



Electrode/Electrolyte Interfacial Properties & Dynamics and Optimization Strategies in Batteries

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Message from the Guest Editor

The electrode/electrolyte interface is the forefront where chemical and electrochemical reactions occur within battery systems. Although tremendous efforts have been invested in advancing knowledge, the electrode/electrolyte interface, including the solid/electrolyte interface (SEI) and cathode/electrolyte interface (CEI), is still poorly understood, mainly due to its complex composition and nanometer-scale structure as well as a lack of suitable probing techniques.

The interfacial properties (e.g., chemical composition, structure, and physicochemical properties) and the interfacial electrochemical dynamics are crucial, as they dictate a series of macroscopic performances of batteries, including dis/charge capacity, rate performance, operation stability, and safety. Understanding the interfacial properties and interfacial electrochemical behaviors, and developing optimization strategies, are thus paramount, as they could promote an in-depth and comprehensive understanding and, more importantly, accelerate the design and development of advanced batteries with superior performance.





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