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Artificial Intelligence and Batteries: AI-Powered Innovations in Battery Technology

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Deadline for manuscript submissions:
closed (15 October 2025)

Message from the Guest Editors

Dear Colleagues,

Artificial intelligence (AI) techniques, including machine learning, neural networks, and optimization algorithms, are being leveraged to address key challenges in battery technology, and this Special Issue explores the intersection of AI and batteries, aiming to enhance battery performance, lifespan, and safety. By integrating AI, advancements are made in battery efficiency, charging strategies, and energy storage applications across various sectors, including electric vehicles, renewable energy systems, and portable electronics.

Topics of interest for this Special Issue include, but are not limited to:

Advances in AI and battery research and applications;
Artificial intelligence in battery management and control;
Advanced battery state estimation: state-of-charge (SOC), state-of-health (SOH), state-of-power (SOP), state-of-function (SOF), remaining discharge energy (RDE), degradation;
Battery diagnostic and prognostic functions;
Advances in battery system thermal management.

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Message from the Editor-in-Chief

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