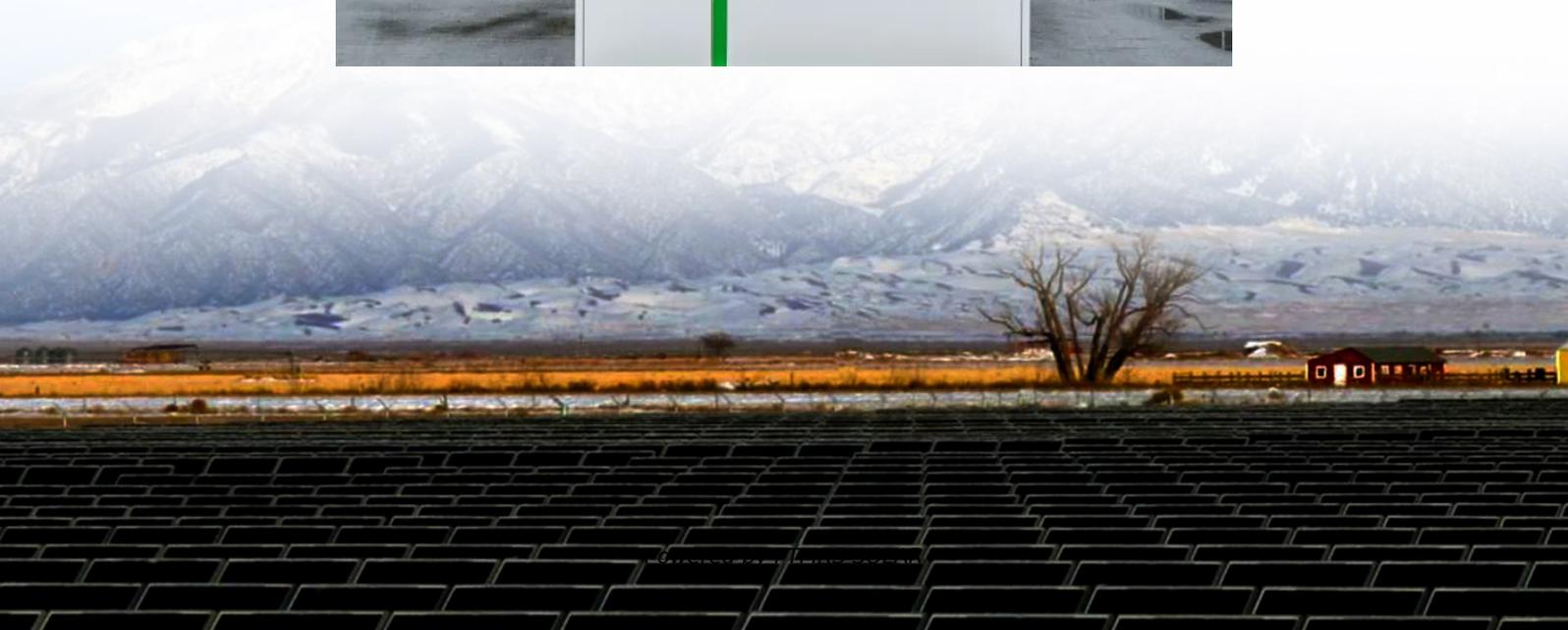


# Amorphous electrochemical energy storage





## Overview

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What are amorphous materials?

Amorphous materials with unique structural features of long-range disorder and short-range order possess advantageous properties such as intrinsic isotropy, abundant active sites, structural flexibility, and fast ion diffusion, which are emerging as prospective electrodes for electrochemical energy storage and conversion.

Are amorphous nanomaterials a promising electrode material?

To date, amorphous nanomaterials are emerging as prospective electrode materials with outstanding electrochemical performance in the field of LIBs, Li-metal batteries, and supercapacitors owing to their unique physico-chemical properties.

Are amorphous-material-based electrodes suitable for energy storage and conversion technologies?

Here, recent progress in exploring amorphous-material-based electrodes with high performance for a series of energy storage and conversion technologies is highlighted.

Can amorphous materials be used in electrochemical techniques?

Current challenges in applying amorphous materials in various electrochemical techniques are eventually summarized together with several prospective research directions in this field.



## Amorphous electrochemical energy storage

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Amorphous/Crystalline Heterostructured

Mar 2, 2025 · AC-HNMs leverage synergistic interactions between their amorphous and crystalline phases, along with abundant interface effects, which enhance capacity output and ...

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Amorphous materials emerging as prospective ...

May 6, 2023 · SUMMARY Amorphous materials, which bear a unique entity of randomly arranged atoms, have aroused a great deal of attention in the field of electrochemical energy ...

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Amorphous/Crystalline Heterostructured Nanomaterials: An ...

This is a comprehensive review of amorphous/crystalline heterostructured nanomaterials (AC-HNMs), highlighting their synthesis strategies and applications in electrochemical energy ...

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Construction of amorphous/crystalline heterointerfaces for ...

Apr 1, 2023 · Abstract Amorphous nanomaterials have emerged as potential candidates for energy storage and conversion owing to their amazing physicochemical properties. Recent ...

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Amorphous material based heterostructures with disordered

Jan 10, 2025 · Advanced rechargeable batteries are critical for enabling effective energy storage. A promising strategy to improve the electrochemical performance involves tailoring ...

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Amorphous Electrode: From Synthesis to Electrochemical Energy Storage

Electrochemical batteries and supercapacitors are considered ideal rechargeable technologies for next-generation energy storage systems. The key to further commercial ...

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Amorphous materials emerging as prospective electrodes for

May 11, 2023 · Amorphous materials with unique structural features of long-range disorder and short-range order possess advantageous properties such as intrinsic isotropy, abundant active ...

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Amorphous material based heterostructures ...

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Amorphous/Crystalline Heterostructured Nanomaterials: An ...

Feb 28, 2025 · With the expanding adoption of large-scale energy storage systems and electrical devices, batteries and supercapacitors are encountering growing demands and challenges



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Amorphous materials emerging as prospective electrodes for

Summary. Amorphous materials, which bear a unique entity of randomly arranged atoms, have aroused a great deal of attention in the field of electrochemical energy storage and conversion ...

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