

European Solar Energy Storage

Energy storage fluorescence phosphorescence



Overview

This study identifies the optimal “fluorescence-phosphorescence” combination for possible implementation of FP pigments in more complex materials for the built environment.

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This work demonstrates a photoreversible fluorescence and room-temperature phosphorescence switching based on a photo-controlled triplet-to-singlet Förster resonance energy transfer.

The impact of an electric field on the energy transfer between Fir6 and rubrene in the PL process of the PVK:Fir6:rubrene films was explored by steady-state PL spectra in electric field and electric field modulated transient PL spectra.

Phosphorescence energy transfer from long-lived organic phosphors (donors) is introduced as a novel design strategy for realizing afterglow fluorescence from commercially available organic dyes (acceptors) under ambient conditions.

Herein, an efficient purely organic room-temperature phosphorescence (RTP) material, 3,2-PIC-TXT, with fast phosphorescence radiation is developed. Can phosphorescence energy transfer achieve afterglow fluorescence through delayed sensitization?

A new strategy of phosphorescence energy transfer was proposed to achieve afterglow fluorescence from water-processable and purely organic dyes through delayed sensitization. Wang, Y. et al. Förster Resonance Energy Transfer: An Efficient Way to Develop Stimulus-Responsive Room-Temperature Phosphorescence Materials and Their Applications.

What is phosphorescence energy transfer?

Kuila, S. & George, S. J. Phosphorescence energy transfer: ambient afterglow fluorescence from water-processable and purely organic dyes via delayed sensitization. *Angew. Chem. Int. Ed. Engl.* 59, 9393–9397 (2020).

Can phosphorescence-type energy transfer expand organic afterglow materials?

Inspired by natural photosynthesis, artificial light-harvesting systems based on the phosphorescence-type energy transfer (ET) from the triplet excited states of organic RTP emitters have emerged as promising candidates to expand organic afterglow materials and promote practical applications.

Can phosphorescence energy transfer delay the sensitization of the singlet state?

In the present study, a delayed sensitization of the singlet state of organic dyes via phosphorescence energy transfer from organic phosphors is proposed as an alternative strategy to realize “afterglow fluorescence”.

How is ultralong phosphorescence achieved?

Ultralong Phosphorescence was achieved via Triplet-Triplet Energy Transfer in crystalline hydrogen-bonded organic chains. Li, Z. et al. Polymeric ultralong organic phosphorescence with excellent humidity and temperature resistance via hydrophobic effect. *Aggregate* 5, e440 (2024).

Which phosphorescence material has fast radiation?

Herein, an efficient purely organic room-temperature phosphorescence (RTP) material, 3,2-PIC-TXT, with fast phosphorescence radiation is developed.

Energy storage fluorescence phosphorescence



Controlled combination of phosphorescent and fluorescent ...

This study identifies the optimal "fluorescence-phosphorescence" combination for possible implementation of FP pigments in more complex materials for the built environment.

Phosphorescence Energy Transfer: Ambient Afterglow Fluorescence from

Phosphorescence energy transfer from long-lived organic phosphors (donors) is introduced as a novel design strategy for realizing afterglow fluorescence from commercially available organic dyes (acceptors) under ambient conditions.



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Purely organic room-temperature phosphorescence sensitizers ...

Herein, an efficient purely organic room-temperature phosphorescence (RTP) material, 3,2-PIC-TXT, with fast phosphorescence radiation is developed.

Chitosan-Derived Carbon Dots with Room-Temperature

Phosphorescence ...

Carbon dots with green fluorescence and room-temperature phosphorescence are prepared by a simple microwave-assisted hydrothermal reaction of a chitosan and sodium hydroxide aqueous solution.



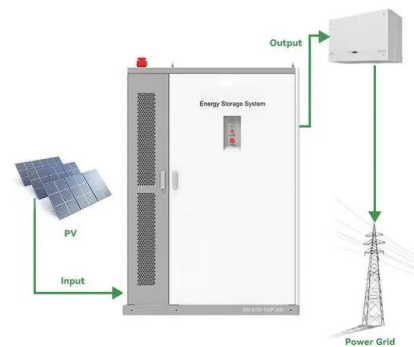
Purely organic room-temperature phosphorescence

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Electric-field modulated energy transfer in ...

The impact of an electric field on the energy transfer between Fir6 and rubrene in the PL process of the PVK:Fir6:rubrene films was explored by steady-state PL spectra in electric field and electric field modulated transient PL spectra.



Efficient energy phosphorescence transfer and reversible

Compared to the common resonance energy transfer process, the PRET system in this paper excites the acceptor through a longer-lived triplet state, and thus the phosphorescence lifetime of the guest that is in the doped system is greatly increased.

Aggregation-Assisted Three-Photon Fluorescence Resonance Energy

The strong three-photon excited phosphorescence enables NPFA-2%PorPt NPs to be successfully applied for in vivo time-resolved brain and muscle vascular imaging with deep penetration, high spatial resolution, and contrast, and even the small capillaries in the deep tissue can be recognized.



Phosphorescence resonance energy transfer from purely organic

This work demonstrates a photoreversible fluorescence and room-temperature phosphorescence switching based on a photo-controlled triplet-to-singlet Förster resonance energy transfer.

Phosphorescence Energy Transfer: Ambient Afterglow ...

Phosphorescence energy transfer from long-lived organic phosphors (donors) is introduced as a novel design strategy for realizing afterglow fluorescence from commercially available organic dyes (acceptors) under ...



Aggregation-Assisted Three-Photon Fluorescence ...

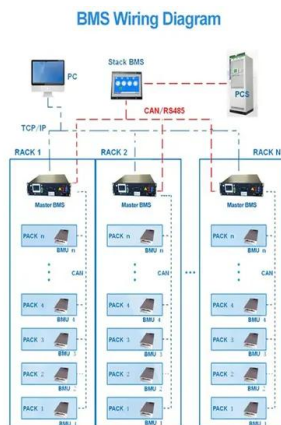
The strong three-photon excited phosphorescence enables NPFA-2%PorPt NPs to

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Recent progress in triplet energy transfer systems toward organic

A new strategy of phosphorescence energy transfer was proposed to achieve afterglow fluorescence from water-processable and purely organic dyes through delayed sensitization.



Thermally activated delayed phosphorescence triggered by ...

Combined with a unique thermally activated delayed phosphorescence (TADP) process, highly efficient capture and conversion of high-energy carriers are realized.

Electric-field modulated energy transfer in phosphorescent ...

The impact of an electric field on the energy transfer between Fir6 and rubrene in the PL process of the PVK:Fir6:rubrene films was explored by steady-state PL spectra in electric field and electric field modulated transient PL spectra.



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