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Research profile

Erik Schaltz received the M.Sc. and Ph.D. degrees in electrical engineering from the Department of Energy, Aalborg University, Aalborg, Denmark, in 2005 and 2010, respectively. From 2009 to 2012 he has been an Assistant Professor at the Department of Energy, Aalborg University, and he is currently an Associate Professor at the same place. At the Department, he is the group leader of the research programme in E-mobility and Drives. He is a guest and associate editor in several journals related to batteries and e-mobility. His research interests include the usage of power electronics, electric machines, fuel cells, batteries, ultracapacitors, etc. in electric and hybrid electric vehicles. In addition, he is also focused on battery state-estimation, management (electric and thermal), and modelling (electric, thermal, and lifetime) of battery cells and packs.

Current Position

I am working as an Associate Professor at the Department of Energy at Aalborg University. My primary tasks involve teaching and project supervision of students on the Bachelor and Master Programme in Electrical Energy Engineering, and research and PhD supervision in the fields of electro-mobility and batteries. At the department, I am the coordinator for the 4th and 5th semester studies, Internship Coordinator at the Bachelor Programme in Sustainable Energy Engineering, and Leader of the E-Mobility and Drives Research Group. I'm often involved in assessment of PhD theses both internally and externally. In addition, I'm also often involved in assessment of candidates for various positions at the department, i.e., research assistants, PhDs, postdocs, assistant professors, and associate professors.

University Career

2012 - Present: **Associate Professor**, Department of Energy Technology, Aalborg University.
2009 - 2012: **Assistant Professor**, Department of Energy Technology, Aalborg University.
2008 - 2009: **PostDoc**, Department of Energy Technology, Aalborg University.
2005 - 2008: **PhD student**, Department of Energy Technology, Aalborg University, Denmark.
2005 - 2005: **Research Assistant**, Department of Energy Technology, Aalborg University.

Education

2022 - 2023: **Leading Research Groups at Aalborg University**. Organized by Lead.
2010 - 2012: Course in **University Pedagogy** for Assistant Professors.
2005 - 2010: **PhD degree**, Electrical and Electronic Engineering, Department of Energy Technology, Aalborg University, Denmark. Thesis title: Design of a Fuel Cell Hybrid Electric Vehicle Drive System.
2000 - 2005: **MSc Electrical Engineering**, Department of Energy Technology, Aalborg University, Denmark, Specialization: Power Electronics, Electric Machines and Drives. Thesis title: Sensorless Control of an IPMSM for Hydraulic Pump Application.
1997 - 2000: **Mathematical Student**, Bjerringbro Gymnasium.

PhD Supervision

2018 - 2022: **Design and Control of a Bearingless Double U-Core Switched Reluctance Machine Used for a Flywheel**, Fariba Shakibapour
2018 - 2022: **Battery State Estimation Methods for Electric Vehicles under Real Temperature Conditions**, Alejandro Gismero Galiatsatos
2015 - 2021: **A Systematic Approach for Thermal Analysis of Lithium Titanate Oxide Batteries**, Seyed Saeed Madani
2014 - 2017: **Thermal and Reliability Investigation of Buck-Boost Power Converters**, Brwene Salah Abdelkarim Gadalla
2013 - 2016: **Battery Management Systems for Li-ion battery packs**, Jorge Varela Barreras

2013 - 2016: **Power Electronics for Oxide-based High Temperature Thermoelectric Generators**, Elena Anamaria Man
2012 - 2015: **Magnetic Coupling of Wireless Charging Systems for Electric Vehicles**, Tushar Batra

Board Memberships

2016 - present: Board member of the Danish Battery Society

2013 - 2015: Advisory Board Member of the Danish E-Mobility Business Cluster operated by Insero

Editorial Positions

2022 - 2023: Track Chair of Recent Results at Vehicle Power Propulsion Conference (VPPC)

2021 - 2022: Guest Editor in Electronics in Special Issue on Applications of Batteries and Ultracapacitors in Electric or Hybrid Vehicles

2019 - 2021: Guest Editor in Energies in Special Issue on Energy Storage Systems for Electric Vehicles

2017 - 2018: Guest Editor in Batteries in Special Issue on Battery Integration and Operation in Electro-Mobile Application

2012 - 2013: Guest Associate Editor in IEEE Transactions of Power Electronics in Special Issues on Transportation Electrification and Vehicle Systems

Prizes

Best Paper on Ecological Vehicles

Barreras, J. V. (Recipient), Pinto, C. (Recipient), de Castro, R. (Recipient), Schaltz, E. (Recipient), Juhl Andreasen, S. (Recipient), Rasmussen, P. O. (Recipient) & Araujo, R. E. (Recipient), 5 Mar 2015

Best Paper on Ecological Vehicles

Schaltz, E. (Recipient), Stroe, D.-I. (Recipient), Nørregaard, K. (Recipient), Stenhøj Kofod, L. (Recipient) & Christensen, A. (Recipient), 9 May 2019

The ITS Outstanding Application Paper

Man, E. A. (Recipient), Sera, D. (Recipient), Máthé, L. (Recipient), Schaltz, E. (Recipient) & Rosendahl, L. A. (Recipient), 2 Jul 2015

Research outputs

Regenerative–Frictional Brake Blending in Electric Vehicles Considering Energy Recovery and Dynamic Battery Charging Limit: A Reinforcement Learning-Based Approach

Naseri, F., Ragnarsson a Nordi, B., Spiliotopoulos, K. & Schaltz, E., 9 Apr 2026, In: *Machines*. 14, 4, 416.

Toward Reliable Wireless BMS: Robust Battery State Estimation Under Noise and Uncertainty

Naseri, F., Barbu, C., Christian Solberg Jensen, A., Setoodeh, P., Romero Baena, J. A., Hevele, N. & Schaltz, E., 2026, (E-pub ahead of print) In: *IEEE Transactions on Vehicular Technology*. 12 p.

An Effective Hybrid Approach for Detection of False Data Injection Attacks in Connected Battery Systems with Noisy Measurements

Naseri, F., Kazemi, Z., Tashakor, N., Christian Solberg Jensen, A., Barbu, C. & Schaltz, E., 2025, *IECON 2024 - 50th Annual Conference of the IEEE Industrial Electronics Society, Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), p. 1-6

Electrical Characterization and Performance Review of a New High-Power Lithium Iron Phosphate Cell

Naseri, F., Sethia, G. & Schaltz, E., 2025, *IECON 2024 - 50th Annual Conference of the IEEE Industrial Electronics Society, Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), p. 1-6

Robust Battery State-of-Charge Estimation in Presence of Model Uncertainties Using KalmanNet

Naseri, F., Christian Solberg Jensen, A. & Schaltz, E., 2025, *IECON 2024 - 50th Annual Conference of the IEEE Industrial Electronics Society, Proceedings*. IEEE (Institute of Electrical and Electronics Engineers)

Online Tuning of Extended Kalman Filter Using Reinforcement Learning for Improved Battery State-of-Charge Estimation

Naseri, F., Setoodeh, P. & Schaltz, E., 5 Jun 2024, *2024 IEEE International Conference on Industrial Technology (ICIT)*. IEEE (Institute of Electrical and Electronics Engineers), (IEEE International Conference on Industrial Technology (ICIT)).

Real-Time Emulation of Reversible Solid Oxide Electrolyzer's Electrical Behavior for Rapid-Prototyping of Power Electronics

Jessen, K., Soltani, M., Hajizadeh, A., Schaltz, E., Jensen, S. H. & Torok, L., 2024, In: IEEE Access. 12, p. 89394-89404 11 p.

The Influence of Testing Conditions on State of Health Estimations of Electric Vehicle Lithium-Ion Batteries Using an Incremental Capacity Analysis

Gismero, A., Dubarry, M., Guo, J., Stroe, D.-I. & Schaltz, E., Dec 2023, In: Batteries. 9, 12, 12 p., 568.

Electric vehicle battery state of health estimation using Incremental Capacity Analysis

Gismero, A., Nørregaard, K., Johnsen, B., Stenhøj Kofod, L., Stroe, D.-I. & Schaltz, E., 1 Aug 2023, In: Journal of Energy Storage. 64, 107110, 8 p., 107110.

Lithium-ion battery calendar aging mechanism analysis and impedance-based State-of-Health estimation method

Zhang, Q., Wang, D., Schaltz, E., Stroe, D.-I., Gismero, A. & Yang, B., 1 Aug 2023, In: Journal of Energy Storage. 64, 14 p., 107029.

A Comparison Track of Bearingless Double U-core Switched Reluctance Machine Considering 3 & 4 Double U-cores

Shakibapour, F., Schaltz, E. & Wang, D., 2023, *2023 IEEE 2nd Industrial Electronics Society Annual On-Line Conference, ONCON 2023*. IEEE (Institute of Electrical and Electronics Engineers), 10430523

Grey-box Modeling of Reversible Solid Oxide Cell Stack's Electrical Dynamics Based on Electrochemical Impedance Spectroscopy

Jessen, K., N. Soltani, M., Hajizadeh, A., Jensen, S. H., Schaltz, E., Nielsen, M. N. & Smitshuysen, T. L., 2023, *2023 IEEE Conference on Control Technology and Applications, CCTA 2023*. IEEE (Institute of Electrical and Electronics Engineers), p. 382-387 6 p. 10252882. (IEEE Conference on Control Technology and Applications (CCTA) - Proceedings).

Modeling and Control Design for a Bidirectional DC-DC Converter System for Cyclic Operation of a Reversible Solid Oxide Electrolysis Cell Stack

Jessen, K., N. Soltani, M., Hajizadeh, A., Jensen, S. H. & Schaltz, E., 2023, *IECON 2023 - 49th Annual Conference of the IEEE Industrial Electronics Society*. IEEE (Institute of Electrical and Electronics Engineers), 10311857. (IECON Proceedings (Industrial Electronics Conference)).

Degradation mechanism analysis and State-of-Health estimation for lithium-ion batteries based on distribution of relaxation times

Zhang, Q., Wang, D., Schaltz, E., Stroe, D.-I., Gismero, A. & Yang, B., 1 Nov 2022, In: Journal of Energy Storage. 55, 21 p., 105386.

An Enhanced Equivalent Circuit Model with Real-Time Parameter Identification for Battery State-of-Charge Estimation

Naseri, F., Schaltz, E., Stroe, D.-I., Gismero, A. & Farjah, E., Apr 2022, In: IEEE Transactions on Industrial Electronics. 69, 4, p. 3743-3751 9 p.

Capacity State-of-Health Estimation of Electric Vehicle Batteries Using Machine Learning and Impedance Measurements

Barragan-Moreno, A., Schaltz, E., Gismero, A. & Stroe, D.-I., 2022, In: Electronics. 11, 9, 11 p., 1414.

Characterization of the compressive load on a lithium-ion battery for electric vehicle application

Madani, S. S., Schaltz, E. & Kær, S. K., Apr 2021, In: Machines. 9, 4, 71.

Incremental Capacity Analysis Applied on Electric Vehicles for Battery State-of-Health Estimation

Schaltz, E., Stroe, D.-I., Nørregaard, K., Stenhøj Kofod, L. & Christensen, A., 1 Mar 2021, In: IEEE Transactions on Industry Applications. 57, 2, p. 1810-1817 8 p., 9328130.

Predictive Control of Low-Cost Three-Phase Four-Switch Inverter-Fed Drives for Brushless DC Motor Applications

Naseri, F., Farjah, E., Schaltz, E., Lu, K. & Tashakor, N., Mar 2021, In: IEEE Transactions on Circuits and Systems I: Regular Papers. 68, 3, p. 1308-1318 11 p., 9301364.

Thermal Characterizations of a Lithium Titanate Oxide-Based Lithium-Ion Battery Focused on Random and Periodic Charge- Discharge Pulses

Madani, S. S., Schaltz, E. & Kær, S. K., Mar 2021, In: Applied System Innovation. 4, 2, 15 p., 24.

State-of-Charge Estimation of NMC-based Li-ion Battery Based on Continuous Transfer Function Model and Extended Kalman Filter

Naseri, F., Schaltz, E., Stroe, D. I., Gismero, A., Farjah, E. & Karimi, S., 2 Feb 2021, *2021 12th Power Electronics, Drive Systems, and Technologies Conference, PEDSTC 2021*. IEEE Signal Processing Society, 5 p. 9405847. (2021 12th Power Electronics, Drive Systems, and Technologies Conference, PEDSTC 2021).

Applying different configurations for the thermal management of a lithium titanate oxide battery pack

Madani, S. S., Schaltz, E. & Kær, S. K., Jan 2021, In: Electrochem. 2, 1, p. 50-63 14 p., 2010005.

Thermal Simulation of Phase Change Material for Cooling of a Lithium-Ion Battery Pack

Madani, S. S., Schaltz, E. & Kær, S. K., Dec 2020, In: Electrochem. 1, 4, p. 439-449 11 p.

Comparative Study of State of Charge Estimation Under Different Open Circuit Voltage Test Conditions for Lithium-Ion Batteries

Gismero, A., Stroe, D.-I. & Schaltz, E., 18 Nov 2020, *IECON 2020 The 46th Annual Conference of the IEEE Industrial Electronics Society*. IEEE (Institute of Electrical and Electronics Engineers), p. 1767-1772 6 p. (Proceedings of the Annual Conference of the IEEE Industrial Electronics Society).

Real-time open-switch fault diagnosis in automotive permanent magnet synchronous motor drives based on Kalman filter

Naseri, F., Schaltz, E., Lu, K. & Farjah, E., 16 Sept 2020, In: IET Power Electronics. 13, 12, p. 2450-2460 11 p.

Real-time open-switch fault diagnosis in automotive permanent magnet synchronous motor drives based on Kalman filter

Naseri, F., Schaltz, E., Lu, K. & Farjah, E., 1 Sept 2020, In: IET Power Electronics. 13, 12

Online Parameter Estimation for Supercapacitor State-of-Energy and State-of-Health Determination in Vehicular Applications

Naseri, F., Farjah, E., Ghanbari, T., Kazemi, Z., Schaltz, E. & Schanen, J.-L., Sept 2020, In: IEEE Transactions on Industrial Electronics. 67, 9, p. 7963-7972 10 p., 8844313.

Design and Simulation of Internal Flowing Twisted Conduits for Cooling of Lithium-Ion Batteries through Thermal Characterization

Madani, S. S., Schaltz, E. & Kær, S. K., Jun 2020, In: Batteries. 6, 2, 14 p., 31.

Recursive State of Charge and State of Health Estimation Method for Lithium-Ion Batteries Based on Coulomb Counting and Open Circuit Voltage

Gismero, A., Schaltz, E. & Stroe, D.-I., Apr 2020, In: Energies. 13, 7, 11 p., 1811.

Dynamic Stabilization of DC Traction Systems Using a Supercapacitor-Based Active Stabilizer with Model Predictive Control

Naseri, F., Farjah, E., Kazemi, Z., Schaltz, E., Ghanbari, T. & Schanen, J. L., Mar 2020, In: IEEE Transactions on Transportation Electrification. 6, 1, p. 228-240 13 p., 8950458.

Thermal Analysis of Cold Plate with Different Configurations for Thermal Management of a Lithium-Ion Battery

Madani, S. S., Schaltz, E. & Kær, S. K., Mar 2020, In: Batteries. 6, 1, 17.

Co-Estimation of Supercapacitor States and Parameters Considering Three-Branch Equivalent Circuit Model

Naseri, F., Karimi, S., Farjah, E., Schaltz, E. & Ghanbari, T., Feb 2020, *2020 11th Power Electronics, Drive Systems, and Technologies Conference, PEDSTC 2020*. IEEE (Institute of Electrical and Electronics Engineers), 9088356

Lithium-Ion Battery State-of-Health Estimation Using the Incremental Capacity Analysis Technique

Stroe, D.-I. & Schaltz, E., Feb 2020, In: I E E Transactions on Industry Applications. 56, 1, p. 678 - 685 8 p., 8911243.

Effect of Current Rate and Prior Cycling on the Coulombic Efficiency of a Lithium-Ion Battery

Madani, S. S., Schaltz, E. & Kær, S. K., Aug 2019, In: Batteries. 5, 3, 9 p., 57.

An experimental analysis of entropic coefficient of a lithium titanate oxide battery

Madani, S. S., Schaltz, E. & Kær, S. K., Jul 2019, In: Energies. 12, 14, p. 1-10 10 p., 2685.

Calendar Aging Lifetime Model for NMC-based Lithium-ion Batteries Based on EIS Measurements

Gismero, A., Stroe, D.-I. & Schaltz, E., May 2019, *Proceedings of 2019 Fourteenth International Conference on Ecological Vehicles and Renewable Energies (EVER)*. IEEE Press, 8 p. 8813635

Incremental Capacity Analysis for Electric Vehicle Battery State-of-Health Estimation

Schaltz, E., Stroe, D.-I., Nørregaard, K., Stenhøj Kofod, L. & Christensen, A., May 2019, *Proceedings of 2019 Fourteenth International Conference on Ecological Vehicles and Renewable Energies (EVER)*. IEEE Press, 6 p. 8813678

Partial Charging Method for Lithium-Ion Battery State-of-Health Estimation

Schaltz, E., Stroe, D.-I., Nørregaard, K., Johnsen, B. & Christensen, A., May 2019, *Proceedings of 2019 Fourteenth International Conference on Ecological Vehicles and Renewable Energies (EVER)* . IEEE Press, 6 p. 8813645

An Electrical Equivalent Circuit Model of a Lithium Titanate Oxide Battery

Madani, S. S., Schaltz, E. & Kær, S. K., Mar 2019, In: Batteries. 5, 1, p. 1-14 14 p., 31.

Simulation of Thermal Behaviour of a Lithium Titanate Oxide Battery

Madani, S. S., Schaltz, E. & Kær, S. K., 20 Feb 2019, In: Energies. 12, 4, p. 1-15 15 p., 679.

Electrochemical Impedance Spectroscopy-Based Electric Circuit Modeling of Lithium-Sulfur Batteries During a Discharging State

Stroe, D.-I., Knap, V., Swierczynski, M. J. & Schaltz, E., Jan 2019, In: I E E Transactions on Industry Applications. 55, 1, p. 631-637 7 p., 8428469.

Thermal Analysis of an Indirect Liquid Cooling with Different Geometries for a Lithium-ion Battery

Madani, S. S., Schaltz, E. & Kær, S. K., 2019, In: ECS Transactions. 95, 1

Lifetime Prediction of Boost, Z-source and Y-source Converters in a Fuel Cell Hybrid Electric Vehicle Application

Gadalla, B., Schaltz, E., Zhou, D. & Blaabjerg, F., 8 Nov 2018, In: Electric Power Components and Systems. 46, 18, p. 1979-1991 13 p.

Heat Loss Measurement of Lithium Titanate Oxide Batteries under Fast Charging Conditions by Employing Isothermal Calorimeter

Madani, S. S., Schaltz, E. & Kær, S. K., Nov 2018, In: Batteries. 4, 4, p. 1-15 15 p., 59.

SOH Estimation of LMO/NMC-based Electric Vehicle Lithium-Ion Batteries Using the Incremental Capacity Analysis Technique

Stroe, D.-I. & Schaltz, E., Sept 2018, *Proceedings of the 2018 IEEE Energy Conversion Congress and Exposition (ECCE)*. IEEE Press, p. 2720-2725 6 p. (IEEE Energy Conversion Congress and Exposition).

Effect of Bad Connection on Surface Temperature of Lithium-Ion Batteries by Using Infrared Thermography

Madani, S. S., Schaltz, E. & Kær, S. K., Aug 2018, In: ECS Transactions. 87, 1, p. 39-50 12 p.

Investigation of the Effect of State-of-Charge and C-Rates on the Heat Loss and Efficiency of a Lithium-Ion Battery
Madani, S. S., Schaltz, E. & Kær, S. K., Aug 2018, In: ECS Transactions. 87, 1, p. 51-58 8 p.

Study of Temperature Impacts on a Lithium-Ion Battery Thermal Behaviour by Employing Isothermal Calorimeter
Madani, S. S., Schaltz, E. & Kær, S. K., Aug 2018, In: ECS Transactions. 87, 1, p. 295-305 11 p.

Thermal Modelling of a Lithium Titanate Oxide Battery
Madani, S. S., Schaltz, E. & Kær, S. K., Aug 2018, In: ECS Transactions. 87, 1, p. 315-326 12 p.

Review of Parameter Determination for Thermal Modeling of Lithium Ion Batteries
Saeed Madani, S., Schaltz, E. & Kær, S. K., Apr 2018, In: Batteries. 4, 2, p. 1-16 16 p., 20.

Flat tie-line power scheduling control of grid-connected hybrid microgrids
Xiao, Z. X., Guerrero, J. M., Shuang, J., Sera, D., Schaltz, E. & Vásquez, J. C., Jan 2018, In: Applied Energy. 210, p. 786-799 14 p.

Results of screening over 200 pristine lithium-ion cells
Varela Barreras, J., Raj, T., Howey, D. & Schaltz, E., Dec 2017, *Proceedings of IEEE Vehicle Power and Propulsion Conference (VPPC)*. IEEE Press, 6 p.

Self-balancing feature of Lithium-Sulfur batteries
Knap, V., Stroe, D.-I., Christensen, A. E., Propp, K., Fotouhi, A., Auger, D. J., Schaltz, E. & Teodorescu, R., Dec 2017, In: Journal of Power Sources. 372, p. 245-251 7 p.

Functional Assessment of Battery Management System Tested on Hardware-in-the-Loop Simulator
Kalogiannis, T., Stroe, D.-I., Swierczynski, M. J., Schaltz, E. & Elkjær Christensen, A., Nov 2017, *Proceedings of 2017 International Conference on Electrical and Information Technologies (ICEIT)*. IEEE Press, 6 p.

Electric circuit modeling of lithium-sulfur batteries during discharging state
Stroe, D.-I., Knap, V., Swierczynski, M. J. & Schaltz, E., Oct 2017, *Proceedings of 2017 IEEE Energy Conversion Congress and Exposition (ECCE)*. IEEE (Institute of Electrical and Electronics Engineers), p. 1024-1029 6 p. (IEEE Energy Conversion Congress and Exposition).

Study on the combined influence of battery models and sizing strategy for hybrid and battery-based electric vehicles
Pinto, C., Barreras, J. V., de Castro, R., Araújo, R. E. & Schaltz, E., Oct 2017, In: Energy. 137, p. 272-284 13 p.

Loss Distribution and Thermal Behaviour of the Y-source Converter for a Wide Power and Voltage Range
Gadalla, B. S. A., Schaltz, E., Siwakoti, Y. P. & Blaabjerg, F., Jun 2017, *Proceedings of 2017 IEEE 3rd International Future Energy Electronics Conference and ECCE Asia (IFEEC 2017 - ECCE Asia)*. IEEE Press, p. 878-883 6 p.

State of charge balancing after hot swap for cascaded H-bridge multilevel converters
Mathe, L., Schaltz, E. & Teodorescu, R., May 2017, *Proceedings of the 2017 International Conference on Optimization of Electrical and Electronic Equipment (OPTIM) & 2017 Intl Aegean Conference on Electrical Machines and Power Electronics (ACEMP)*. IEEE Press, p. 741-746 6 p. 7975057

Power Electronic Converters and Their Control in Thermoelectric Applications
Schaltz, E. & Man, E. A., 1 Jan 2017, *Thermoelectric Energy Conversion: Basic Concepts and Device Applications*. Wiley-IEEE press, p. 177-203 27 p.

Analysis of loss distribution of Conventional Boost, Z-source and Y-source Converters for wide power and voltage range
Gadalla, B. S. A., Schaltz, E., Siwakoti, Y. P. & Blaabjerg, F., Jan 2017, In: Transaction on Environment and Electrical Engineering . 2, 1, 9 p.

An Advanced HIL Simulation Battery Model for Battery Management System Testing

Barreras, J. V., Fleischer, C., Christensen, A. E., Swierczynski, M. J., Schaltz, E., Andreasen, S. J. & Sauer, D. U., Dec 2016, In: I E E E Transactions on Industry Applications. 52, 6, p. 5086-5099 14 p., 6.

A self-discharge model of Lithium-Sulfur batteries based on direct shuttle current measurement

Knap, V., Stroe, D. L., Swierczynski, M. J., Purkayastha, R., Propp, K., Teodorescu, R. & Schaltz, E., Dec 2016, In: Journal of Power Sources. 336, p. 325-331 7 p.

Evaluation of a Novel BEV Concept Based on Fixed and Swappable Li-Ion Battery Packs

Barreras, J. V., Pinto, C., de Castro, R., Schaltz, E., Juhl Andreasen, S., Rasmussen, P. O. & Araujo, R. E., Nov 2016, In: I E E E Transactions on Industry Applications. 52, 6, p. 5073 - 5085 13 p.

Distributed Coordination of Electric Vehicle Charging in a Community Microgrid Considering Real-Time Price

Li, C., Schaltz, E., Quintero, J. C. V. & Guerrero, J. M., Sept 2016, *Proceedings of the 18th European Conference on Power Electronics and Applications (EPE'16 ECCE-Europe), 2016*. IEEE Press, 8 p.

Efficiency Study of Vertical Distance Variations in Wireless Power Transfer for E-Mobility

Ghorbani Eftekhari, M., Ouyang, Z., Andersen, M. A. E., Andersen, P. B., De Ribeiro, L. A. S. & Schaltz, E., Jul 2016, In: I E E E Transactions on Magnetics. 52, 7, 4 p., 8401004.

Battery pack state of charge balancing algorithm for cascaded H-Bridge multilevel converters

Máthé, L., Burlacu, P. D., Schaltz, E. & Teodorescu, R., Jun 2016, *Proceedings of IEEE 16th International Conference on Environment and Electrical Engineering (EEEIC), 2016*. IEEE Press, 6 p.

Thermal Performance and Efficiency Investigation of Conventional Boost, Z-source and Y-source Converters

Gadalla, B. S. A., Schaltz, E., Siwakoti, Y. P. & Blaabjerg, F., Jun 2016, *Proceedings of 16 IEEE International Conference on Environment and Electrical Engineering (EEEIC), 2016*. Florence, Italy: IEEE Press, p. 1297-1302 6 p.

Development of Software and Strategies for Battery Management System Testing on HIL Simulator

Fleischer, C., Sauer, D. U., Barreras, J. V., Schaltz, E. & Christensen, A. E., Apr 2016, *Proceedings of the 2016 Eleventh International Conference on Ecological Vehicles and Renewable Energies (EVER), 2016*. Monte-Carlo: IEEE Press, 12 p.

Dynamic Performance of Maximum Power Point Trackers in TEG Systems Under Rapidly Changing Temperature Conditions

Man, E. A., Sera, D., Mathe, L., Schaltz, E. & Rosendahl, L., Mar 2016, In: Journal of Electronic Materials. 45, 3, p. 1309-1315 7 p.

Investigation of the Self-Discharge Behavior of Lithium-Sulfur Batteries

Knap, V., Stroe, D. L., Swierczynski, M. J., Teodorescu, R. & Schaltz, E., Mar 2016, In: Journal of The Electrochemical Society. 163, 6, p. A911-A916 6 p.

Evaluation of Advanced Control for Li-ion Battery Balancing Systems using Convex Optimization

Pinto, C., Barreras, J. V., Schaltz, E. & Araujo, R. E., 2016, In: IEEE Transactions on Sustainable Energy. 7, 4, p. 1703 - 1717 15 p.

An Improved Parametrization Method for Li-ion Linear Static Equivalent Circuit Battery Models Based on Direct Current Resistance Measurement

Barreras, J. V., Pinto, C., de Castro, R., Schaltz, E., Swierczynski, M. J., Juhl Andreasen, S. & Araujo, R. E., 23 Nov 2015 , *International Conference on Sustainable Mobility Applications, Renewables and Technology (SMART), 2015*. IEEE Press , p. 1-9 9 p.

State of Charge Balancing Control of a Multi-Functional Battery Energy Storage System Based on a 11-Level Cascaded Multilevel PWM Converter

Wang, S., Teodorescu, R., Máthé, L., Schaltz, E. & Burlacu, P. D., Nov 2015, *Proceedings of 2015 International Conference on Optimization of Electrical & Electronic Equipment (OPTIM)*. IEEE Press, p. 336 - 342 7 p.

A Survey on the Reliability of Power Electronics in Electro-Mobility Applications

Gadalla, B. S. A., Schaltz, E. & Blaabjerg, F., Sept 2015, *Proceedings of the 2015 International Aegean Conference on Electrical machines and Power Electronics ACEMPOPTIM- ELECTROMOTION Joint Conference*. Side, Turkey: IEEE Press, p. 304-310 7 p.

Thermoelectric Generator Emulator for MPPT Testing

Man, E. A., Sera, D., Máthé, L., Schaltz, E. & Rosendahl, L. A., Sept 2015, *Proceedings of the 2015 ACEMP-OPTIM-Electromotion International Conference*. IEEE Press, p. 774 - 778 5 p.

A novel BEV concept based on fixed and swappable li-ion battery packs

Barreras, J. V., Pinto, C., de Castro, R., Schaltz, E., Andreasen, S. J., Rasmussen, P. O. & Araújo, R. E., Apr 2015, *Proceedings of the 2015 Tenth International Conference on Ecological Vehicles and Renewable Energies (EVER)*. Monte-Carlo: IEEE Press, p. 1-8 9 p.

Effect of ferrite addition above the base ferrite on the coupling factor of wireless power transfer for vehicle applications

Batra, T., Schaltz, E. & Ahn, S., 2015, In: *Journal of Applied Physics*. 117, 17

Functional Analysis of Battery Management Systems using Multi-Cell HIL Simulator

Barreras, J. V., Swierczynski, M. J., Schaltz, E., Andreasen, S. J., Fleischer, C., Sauer, D. U. & Christensen, A. E., 2015, *Proceedings of the 2015 Tenth International Conference on Ecological Vehicles and Renewable Energies (EVER)*. Monte-Carlo: IEEE Press, 10 p.

Investigation of Efficiency and Thermal Performance of the Y-source Converters for a Wide Voltage Range

Gadalla, B. S. A., Schaltz, E., Siwakoti, Y. P. & Blaabjerg, F., 2015, In: *Journal of Renewable Energy and Sustainable Development (RES D)*. 1, 2, p. 300-305 5 p., 2.

Passive Shielding Effect on Space Profile of Magnetic Field Emissions for Wireless Power Transfer to Vehicles

Batra, T. & Schaltz, E., 2015, In: *Journal of Applied Physics*. 117, p. 17A739.1-17A739.4 4 p.

Flexible Local Load Controller for Fast Electric Vehicle Charging Station Supplemented with Flywheel Energy Storage System

Dragicevic, T., SUN, B., Schaltz, E. & Guerrero, J. M., Dec 2014, *Proceedings of the IEEE International Electric Vehicle Conference 2014 (IEVC)*. IEEE Press, p. 1-6 6 p.

Influence of Li-ion Battery Models in the Sizing of Hybrid Storage Systems with Supercapacitors

Pinto, C., Barreras, J. V., de Castro, R., Schaltz, E., Andreasen, S. J. & Araujo, R. E., Oct 2014, *Proceedings of the 2014 IEEE Vehicle Power and Propulsion Conference (VPPC)*. IEEE Press, p. 1-6 6 p.

Multi-functional Converter with Integrated Motor Control, Battery Charging and Active Module Balancing for Electric Vehicular Application

Mathe, L., Schaltz, E., Teodorescu, R. & Haddioui, M. R., Oct 2014, *Proceedings of the 2014 IEEE Vehicle Power and Propulsion Conference (VPPC)*. IEEE Press, p. 1-5 5 p.

Multi-Objective Control of Balancing Systems for Li-Ion Battery Packs: A paradigm shift?

Barreras, J. V., Pinto, C., de Castro, R., Schaltz, E., Andreasen, S. J. & Araujo, R. E., Oct 2014, *Proceedings of the 2014 IEEE Vehicle Power and Propulsion Conference (VPPC)*. Coimbra: IEEE Press, 7 p.

Reduction of magnetic emission by increasing secondary side capacitor for ferrite geometry based series-series topology for wireless power transfer to vehicles

Batra, T., Schaltz, E. & Ahn, S., Aug 2014, *Proceedings of the 16th European Conference on Power Electronics and Applications (EPE'14-ECCE Europe)*. IEEE Press, 11 p.

CEESA 100% Renewable Energy Transport Scenarios towards 2050: Technical Background Report Part 2

Mathiesen, B. V., Connolly, D., Lund, H., Nielsen, M. P., Schaltz, E., Wenzel, H., Bentsen, N. S., Felby, C., Kaspersen, P., Ridjan, I. & Hansen, K., Jun 2014, Department of Development and Planning, Aalborg University. 102 p.

Magnetic Emissions Reduction by Varying Secondary Side Capacitor for Ferrite Geometry based Series-Parallel Topology Wireless Power Transfer to Vehicles

Batra, T. & Schaltz, E., May 2014, *PCIM Europe 2014. International Exhibition and Conference for Power Electronics, Intelligent Motion, Renewable Energy and Energy Management Nuremberg, 20 – 22 May 2014, Proceedings*. VDE Verlag GMBH, p. 1392-1400 9 p.

Magnetic field emission comparison at different quality factors with series-series compensation network for inductive power transfer to vehicles

Batra, T. & Schaltz, E., May 2014, *Wireless Power Transfer Conference (WPTC), 2014 IEEE*. IEEE Press, p. 13-16 4 p. 6839616

Magnetic Field Emission Comparison for Series-Parallel and Series-Series Wireless Power Transfer to Vehicles – PART 1/2

Batra, T. & Schaltz, E., May 2014, *Proceedings of EVTeC & APE Japan 2014*. Society of Automotive Engineers of Japan, 7 p.

Magnetic Field Emissions for Ferrite and Non-Ferrite Geometries for Wireless Power Transfer to Vehicles

Batra, T. & Schaltz, E., May 2014, In: *Journal of Applied Physics*. 115, 17, p. 17E715-1 3 p., 17E715.

Magnetic Field Emission Comparison at Different Quality Factors with Series-Parallel Compensation Network for Wireless Power Transfer to Vehicles

Batra, T. & Schaltz, E., 2014, *Proceedings of the 2014 4th International Electric Drives Production Conference (EDPC)*. IEEE Press, 4 p.

Magnetic Field Emission Comparison for Series-Parallel and Series-Series Wireless Power Transfer to Vehicles – PART 2/2

Batra, T. & Schaltz, E., 2014, *Proceedings of EVTeC & APE Japan 2014*. Society of Automotive Engineers of Japan, 7 p.

Tvindkraft: Implementing a 500 kW 21-IGBT-Based Frequency Converter for a 1.7 MW Wind Power Conversion System

Gonzalez, P. C., Pang, Y., Reigosa, P. D., Dimopoulos, E., Barreras, J. V. & Schaltz, E., Oct 2013, *Proceedings of the 2013 IEEE International Conference on Renewable Energy Research and Applications*. IEEE Press, p. 482-487 6 p.

Estimation of CO concentration in high temperature PEM fuel cells using electrochemical impedance

Jensen, H.-C. B., Andreasen, S. J., Kær, S. K. & Schaltz, E., 16 Apr 2013, *Proceedings of the 5th International Conference on Fundamentals & Development of Fuel Cells: FDFC 2013*. European Institute for Energy Research (EIFER), 12 p.

Individual Module Maximum Power Point Tracking for Thermoelectric Generator Systems

Vadstrup, C., Schaltz, E. & Chen, M., 1 Jan 2013, In: *Journal of Electronic Materials*. 42, 7, p. 2203-2208 6 p.

Evaluation of Fuel-Cell Range Extender Impact on Hybrid Electrical Vehicle Performance

Jensen, H.-C. B., Schaltz, E., Koustrup, P. S., Andreasen, S. J. & Kær, S. K., Jan 2013, In: *IEEE Transactions on Vehicular Technology*. 62, 1, p. 50-60 11 p.

Datasheet-based modeling of Li-Ion batteries

Barreras, J. V., Schaltz, E., Andreasen, S. J. & Minko, T., 1 Dec 2012, *Proceedings of the 2012 IEEE Vehicle Power and Propulsion Conference*. Seoul: IEEE Press, p. 830-835 6 p.

Biomasse til transportsektoren

Mathiesen, B. V., Connolly, D., Lund, H., Nielsen, M. P., Schaltz, E., Wenzel, H., Bentsen, N. S., Felby, C., Kaspersen, P. & Hansen, K., 2012, *Robust og bæredygtig bioenergi*. Skøtt, T. (ed.). BioPress, p. 32-33 2 p.

Det intelligente energisystem

Mathiesen, B. V., Lund, H., Hvelplund, F., Connolly, D., Bentsen, N. S., Tonini, D., Morthorst, P. E., Wenzel, H., Astrup, T., Meyer, N. I., Münster, M., Østergaard, P. A., Bak-Jensen, B., Nielsen, M. P., Schaltz, E., Pillai, J. R., Hamelin, L., Felby,

C., Heussen, K. & Karnøe, P. & 3 others, Munksgaard, J., Hansen, L.-L. P. & Andersen, F., 2012, *Robust og bæredygtig bioenergi*. Skøtt, T. (ed.). BioPress, p. 30-31

Sensorless Model Predictive Direct Current Control Using Novel Second-Order PLL Observer for PMSM Drive Systems
Schaltz, E. & Preindl, M., 1 Sept 2011, In: *IEEE Transactions on Industrial Electronics*. 58, 9, p. 4087-4095 9 p.

Electrical Vehicle Design and Modeling

Schaltz, E., Aug 2011, *Electric Vehicles - Modelling and Simulations*. Soylu, S. (ed.). 1 ed. Croatia: INTECH, p. 1-24 24 p.

Load Torque Compensator for Model Predictive Direct Current Control in High Power PMSM Drive Systems

Preindl, M. & Schaltz, E., 30 Jun 2011, In: *Journal of Energy and Power Engineering*. 5, 6, p. 554-561 8 p.

Vehicle Energy Consumption: A contribution to the Coherent Energy and Environmental System Analysis (CEESA) project

Schaltz, E., 18 Jan 2011, 76 p.

Switching Frequency Reduction Using Model Predictive Direct Current Control for High-Power Voltage Source Inverters

Preindl, M., Schaltz, E. & Thøgersen, P. B., 2 Sept 2010, In: *IEEE Transactions on Industrial Electronics*. 58, 7, p. 2826-2835 10 p.

Design of a Fuel Cell Hybrid Electric Vehicle Drive System

Schaltz, E., Aug 2010, Department of Energy Technology, Aalborg University. 199 p.

Load Torque Compensator for Model Predictive Direct Current Control in High Power PMSM Drive Systems

Preindl, M. & Schaltz, E., 4 Jul 2010, *IEEE International Symposium of Industrial Electronics, ISIE 2010*. IEEE (Institute of Electrical and Electronics Engineers), p. 1347-1352 6 p.

Characterisation and Modelling of a High Temperature PEM Fuel Cell Stack using Electrochemical Impedance Spectroscopy

Andreasen, S. J., Jespersen, J. L., Schaltz, E. & Kær, S. K., 2009, In: *Fuel Cells*. 9, 4, p. 463-473

Design and Control of a Multiple Input DC/DC Converter for Battery/Ultra-capacitor Based Electric Vehicle Power System

Schaltz, E., Li, Z., Onar, O. & Khaligh, A., 2009, *IEEE Applied Power Electronics Conference - APEC 2009*. IEEE (Institute of Electrical and Electronics Engineers), p. 591-596

Design, control and power management of a battery/ultra-capacitor hybrid system for small electric vehicles

Li, Z., Onar, O., Khaligh, A. & Schaltz, E., 2009, *Society of Automotive Engineers (SAE) World Congress*. Society of Automotive Engineers, p. 8

Electrochemical characterization of a polybenzimidazole-based high temperature proton exchange membrane unit cell

Jespersen, J. L., Schaltz, E. & Kær, S. K., 2009, In: *Journal of Power Sources*. 91, 2, p. 289-296

Influence of Battery/Ultracapacitor Energy-Storage Sizing on Battery Lifetime in a Fuel Cell Hybrid Electric Vehicle

Schaltz, E., Rasmussen, P. O. & Khaligh, A., 2009, In: *IEEE Transactions on Vehicular Technology*. 58, 8, p. 3882 - 3891

Design and Comparison of Power Systems for a Fuel Cell Hybrid Electric Vehicle

Schaltz, E. & Rasmussen, P. O., 2008, *Proceedings of the IEEE Industry Applications Society Annual Meeting (IAS 2008)*. IEEE (Institute of Electrical and Electronics Engineers), 8 p.

Investigation of Battery/Ultracapacitor Energy Storage Rating for a Fuel Cell Hybrid Electric Vehicle

Schaltz, E., Khaligh, A. & Rasmussen, P. O., 2008, *Proceedings of the IEEE Vehicle Power and Propulsion Conference (VPPC)*. IEEE (Institute of Electrical and Electronics Engineers), p. 1-6

Non-Inverting Buck-Boost Converter for Fuel Cell Applications

Schaltz, E., Rasmussen, P. O. & Khaligh, A., 2008, *Proceedings of 34th Annual Conference on the IEEE Industrial Electronics Society (IECON 2008)*. IEEE (Institute of Electrical and Electronics Engineers), p. 855-860 6 p.

Design of Propulsion System for a Fuel Cell Vehicle

Schaltz, E., Andreasen, S. J. & Rasmussen, P. O., 2007, *Proceedings of the 12th European Conference on Power Electronics and Applications, EPE 2007*. EPE Association

Development of a 400 W High Temperature PEM Fuel Cell Power Pack: Equivalent Circuit Modeling

Schaltz, E., Jespersen, J. L. & Rasmussen, P. O., 2006, *Fuel Cell Seminar*.

Sensorløs kontrol af motor

Schaltz, E., Matzen, T. N. & Bech, M. M., 2006, In: *Elteknik : elektronik, automation og energi*. 23, 7, p. 28-30 3 p.

Investigation of Pseudo-Active State in Z-Source Inverter

Schaltz, E., Oprea, O., Larsen, L. & Chen, Z., 2005, *International Conference on Power Electronics and Intelligent Control for Energy Conversion 2005 (PELINCEC'05)*,. 6 p.