

Multifunctional energy storage lighting device

What are multifunctional energy storage and conversion devices?

Multifunctional energy storage and conversion devices that incorporate novel features and functions in intelligent and interactive modes, represent a radical advance in consumer products, such as wearable electronics, healthcare devices, artificial intelligence, electric vehicles, smart household, and space satellites, etc.

Why do we need multifunctional electric devices?

The ever-growing pressure from the energy crisis and environmental pollution has promoted the development of efficient multifunctional electric devices. The energy storage and multicolor electrochromic (EC) characteristics have gained tremendous attention for novel devices in the past several decades.

Can multifunctional devices store energy and block the transmission of light?

Therefore, the results suggest a new design strategy for materials to realize the coincident application of multifunctional devices with EC energy storage performance. A material that can both store energy and block the transmission of light has been developed by scientists in South Korea.

What are electrochromic energy storage devices (EESDs)?

Electrochromic energy storage devices (EESDs) including electrochromic supercapacitors (ESC) and electrochromic batteries (ECB) have received significant recent attention in wearables, smart windows, and colour-changing sunglasses due to their multi-functionality, including colour variation under various charge densities.

What are flexible and stretchable electrochromic energy storage devices?

Such flexible and stretchable electrochromic energy storage devices have multiple functionalities and could be potentially implemented for wearables, smart building, electric vehicles, and smart display.

What is electrochromic energy storage?

The energy storage and multicolor electrochromic (EC) characteristics have gained tremendous attention for novel devices in the past several decades. The precise design of EC electroactive materials can facilitate the integration of electrochromic energy storage devices (EESDs).

Meanwhile, the electric energy can store in the electrochromic window as an energy storage device to power other electronic devices (such as LED light). Therefore, our self ...

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The multifunctional devices can be used as energy storage devices, and can also monitor the energy status in situ according to the color change. In this review, we introduce the working ...

A high-performance electrochromic-energy storage device (EESD) is developed, which successfully realizes the multifunctional combination of ...

WO₃ and Prussian blue thin films are employed as complementary electrochromic layers. The device exhibits adjustable optical modulation driven by sunlight or electricity. A ...

The current Focus Review describes the promise of multifunctional electrochromic devices which can convert/generate and store energy through operations similar to batteries and supercapacitors. It also ...

With the advent of multifunctional devices with electrochromic (EC) behavior and electrochemical energy storage, complementary design of film ...

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