Special Issue

Innovations in Battery Management: Advanced Modeling, Control and Diagnostic Algorithms for Batteries and Hybrid Energy Storage Systems

Message from the Guest Editors

The rapid development of battery technologies is crucial for advancing renewable energy, electric vehicles, and portable electronics. This Special Issue invites contributions addressing critical challenges in battery modeling at both the cell and pack levels, controlling high-voltage battery packs or hybrid energy storage systems (HESSs) for e-mobility and stationary applications, as well as developing diagnostic algorithms oriented to performance maximization and safety. We encourage submissions that propose innovative approaches, including artificial intelligence (AI), advanced sensors and behavioral modeling, to improve battery lifecycle management and sustainability. Topics of interest include models used for SoX estimation and the prediction of remaining useful life (RUL), optimized characterization procedures for model calibration, thermal management strategies for improved efficiency, and solutions for recycling and second-life applications. Emphasis will also be placed on the integration of batteries in HESSs, real-time diagnostics using innovative sensors, and scalable manufacturing techniques.

Guest Editors

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Message from the Editor-in-Chief

Take the opportunity to publish your original scientific work or a review paper concerning battery materials, battery technology or battery application within this new open access journal. Along with material science, the journal also addresses engineering and multidisciplinary research topics, such as cell and system design or storage system integration. Publishing proffers visibility for the benefit of other experts and facilitates discussion of the research results within the field. You are invited to publish your work, read published papers and to participate in topical discussions.

Editor-in-Chief

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