Luminescent materials for energy storage 2017

Luminescent materials are continually sought for application in solid-state LED-based lighting and display applications. This has traditionally required extensive experimental effort. More recently, the employment of data ...

Luminescent materials, or phosphors, are organic, inorganic, or hybrid organic/inorganic systems that convert certain types of energy into electromagnetic radiation over thermal radiation [1]. The ability of these ...

Applying multifunctional energy-storage and luminescent material combined with LED lamps for tunnel lighting is a new direction for the design of energy-saving lighting in highway tunnels.

In LLMs, defect creates intermediate energy levels within the bandgap, which dominates/ tailors the excited-state dynamics of electrons in photophysical process, and thus ...

In order to minimize the negative environmental impacts and to create a sustainable future, low-cost and energy-efficient carbon-based green materials are being ...

The development of luminescent materials via mechanochemistry embodies a compelling yet intricate frontier within materials science. Herein, we delineate a methodology for the synthesis ...

Luminescent solar concentrators (LSCs) offer a unique opportunity to "invisibly" integrate semi-transparent photovoltaic architectural elements, such as electrodeless glazing ...

Long persistent luminescence (LPL) materials--widely commercialized as "glow-in-the-dark" paints--store excitation energy in excited states that slowly release this energy as light 1. At ...

High efficient energy storage devices for both thermal energy and light energy are scarce in the development of modern society to reduce energy consumption. In this work, a ...

Abstract In this work, a universal strategy for solid, solution, or gel state organic persistent luminescent materials via radiative energy transfer is proposed. The persistent luminescence (?>0.7 s) could be remotely regulated ...

Abstract The great versatility of perovskite materials makes them good candidates to be applied as light storage materials, especially those with persistent luminescence. These ...

Therefore, this mini review summarizes the luminescent mechanisms, preparation methods, performance

characteristics and anti-counterfeiting application of rare earth doped materials. In addition, we discuss ...

Rare-earth-doped materials with abundant electronic energy levels are capable of emitting bright multicolor radiation and are therefore considered irreplaceable candidates for ...

Therefore, the long afterglow material is an energy storage material that can provide long-term illumination [19]. According to the type of matrix, long afterglow luminescent ...

Comprehensive understanding of necessary requisite conditions involved in choice of suitable luminescent materials in its evolutionary pathway with focus on paradigms of various potential ...

Luminescence modulation based on photochromic reactions is always considered to be a promising method to achieve nondestructive readout in photochromic materials. Generally speaking, two conventional strategies have been widely ...

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