Super hydrophobic energy storage materials

Abstract All weather, high-efficiency, energy-saving anti-icing/de-icing materials are of great importance for solving the problem of ice accumulation on outdoor equipment ...

6 · 54 CodeCraft Lv11 Small - 2024 - Zhao - A New Composite Material with Energy Storage Electro Photo-Thermal and Robust Super-Hydrophobic.pdf (3.84 ...

A New Composite Material with Energy Storage, ... In this study, a composite material with energy storage, active electro-/photo-thermal de-icing and passive super-hydrophobic anti ...

Herein, superhydrophobic thermal energy storage coating is realized by spraying mesoporous superhydrophobic C@SiO 2 -HDTMS nanotubes (NTs), industrial ...

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At this time, mechanical de-icing can cause irreversible damage to the rough structures of the hydrophobic surface, impairing the material"s hydrophobic properties and thus ...

It is noteworthy that in the design of hydrophobic structures, in addition to controlling the surface energy of the coating, which is related to the type of material used, ...

The measured snap-in forces for these super water-repelling surfaces become zero, indicative of their super phobic status. From the ...

Based on the available literature, it is realized that research on superhydrophobic surfaces can broadly be classified into two distinct ...

A New Composite Material with Energy Storage, Electro/Photo-Thermal and Robust Super-Hydrophobic Properties for High-Efficiency Anti-Icing/De-Icing All weather, high-efficiency, ...

2 · Recently, photothermal superhydrophobic energy-storage coatings (PSECs) with anti-icing abilities via latent heat release in the dark environment have drawn attention, yet their ...

Passive Anti-Icing Performances of the Same Superhydrophobic Surfaces under Static Freezing, Dynamic... Phases of icing on wind turbine blades characterized by ice ...

Super hydrophobic energy storage materials

Abstract All weather, high-efficiency, energy-saving anti-icing/de-icing materials are of great importance for solving the problem of ice accumulation on outdoor equipment surfaces. In this ...

The introduction of thermal storage capacity to superhydrophobic materials is challenging but useful, especially for the thermal management of electronics, energy-efficient ...

Passive Anti-Icing Performances of the Same Superhydrophobic Surfaces under Static Freezing, Dynamic... Phases of icing on wind turbine blades characterized by ice accumulation An ...

Superhydrophobic surfaces, characterized by exceptional water repellency and self-cleaning properties, have gained significant attention for their diverse applications across ...

To demonstrate superhydrophobic performance, we utilize high speed optical microscopy to show stable coalescence induced droplet jumping ...

We apply this strategy to various substrates--including silicon, ceramic, metal and transparent glass--and show that the water repellency of the resulting superhydrophobic ...

Superhydrophobic materials have been used in various fields from transportation, architecture/building protection, oil/water separation to biomedical device manufacturing, ...

While these studies have provided valuable insights into DES solvation dynamics and phase segregation, the application of DES-water ...

When discharging latent heat thermal energy storage (LHTES) systems, performance is influenced by the formation and adherence of a solid layer of phase change material (PCM) on ...

Superhydrophobic materials have been used in various fields from transportation, architecture/building protection, oil/water separation to ...

These materials" superoleophobiciy makes them ideal for coating oil storage and transportation equipment, but Banerjee is particularly interested in using them ...

In recent decades, super hydrophobic surfaces (SHS) have been considered as key parameter, and superhydrophobic coatings are vital to ...

Electro-thermal effects, as an effective ice removal method, can be integrated with super-hydrophobic surfaces to enhance ice protection [17], [18]. By introducing conductive ...

Solar collector coatings can solve the current energy shortage and environmental pollution by converting clean

solar energy into thermal energy. However, once ...

With high energy storage density, enhanced thermal conductivity, and good scalability, our superhydrophobic ss-PCM coating should find potential use in energy-saving building materials ...

In this paper, a functionalized super-hydrophobic nanocomposite surface, combining anti-icing and drag reduction properties, was prepared using a laser etching and ...

In practical situations, it is crucial for flexible energy storage devices to sustain random deformations including bending, twisting, and compressing. The adaptability of the ...

Thermal energy storage, as an environment-friendly energy-saving technology, shows great promise as a means of storing energy from renewable resource and reducing energy ...

Mussel-inspired, hydrophobic association-regulated hydrogel electrolytes with super-adhesive and self-healing properties for durable and flexible zinc-ion batteries Energy Storage Materials (IF ...

Hydrophobic and superhydrophobic materials can be produced with many fabrication methods such as layer-by-layer assembly, laser process, ...

Read Thermal enhancement and shape stabilization of a phase-change energy-storage material via copper nanowire aerogel