

What are luminescent materials?

This Special Issue covers various luminescent materials that are currently a focus of research, such as carbon dots, perovskites, metal complexes, lanthanide phosphors, and luminescent hybrid materials, exploring their photophysical properties and achieving promising applications in chemical sensing and photocatalysis.

What is persistent luminescent material?

The persistent luminescent material exhibits robust optical performance in the healthcare field. Various testing and therapeutic techniques have been developed by integrating the unique long afterglow properties. Increased efforts have been made to improve the brightness and durability of the new material.

Can persistent luminescent phosphors store light energy in advance?

Nature Materials 22,289-304 (2023) Cite this article Persistent luminescent phosphors can store light energy in advance and release it with a long-lasting afterglow emission.

What are the advantages of nanocrystalline persistent luminescent materials?

Although slightly inferior to organic persistent luminescent materials in terms of biocompatibility and luminous intensity, nanocrystalline persistent luminescent materials have great advantages in the following aspects. Crystalline nanophosphors have much higher photostability, and photobleaching could be eliminated.

Can persistent luminescent materials be used in phototherapy?

To overcome these limitations, the distinctive optical properties of persistent luminescent materials have paved the way for novel solutions. The integration of extensive afterglow materials with phototherapy technologies offers promising avenues for addressing this public health problem.

How to enhance persistent luminescence?

To enhance persistent luminescence, the first strategy is usually used because the overlap between the resonance band and the absorption region of the phosphor benefits light harvesting and subsequent charge carrier generation.

Persistent luminescence phosphors are a novel group of promising luminescent materials with afterglow properties after the stoppage of excitation. In the past decade, ...

Preparation and Energy Storage Performance of Perovskite Luminescent Materials by an Electrochemiluminescence Method. ... In addition to the advantages of chemiluminescence analysis such as high sensitivity, wide linear range, and simple device, electrochemiluminescence analysis can also overcome some shortcomings of ...

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Introduction to Luminescent Materials. Luminescent materials refer to materials that can absorb energy and convert it into light radiation (non-equilibrium radiation). The phenomenon of luminescence is widely present in various materials, so there are many types of ...

Expert opinions: Energy storage luminescent materials embody energy storage and light-emitting characteristics. They absorb and store ultraviolet (UV) light and luminesce ...

Replacing conventional energy sources with fossil fuels, including lithium-ion batteries (LIB), solar cells (solar cells), supercapacitors (SC), nanogenerators (NG), biofuel cells (BFC), and ...

The luminescent property of  $\text{CH}_3\text{NH}_3\text{PbBr}_3$  has been used for sensing of ammonia with ... The photovoltaic and energy storage capacities of perovskites have been documented to be far better than many other transition ... Many research articles and reviews have covered the applications and advantages of perovskite materials in SOFCs [125 ...

Energy storage luminescent materials refer to materials that store energy and emit light slowly in the dark; these are also referred to as light storage materials. ... The advantages of rare earth luminescent materials include physical and chemical stability, high-temperature resistance, narrow emission spectra, colours with high saturation

The advantages of rare earth luminescent materials include physical and chemical stability, high-temperature resistance, narrow emission spectra, ... The energy storage luminescent material may be coated in a 360°; ...

The new generation of optical information storage based on rare-earth luminescence not only has a large storage capacity and a long storage life, but is also difficult to be copied and cracked, which makes the optical information storage have the incomparable advantages of traditional single-mode luminescent materials.

In conclusion, we reviewed the origin of ferroelectricity and summarized the latest research progress about novel FE materials used for energy harvesting, storage, ...

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