

Special Issue

Battery Safety and Fire Prevention in Electric Vehicles

Message from the Guest Editors

The rapid growth of electric vehicles (EVs) has brought increased attention to the critical issues of battery safety and fire prevention. Battery safety concerns, often referred to as "thermal runaway", have impeded the widespread implementation of energy-dense lithium-ion batteries (LIBs) in EVs and energy storage stations. The development of ultrahigh-nickel layered oxide cathode (e.g. NCM, NCA) and silicon-based anode (SiC) materials has significantly increased the energy density of LIBs. The selection of battery material chemistries plays a crucial role in determining the thermal stability of batteries. This Special Issue aims to address challenges and advancements in ensuring the safe operation of EV batteries. Potential topics: Thermal failure mechanisms of lithium/sodium-ion batteries Advanced materials for thermal stability and fire prevention Battery safety enhancement at the material and cell levels Advanced battery thermal management technology Modeling and the reduced order method for battery thermal runaway

Guest Editors

Dr. Junxian Hou

Dr. Weixiong Wu

Dr. Changyong Jin

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MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
batteries@mdpi.com

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Editor-in-Chief

Prof. Dr. Karim Zaghib
Department of Chemical and Materials Engineering, Concordia
University, Montréal, QC H3G 1M8, Canada

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