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Structural energy storage supercapacitor

Overview

What are structural supercapacitors?

This review paper delves into the pioneering concept of structural supercapacitors (SSCs), which seamlessly embed energy storage capabilities directly into construction materials such as ordinary portland cement, geopolymers, magnesium phosphate cement, aluminate cement, bricks, wood, and polymers.

Are structural supercapacitors a viable solution for multifunctional applications?

Nanomaterials, and nanocomposites in particular, are ideally suited to tackling this challenge of multifunctional applications. Structural supercapacitors (SSCs) offer promising solutions by combining lightweight load-bearing materials with energy storage functionality.

Are supercapacitors a good choice for energy storage?

In terms of energy storage capability, the commercially accessible supercapacitors can offer higher energy density (e.g., $5\,\mathrm{Wh\,kg}^{-1}$) than conventional electrolytic capacitors, though still lower than the batteries (up to $\approx 1000\,\mathrm{Wh\,kg}^{-1}$).

Are supercapacitors better than batteries?

However, their energy storage capacity is markedly lower than batteries . Bridging this gap are supercapacitors (SCs), also known as ultracapacitors, which have both high energy storage capacity and quick discharge capabilities.

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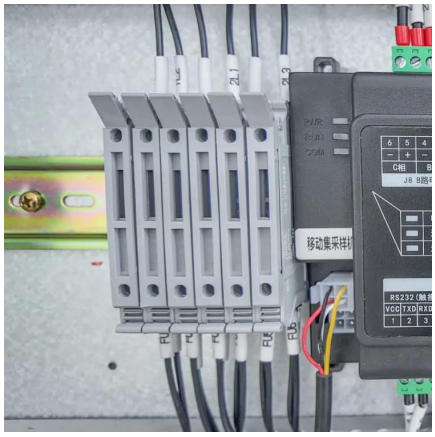

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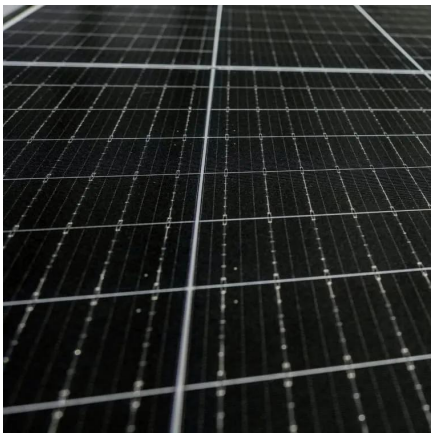

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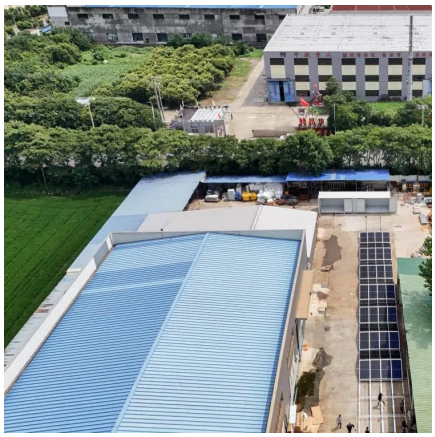

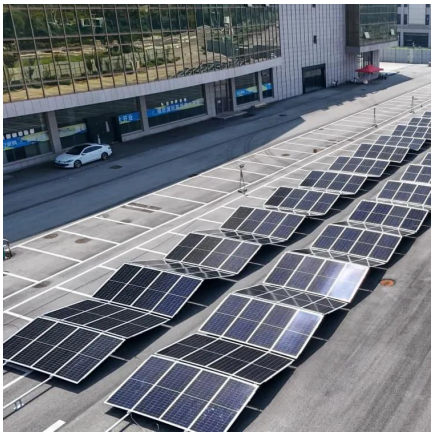

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