Design and Development of Functional Materials for Energy Storage and Conversion Devices

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Abstract

The demand for sustainable and e cient energy systems has driven signiýcant advancements in the design and development of functional materials for energy storage and conversion devices. Materials such as lithium-ion batteries, supercapacitors, fuel cells, and thermoelectric devices have become central to renewable energy technologies. To enhance the performance of these devices, researchers focus on designing materials with improved energy density, conductivity, stability, and cycle life. This paper discusses the latest developments in materials tailored for energy storage and conversion applications, including novel electrode materials, electrolytes, and catalysts. Functional

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