourgogne Franche-Comté, France|Alexandre Ravey, ENERGIE, FEMTO-ST, FCLAB, UTBM, CNRS, Univ. Bourgogne Franche-Comté , France|Raphaël Perey, Electrical, GAUSSIN GROUP, France|Daniel Hissel, ENERGIE, FEMTO-ST, FCLAB, CNRS, Univ. Bourgogne Franche-Comté, France

4 Impact of EV Charging Schedule on Storage Requirements for a Renewable-driven Grid in California

Zabir Mahmud, Environmental Systems, UC Merced (PhD Student), United States|Sarah Kurtz, Material Science and Engineering, UC Merced (Professor), United States

5 Optimal Sizing and Aging Investigation of Second Life Lithium-ion Battery Using Renewable Power Smoothing Stationary Application

Abraham Alem Kebede, Electrical Engineering and Energy Technology, Vrije Universiteit Brussel, Belgium|Md Sazzad Hosen, Electrical Engineering and Energy Technology, Vrije Universiteit Brussel, Belgium|Theodoros Kalogiannis, Electrical Engineering and Energy Technology, Vrije Universiteit Brussel, Belgium|Henok Ayele Behabtu, Electrical Engineering and Energy Technology, Vrije Universiteit Brussel, Belgium|Towfik Jemal, Electrical and Computer Engineering, Jimma University, Ethiopia|Joeri Van Mierlo, Electrical Engineering and Energy Technology, Vrije Universiteit Brussel , Belgium|Thierry Coosemans, Electrical Engineering and Energy Technology, Vrije Universiteit Brussel , Belgium|Maitane Berecibar, Electrical Engineering and Energy Technology, Vrije Universiteit Brussel, Belgium

Friday, 4 November 2022, 10:45-12:25

Session 26, RT2

1 A Theoretical Study Of Stator Flux Linkage DC Offset Based Stator Fault Detection For PMSM Drive Systems

Akanksha Upadhyay, Div. of Industrial Electrical Engineering and Automation, Lund University, Sweden|Mats Alaküla, Div. of Industrial Electrical Engineering and Automation, Lund University, Sweden

2 Failure-prone propulsion system modelization for UAV predictive maintenance

Nassim RIZOUG, S2ET, ESTACA'Lab, France|Fouad KHENFRI, S2ET, ESTACA'Lab, France|Pierre-Yves BRULIN, S2ET, Hexadrone, ESTACA'Lab, France

3 Performance Evaluation of Event-Triggered Model Predictive Control for Boost Converter

Ranya Badawi, Electrical and Computer Engineering, Oakland University, United States|Jun Chen, Electrical and Computer Engineering, Oakland University, United States

4 The Effect of Transformer Interwinding Capacitance on Hard-Switched Converter Operation

Claus Kjeldsen, Department of Mechanical and Electrical Engineering, University of Southern Denmark, Denmark|Christian Østergaard, Department of Mechanical and Electrical Engineering, University of Southern Denmark, Denmark

5 Three-Wheel Fuel Cell Hybrid Vehicle with a High-Performance Active Switched Quasi-Z-Source Inverter

Thang V. Do, GEGI, University of Sherbrooke, Canada|Pascal Messier, GEGI, University of Sherbrooke, Canada|Joao P. Trovao, GEGI, University of Sherbrooke, Canada|Loïc Boulon, GEGI, UNIVERSITÉ DU QUÉBEC À TROIS-RIVIÈRES, Canada

Friday, 4 November 2022, 10:45-12:25

Session 27, RT4

1 A Consensus-Based Charging Control Strategy for Electric Vehicles Participating in Performance-Based Regulation Markets

Chenhao Li, School of Electrical and Information Engineering, Tianjin University, China|Shuang Gao, School of Electrical and Information Engineering, Tianjin University, China|Ruxin Dai, School of Electrical and Information Engineering, Tianjin University, China

2 Pre-emptive Power Management Controller of HEV for Zero Emission Zone Drive

Seohee Han, School of Mechanical Engineering, Pusan National University, South Korea|Jemin Woo, School of Mechanical Engineering, Pusan National University, South Korea|Jeamun Lee, Electrification Control Development Team 2, Hyundai Motor Company, South Korea|Dasom Ahn, Electrification Control Development Team 2, Hyundai Motor Company, South Korea|Changsun Ahn, School of Mechanical Engineering, Pusan National University, South Korea

3 Cloud-edge Collaborative Distributed Optimal Bidding Strategy for Large-scale EVs in Electricity Markets

Shuang Gao, School of Electrical and Information Engineering, Tianjin University, China|Ruxin Dai, Information Engineering Tianjin University, Tianjin University, China|Chenhao Li, School of Electrical and Information Engineering , Tianjin University, China|Wenjing Cao, School of Engineering and applied Science, Sophia University, Japan

4 Modular Battery Energy Storage Systems for Available Energy Increase

Xabier Dorronsoro, Electronics and Computer Science, Mondragon Unibertsitatea, Spain|Iker Lopetegi, Electronics and Computer Science, Mondragon Unibertsitatea, Spain|Erik Garayalde, Electronics and Computer Science, Mondragon

Unibertsitatea, Spain|Unai Iraola, Electronics and Computer Science, Mondragon Unibertsitatea, Spain|Josu Yeregui, Electronics and Computer Science, Mondragon Unibertsitatea, Spain

5 Design and Control of a Partially 3D Printed Valve Actuator for a Free Piston Engine

Andreas Gerlach, Electric Drives, Electric Power Systems , Germany|Thomas Schallschmidt, Electric Drives, Electric Power Systems , Germany|Mario Stamann, Electric Drives, Electric Power Systems , Germany

Friday, 4 November 2022, 10:45-12:25

Session 28, RT6

1 A Solar Powered Wireless Power Transfer for Electric Vehicle Charging

Ravi Kumar Yakala, Electrical Engineering, Indian Institute of Technology Delhi, India|Debiprasad Nayak, Electrical Engineering , Indian Institute of Technology Delhi, India|Manish Kumar, Electrical Engineering, Indian Institute of Technology Delhi, India|Sumit Pramanick, Electrical Engineering, Indian Institute of Technology Delhi, India

2 Analysis of Active Front End Rectifier with LLC Resonant Converter for EV Charging Application

Pawan Kumar Dhakal, Electrical Eng., Coimbra Polytechnic – ISEC, University of Oviedo – Gijon Campus, Spain Instituto de Telecomunicacoes (IT), Portugal|Andre M. S. Mendes, Electrical Eng., University of Coimbra, Instituto de Telecomunicacoes (IT), Portugal|Paulo G. Pereirinha, Electrical Eng., Coimbra Polytechnic – ISEC and INESC Coimbra, Portugal

3 Application of Artificial Intelligence in Optimization of Solid State Transformer Core for Modern Electric Vehicles Using Multi-Objective Genetic Algorithm

Abiodun Olatunji, Electrical and Computer Engineering, Tennessee Technological University, United States|Indranil Bhattacharya, Electrical and Computer Engineering, Tennessee Technological University, United States|Webster Adepoju, Electrical and Computer Engineering, Tennessee Technological University, United States|Ebrahim Nasr Esfahani, Electrical and Computer Engineering, Tennessee Technological University, United States|Trapa Banik, Electrical and Computer Engineering, Tennessee Technological University, United States

4 Model Based Analysis of Low Frequency Metamaterial For Efficient Wireless Power Transfer

WEBSTER ADEPOJU, Electrical and Computer Engineering , Tennessee Technological University, United States| Indranil Bhattacharya, Electrical and Computer Engineering , Tennessee Technological University, United States|Charles Van Neste, Electrical and Computer Engineering , Tennessee Technological University, United States|Olufunke Mary Sanyaolu, Material Science, University of Johannesburg, South Africa|Abiodun Olatunji, Electrical and Computer Engineering , Tennessee Technological University, United States|Trapa Banik, Electrical and Computer Engineering , Tennessee Technological University, United States

5 Modeling and Tuning of Parameters of a Bidirectional Wireless Power Transfer For interfacing EVs with the DC Smart Grids

Ebrahim Nasr Esfahani, Electrical and computer engineer, Tennessee Tech University, United States|Indranil Bhattacharya, Electrical and computer engineer, Tennessee Tech University, United States|Webster Adepoju, Electrical and computer engineer, Tennessee Tech University, United States|Abiodun Olatunji, Electrical and computer engineer, Tennessee Tech University, United States