

Tentative Outline

Special Thematic Issue for the journal “*Current Materials Science*”

Advances in battery and its applications

Guest Editors: Chaolong Zhang

• **Scope of the Thematic Issue:**

In recent years, the application of battery is more and more extensive. Batteries are widely used in automobile, energy storage, mobile communication, new energy storage, aerospace military and other fields. The performance and cost of battery are still bottlenecks. It is a hot area that researching the material, manufacturing process, performance and application method of battery.

Keywords: battery material, battery manufacturing process, battery modeling and state estimation, battery PHM, battery thermal management, battery application

Sub-topics:

The sub-topics to be covered within the issue should be provided:

- Battery electrochemistry
- Active and passive materials and components
- Cell design and stack technology
- Processing and manufacturing
- Battery modeling and state estimation
- Battery charging technologies
- Battery safety and reliability
- Battery lifetime and degradation
- Battery diagnosis, prognostic and health management (PHM)
- Battery temperature control technologies
- Dynamics control and energy management
- BMS software algorithms and hardware designs

Tentative titles of the articles and list of contributors:

Tentative titles of the articles and list of contributors with their names, designations, addresses and email addresses should be provided.

(1) Stabilizing Li-rich NMC Materials by Using Precursor Salts with Acetate and Nitrate Anions for Li-ion Batteries, Yangchuan Xing, University of Missouri.

(2) Glycine-Nitrate Process for Synthesis of $\text{Na}_3\text{V}_2(\text{PO}_4)_3$ Cathode Material and Optimization of Glucose-Derived Hard Carbon Anode Material for Characterization in Full Cells, Enn Lust, enn.lust@ut.ee, University of Tartu.

(3) Copper-Decorated CNTs as a Possible Electrode Material in Supercapacitors, Mateusz Ciszewski, mateuszc@imn.gliwice.pl, Łukasiewicz Research Network—Institute of Non-Ferrous Metals.

(4) The Impact of Environmental Factors on the Thermal Characteristic of a Lithium-ion Battery, Gerd Liebig, gerd.liebig@dlr.de, DLR Institute of Networked Energy Systems.

(5) Sensor Fault Detection and Isolation for Degrading Lithium-Ion Batteries in Electric Vehicles Using Parameter Estimation with Recursive Least Squares, Michael Fowler, mfowler@uwaterloo.ca, University of Waterloo.

(6) Remaining Useful Life Prediction and State of Health Diagnosis of Lithium-ion Battery based on Second-order

Central Difference Particle Filter, Yuan Chen, cumtjiangsucy@126.com, Hefei University of Technology.

(7) EIS Study on the Electrode-Separator Interface Lamination, Martin Frankenberger, Karl-Heinz.Pettinger@haw-landshut.de, University of Applied Sciences Landshut.

(8) Development of a Polymeric Arrayed Waveguide Grating Interrogator for Fast and Precise Lithium-Ion Battery Status Monitoring, Antonio Nedjalkov, antonio.nedjalkov@hhi.fraunhofer.de, Fraunhofer Heinrich Hertz Institute

(9) Machine Learning Approaches for Designing Mesoscale Structure of Li-Ion Battery Electrodes, Yoichi Takagishi, takagishi.yoichi@kki.kobelco.com, Kobelco Research Institute Inc.

(10) Synthesis and Electrochemical Performance of Ni-Doped VO₂(B) as a Cathode Material for Lithium Ion Batteries, Qian Yang, ysyangqian0539@163.com, Guilin University of Technology.

Schedule:

✧ Thematic issue submission deadline: Friday, 30 October 2020

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