Tunnel solar container luminescent materials

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Abstract: Adoption of new energy-storage luminescent material will significantly promote the improvement of en? ergy-efficient lighting, safe driving and air environment of highway tunnels.

Research on the luminescent solar concentrator (LSC) over the past thirty-odd years is reviewed. The LSC is a simple device at its heart, employing a polymeric or glass waveguide and luminescent ...

This special issue covers a series of cutting-edge works on exploring novel rare earth luminescent materials and their applications in lighting, display, information storage, sensing, and ...

Abstract and Figures Upconversion (UC) luminescent materials have emerged as captivating contenders in revolutionizing both photovoltaic ...

Dear Colleagues, Luminescent materials are well known for a long time from traditional lighting and display applications, like cathode-ray (television) tubes, ...

The optimization of the lighting installations in road tunnels has become a matter of the highest concern due to their high consumption in energy, raw materials and financial resources.

Thus, taking advantage of cement-based materials to create low-cost and high-safety aqueous structural batteries and further develop a self-driven tunnel-lighting system is greatly desirable.

Luminescent materials, including organic/inorganic phosphors, nanocrystals, semiconductors, glass, and ceramics, have been widely investigated due to their special ...

Near infrared (NIR) luminescent materials are an exciting playground for telecommunications, biosciences and solar energy conversion. In particular, transition metal (TM) ...

The Hidden Potential of Luminescent Solar Concentrators Advanced Energy Materials (IF 24.4) Pub Date : 2020-11-27, DOI: 10.1002/aenm.202002883 Ioannis Papakonstantinou 1, Mark ...

Considering global climate change concerns, issues related to the energy crisis and technologies reliant on non-fossil renewable energy ...

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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.

Self-luminescent cement-based composite materials (SLCCM) have been considered as an innovatively functional civil engineering material for environmental protection pavement and ...

The existing lighting systems of highway tunnels often have the disadvantage of high energy consumption, resulting in the power consumption for tunnel lighting has become a heavy burden ...

Thus, taking advantage of cement-based materials to create low-cost and high-safety aqueous structural batteries and further develop a self-driven tunnel-lighting system is greatly desirable.

The experimental results can provide reference and guidance for the design and application of multifunctional energy-storage and luminescent material for the lighting in highway tunnels.

Numerous investigations have been done in pursuing phosphors with quantum yield (QY) greater than unity in terms of downconversion (DC) strategies, as well as applications in display, lighting, and ...

Luminescent solar concentrators (LSCs) are the most promising technology for semi-transparent, electrodeless PV glazing systems that can be integrated "invisibly" into the built ...

LUMINESCENT materials have been used in an increasing variety of ways in recent years. Such uses range from the screens on which the picture or image is presented in television and other cathode ray ...

Luminescent solar concentrators (LSCs) are light-harvesting devices that redirect solar light to an edge-attached photovoltaic cell, and thus, they have high potential to be incorporated directly into buildings" ...

In the context of global warming, luminescent solar concentrators (LSCs) hold great promise as solar windows. Over nearly five decades of development, various suitable luminophores for LSCs, ...

Luminescent materials are capable of transforming certain types of energy into electro-magnetic radiation, which means that in response to a specific stimulus, these materials emit light typically ...

Tunnel lighting systems operate full-time and are one of the largest consumption systems in tunnels. To enhance energy efficiency, researchers have explored lamps, auxiliary lighting, and tunnel lighting ...

The specific ways to achieve these goals are: the use of special sidewall coatings (highly diffuse reflective materials, multifunctional energy-storage and luminescent material, etc.), or ...

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Luminescent materials are capable of transforming certain types of energy into electromagnetic radiation, which means that in response to a ...

Zinc sulfide is a smart luminescent material with exceptionally outstanding mechanoluminescence properties. After over a century of research, it is now ...

This article explores recent advances in persistent luminescent materials as self-luminous light sources for photocatalytic applications and their future prospects.

Luminescent Materials and Applications describes a wide range of materials and applications that are of current interest including organic light emitting materials and devices, ...

A Luminescence Solar Concentrators (LSC) [1], [2] is a simple light energy absorber, converter, and concentrating device consisting of a thin slab of a transparent material of ideally high ...

Development of a tandem luminescent solar concentrator wherein up-conversion and down-shifting photonic processes collaboratively operate in a sequential manner.

Abstract Quantum dot (QD)-based luminescent solar concentrators (LSCs) promise to revolutionize solar energy technology by replacing building materials with energy-harvesting devices. ...

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