



Fast-Charging Lithium Batteries: Challenges, Progress and Future

Guest Editors:

Dr. Mei Luo

Chemical Sciences and
Engineering Division, Argonne
National Laboratory, Lemont, IL
60439, USA

Dr. Wenquan Lu

Chemical Sciences and
Engineering Division, Argonne
National Laboratory, Lemont, IL
60439, USA

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Message from the Guest Editors

Dear Colleagues,

Compared to traditional combustion-engine-powered vehicles that can be refilled in 5 min, electric vehicles currently take much longer to refill. To meet the expectations of consumers, fast-charging lithium batteries are considered a key challenge for the widespread adoption of electric vehicles. Many obstacles such as extensive energy decay and safety issues hinder the fast-charging target of charging to 80% state of charge within 10–15 min. This Special Issue is looking for contributions to help us understand the mechanism and obstacles of fast charging and gather innovative studies on novel materials and technologies to improve fast-charging capability of batteries.

Potential topics include but not are limited to:

- Li-ion batteries, Li metal batteries, Li-S, Li-O, etc.
- Material development including anode, cathode, electrolyte, etc.
- Electrode and cell design and fabrication.
- Cell performance testing including cycle life and thermal safety investigation.
- Characterization methodology investigation.
- Modeling and machine learning to understand and predict cell performance.





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Editor-in-Chief

Prof. Dr. Andreas Jossen

Institute for Electrical Energy
Storage Technology (EES),
Technical University München
(TUM), Arcisstrasse 21, 80333
Munich, Germany

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Batteries Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

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