Ionic liquid energy storage

This review focuses on investigating the ion conductive properties and operational mechanisms of ILC electrolytes for energy storage and conversion devices, which play a ...

9%· The energy storage ability and safety of energy storage devices are in fact determined by the arrangement of ions and electrons between the electrode ...

The development of efficient, high-energy and high-power electrochemical energy-storage devices requires a systems-level holistic approach, rather than focusing on the ...

Ionic liquids, defined here as room-temperature molten salts, composed mainly of organic cations and (in)organic anions ions that may undergo almost unlimited structural ...

In the last decade, ionic liquids (ILs) have been established as notable solvents with applications in various scientific and technological fields. Due to their adjustable nature ...

In the past few years, ionic liquids (ILs)-based gels (gels contain ILs) have become a research hotspot. ILs-based gels combine the properties of gels with intrinsic ILs ...

Ionic liquids (ILs) can provide a broad range of opportunities for fabricating high-energy supercapacitors owing to their wide stable potential windows, flexibility in design, and ...

We show that the right combination of the exohedral nanostructured carbon (nanotubes and onions) electrode and a eutectic mixture of ionic liquids can dramatically ...

In this Review, we examine recent work in which the properties of ionic liquids have enabled important advances to be made in sustainable energy generation and storage.

Ionanofluids based on ionic liquid mixtures, a new approach as an alternative material for solar energy storage Jenifer Cavieres a, María José Inestrosa-Izurieta a, Diego A. ...

Phase change composite based on protic ionic liquids 2-hydroxyethylammonium lactate and stearic acid for thermal energy storage systems at intermediate temperatures ...

Due to the tunable physical features of IL-based gels, they have broader prospects in energy applications. There is a growing need for clean and sustainable energy, particularly for energy ...

In this study, a novel and environmentally friendly phase change materials for thermal energy storage through

the use of protic ionic liquid / fatty acids as high latent heat ...

The shortcomings of conventional working pairs in thermal energy storage and transmission based on absorption cycle have become major obstacles for practical application. ...

Ionic liquids can be used as electrolyte salts, electrolyte additives, and solvents. For optimizing ionic liquid-based electrolytes for energy storage, their applications in ...

Ionic liquid crystals are organic salts having synergistic properties of ionic liquids and liquid crystalline materials endowed with non-covalently bound delocalised ion pairs of ...

Since ionic liquids (ILs) have been demonstrated to act as a solvent or an electrolyte, they can undergo a stimulus-responsive anisotropic phase change, followed by ...

This review will enlighten the promising prospects of these unique, environmentally sustainable materials for next-generation green energy conversion and ...

The scarcity of fossil energy resources and the severity of environmental pollution, there is a high need for alternate, renewable, and clean energy resources, increasing ...

Incorporation of ionic liquids (IL) into PEM has demonstrated increased molecular and ionic transport, and it is probable that liquid polymerized ionic liquids (LPIL) also ...

The benefits of using ionic liquid electrolytes on each system and pertinent improvements in performance are delineated in comparison to systems utilizing conventional electrolytes. ...

Ionic liquids (ILs) composed entirely of organic and/or inorganic ions exhibit diverse and tunable properties, serving as versatile energy-related functional materials. They ...

Due to their characteristic properties such as nonvolatility, inflammability, high thermal stability, and high ionic conductivity, ILs appear to meet the rigorous demands of the ...

In summary, the study focuses on the development and characterization of ionic liquid-methacrylate based polymer electrolytes for energy storage applications. Different ratios ...

Ionic liquids are liquids containing solely ions having melting points lower than 100 °C. Their potential applications in electrochemical energy storage and conversion were ...

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