Title: Vientiane Super Smart Capacitor
Generated on: 2026-05-08 11:10:30

How smart supercapacitors are developed?
Various smart supercapacitors have been developed by designing the electrodes and electrolytes of the supercapacitors as well as simplifying the device configurations. This review summarizes the development of smart supercapacitors with self-healing, shape memory, electrochromism, and photodetection.

Can supercapacitors be smart energy storage devices?
The achievement of smart supercapacitors usually depends on the design of their configurations. However, conventional supercapacitors are mainly designed in button cells or spiral-wound configuration, which are too bulky and heavy to serve as smart energy storage devices.

What are smart fiber supercapacitors?
Most of the smart fiber supercapacitors are designed in this configuration, because it can be easily integrated with other fiber-shaped electronic devices, such as sensors or solar cells, to achieve multifunctional systems.

Are smart supercapacitors self-healing?
Recently, a variety of smart supercapacitors have been successfully designed and fabricated by developing novel functional component materials and device configurations. In this review, we will present the recent developments in smart supercapacitors with self-healing, shape memory, electrochromism, and photodetection functions (Figure 1).

VINATech supercapacitors, including EDLC and hybrid types, offer rapid charge/discharge, long lifespan, and reliable performance across diverse applications.

The book begins by describing the basics and fundamentals related to supercapacitors and their applicability as smart and next generation energy storing devices.

A self-healing low-voltage compensation capacitor is adopted, and the capacitor has a built-in temperature sensor to reflect the internal heat of the capacitor and realize over-temperature ...

Unlike regular capacitors, it can store a significantly larger electric charge, offering enhanced energy density while retaining the swift discharge capabilities commonly associated with capacitors. ...

Accordingly, this paper mainly introduces the research progress on electrochromic, self-healing, shape memory, and self-charging smart supercapacitors in recent years and discusses the ...

Explore the principles, features, and advantages of VINATech"s supercapacitor cells (EDLC and Hybrid), the essential guide to our optimal energy solutions.

In this mini review, we summarize recent progress in smart supercapacitors with the functions of self-healing, shape memory, electrochromism, and photodetection, including ...

Due to the high electrode surface area and thin IHP and OHP, the supercapacitor essentially bridges the energy and power gap between a battery and traditional capacitors as it leverages the basic theory ...

Website: https://elalmacendelaireacondicionado.es