Flexible capacitor design

What is a flexible supercapacitor?
A supercapacitor is a potential electrochemical energy storage device with high-power density (PD) for driving flexible, smart, electronic devices. In particular, flexible supercapacitors (FSCs) have reliable mechanical and electrochemical properties and have become an important part of wearable, smart, electronic devices.

What is a flexible coaxial-type fiber supercapacitor based on?
Flexible coaxial-type fiber supercapacitor based on NiCo 2 O 4 nanosheets electrodesBest practice methods for determining an electrode material's performance for ultracapacitors S. Zheng,Z.-S. Wu,S. Wang,H. Xiao,F. Zhou,C. Sun,X. Bao,H.-M. Cheng Graphene-based materials for high-voltage and high-energy asymmetric supercapacitors

What are flexible solid-state supercapacitors?
Flexible solid-state supercapacitors (SCs) have attracted increasing interest because they can provide substantially higher specific/volumetric energy density compared to conventional capacitors.

How to choose a flexible wearable supercapacitor?
3) For flexible wearable supercapacitors, the match of mechanical properties, flexibility and electrochemical performance is crucial. The mechanical properties affect the durability of the device. The flexibility also determines comfort during use.

How are flexible solid-state symmetric supercapacitors fabricated?
Fabrication of the Flexible Solid-State Symmetric Supercapacitor The supercapacitors were fabricated through the assembly of PVA/H 3 PO 4 gel electrolyte-coated Ti 3 C 2 T x /PEDOT composite electrodes (Figure 1).

What is the capacitance retention of flexible supercapacitor?
The real specific capacitance of flexible supercapacitor using SILGMs as electrolytes and separator up to 153 F/g at 0.1 A/g keeps the capacitance retention of 97%after 1000 charge-discharge cycles . Flexible and safe hydrogel electrolytes typically consist of the hydrophilic cross-linked polymer networks and water-soluble electrolytes.

Since the main driving forces in developing FSCs are flexibility and multi-functionalities, in addition to high capacitive performance, herein we review the FSCs ...

Nanoengineering polar oxide films have attracted great attention in energy storage due to their high energy density. However, most of them are deposited on thick and rigid substrates, which ...

Herein, the interdigital-flexible structures were parametrically designed and firstly served as capacitive sensor,

namely flexible interdigital capacitive sensors (FICSs). The spaces between ...

Flexible self-charging capacitor systems, which exhibit the combined functions of energy generation and storage, are considered a promising solution for powering flexible self ...

AFSCs device can be fabricated by constructing two flexible dissimilar electrodes (a Faradaic positive electrode and a capacitor-type negative electrode), a separator ...

We use flexible materials such as copper foil, polyimide, polyurethane and a new type of semiconductor material based on super capacitor and design a double-layer ...

The fabrication of flexible microwave spiral inductors and MIM capacitors began with the patterning of a bottom metal layer (M1) by optical photolithography on a polyethylene ...

Traditional substrates of metallic interdigital electrodes (IEs) are rigid and undeformable, flexible interdigital capacitors are therefore appealing as strain sensors. In this ...

Flexible supercapacitors can use non-Faradaic energy storage process as seen in the electric double layer capacitor type or a Faradaic mechanism as seen in the pseudocapacitors (PCs). In this review, we account ...

With the significant advancement of portable/wearable electronics, the demand for flexible electronic devices has significantly increased; in the field of energy storage, the development of ...

In this article, we review recent achievements in the design, fabrication and characterization of flexible solid-state SCs. Moreover, we also discuss the current challenges and future opportunities for the development of high-performance ...

Because of complementary advantages of capacitor-type and battery-type ... L., Niu, Z. & Chen, J. Design and integration of flexible planar micro-supercapacitors. Nano Res. ...

Flexible GCP-based SCs are assembled to meet the power-energy requirements of typical flexible or printable electronics. Under highly bended conditions, the SCs show a high ...

The wire-based supercapacitor is scalable and highly flexible, which can be assembled with/without a flexible substrate in different geometries and bending angles for illustrating promising use in smart textile and wearable ...

Flexible supercapacitors have become research hotspot as the energy storage device to power up the wearable and portable electronics due to their high specific capacitance ...

Herein, we design NiMoS@NiCo-LDH core-shell structures through facile synthesis routes. The unique

structures relieve volume expansion of the electrode materials ...

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