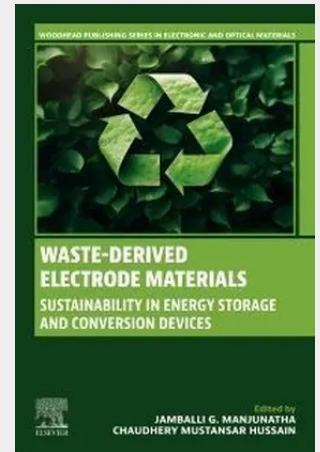


Waste-Derived Electrode Materials

Sustainability in Energy Storage and Conversion Devices

Waste-Derived Electrode Materials: Sustainability in Energy Storage and Conversion Devices addresses the pressing need for sustainable solutions in the field of energy storage and conversion. The world is facing significant challenges related to waste management and the depletion of natural resources. At the same time, there is a growing demand for advanced electrode materials to meet the requirements of emerging technologies such as batteries, fuel cells, and solar cells. This book bridges the gap between these two areas by exploring the potential of waste-derived materials for use in electrode fabrication. The book provides a comprehensive and authoritative resource on the topic of waste-derived electrode materials, focusing on their synthesis, characterization, and application in energy storage and conversion devices. It explores the various types of waste materials that can be used as precursors, such as carbon-based waste (biomass, agricultural residues, and waste plastics) and metal-containing waste (spent batteries, electronic waste). It also covers the methods and processes for transforming these waste materials into high-performance electrode materials through innovative techniques such as pyrolysis, hydrothermal treatment, and chemical modification. The environmental and economic aspects of utilizing waste-derived electrode materials are considered, including factors such as resource efficiency, waste reduction, carbon footprint, and cost-effectiveness. The book also discusses the potential impact of these materials on sustainability, circular economy principles, and the reduction of environmental pollution.

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