Special Issue

10th Anniversary of *Batteries*: Battery Diagnostics and Prognostics

Message from the Guest Editors

With the rapid evolution of electric vehicles, renewable energy storage, and portable electronics, ensuring the reliability, safety, and lifetime of battery systems has become a critical challenge. Celebrating the 10th anniversary of *Batteries*, this Special Issue focuses on **advancements in battery diagnostics and prognostics**, covering **multi-physics modeling, real-time diagnostics, and predictive analytics** to enable next-generation battery management. Key topics include **electrochemical–thermal–mechanical coupling for accurate state estimation**, **degradation-aware digital twins**, and **AI-driven battery health assessment**. Furthermore, **stochastic modeling and uncertainty quantification** play a crucial role in prognostics of remaining useful life, while **embedded sensing and electrochemical impedance spectroscopy** (EIS) provide real-time insights into battery health. This collection also explores **cloud-integrated and edge computing architectures for predictive battery management systems** (BMSs), driving the transition towards intelligent battery technologies.

Guest Editors

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