Call for Papers
Feature Topic on Advanced Battery Management for Electric Vehicles

The innovation of battery technology is rapidly and fundamentally changing our transportation system, resulting in an exponential increase in the ownership of battery-powered electric vehicles (EVs). There is no doubt that EVs will dominate the global vehicle market in a foreseeable future. This can be evidenced by political targets set up by different countries. For example, China and Europe aim to have 50 and 30 million EVs on road by 2030, respectively. With the massive market penetration of EVs, it is of great importance to ensure vehicle safety and optimize battery performance, e.g., in fast charging and longevity. Advanced battery management algorithms are demanded to lay a solid foundation for achieving these goals, in which cross-disciplinary knowledge needs to be appropriately and meticulously integrated, including electrical engineering, control theory, electrochemistry, AI, and machine learning.

This Feature Topic intends to provide readers with a comprehensive view of the latest research hotspots, technology innovation, and future development directions in the field of battery management. The ultimate goal is to accelerate the paradigm shift towards safe, efficient, and intelligent EVs. Welcome topics include but are not strictly limited to the following:

- Mathematical battery modeling
    - Development of electrical/thermal/electrochemical models
    - Multi-physics modeling from the electrode, cell, and pack-to-vehicle level
    - AI or big data-based modeling of EV batteries
    - Model identification and in-situ characterization

- Battery health management
    - State of health estimation
    - Remaining useful life prediction
    - Health-aware battery fast charging/pre-heating/driving pattern
    - Battery calibration and valuation for second-life usage
    - Therapeutic approaches to revitalize batteries/prevent degradation

- Battery safety management
    - Mechanical/thermal/electrical safety management
    - Internal and external short circuit analysis
    - Fault prognosis and diagnosis

- Battery energy top-up
    - Extremely fast charging (e.g., policies, infrastructure, and control algorithms)
    - Battery charging at low temperatures
    - Stationary/dynamic wireless charging for EVs
    - Battery swapping schemes

AUTOMOTIVE INNOVATION
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Submission Guidelines

1. Please submit online via www.springer.com/42154, be sure to select Topical Collection: Advanced Battery Management for Electric Vehicles.
2. Papers should be submitted in two separate .doc files: 1) Blinded Manuscript (paper title, abstract, keywords, and full text); 2) Title Page (paper title, author affiliation, acknowledgment, and any other information related to the authors' identification).
3. If any problems, please feel free to contact the journal editorial office via email: jai-editor@sae-china.org .

Important Dates

2021.06.01: Deadline for Initial Paper Submission
2021.08.01: Notification of First Round Decision
2021.09.01: Deadline for Revised Paper Submission
2021.10.15: Final Decision Due
2021.11.15: Final Manuscript Due

Guest Editors

- **Xiaosong Hu**, Chongqing University, China

  Xiaosong Hu is currently a Professor at the State Key Laboratory of Mechanical Transmissions. His research interests include modelling and controlling electrified powertrains and energy storage systems. He has been a recipient of several prestigious awards/honors, including the Highly Cited Researcher Award from Web of Science in 2020 and 2019, IEEE Intelligent Transportation Systems Society Young Researcher Award in 2020, JSPS Invitational Fellowship in 2020, Society of Automotive Engineers Ralph R. Teetor Educational Award in 2019, Emerging Sustainability Leaders Award in 2016, and EU Marie Curie Fellowship in 2015. He is a Senior Member of the IEEE and a Fellow of the IET.

- **Changfu Zou**, Chalmers University of Technology, Sweden

  Changfu Zou is an Assistant Professor in the automatic control research group. His research interests include modelling and control of energy storage systems and electric transport, with the aim to improve their efficiency, safety, and sustainability. He is currently involved in several research projects funded by the Swedish Research Council, Swedish Energy Agency, Swedish Innovation Agency, EU Horizon 2020, Mistra Innovation, etc. His work is in close collaboration with industry such as Volvo Cars, Volvo AB and Scania AB.

- **Michael Pecht**, University of Maryland, USA

  Prof. Michael Pecht is the Founder and Director of CALCE (Center for Advanced Life Cycle Engineering) at the University of Maryland. He is a Professional Engineer, an IEEE Fellow, an ASME Fellow, an SAE Fellow, and an IMAPS Fellow. He is currently serving as editor-in-chief of Circuit World. He served as editor-in-chief of IEEE Access for 6 years, as editor-in-chief of IEEE Transactions on Reliability for 9 years, and as editor-in-chief of Microelectronics Reliability for 16 years. He is also a Chair Professor. He has written over 900 technical articles and 10 patents. He consults for 22 major international electronics companies, providing expertise in strategic planning, design, test, prognostics, IP and risk assessment of electronic products and systems.

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The journal provides a forum for the research of principles, methodologies, designs, theoretical background, and cutting-edge technologies in connection with the development of vehicle and mobility. The main topics cover energy-saving, electrification, intelligent and connected, safety, lightweight, and emerging vehicle technologies.

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