Molecular solar thermal energy storage

Molecular solar thermal (MOST) systems, as a promising alternative energy solution, typically store photon energy as chemical energy in molecules via processes such as ...

Discusses molecular solar thermal energy storage systems covering performance, computation, catalysis, and smart material applications.

Molecular photoswitches can be used for solar thermal energy storage by photoisomerization into high-energy, meta-stable isomers; we present a molecular design strategy ...

Molecular solar thermal energy storage systems (MOST) offer emission-free energy storage where solar power is stored via valence isomerization in molecular photoswitches. These photoswitchable ...

The solar thermal batteries based on MOST compounds will enable a solar-chargeable, off-grid, and long-term energy storage in light-weight organic materials that are easily produced from ...

The first key step in the molecular solar thermal energy storage system is the absorption of light by the parent molecule, which undergoes a reversible photoisomerization reaction to its ...

Besides clarifying the nomenclature, we introduce the term "mostophore" as a molecular entity able to harvest and store light energy in the form of heat. Furthermore, we revisit the ...

Solar energy storage is key to overcome the intermittent character of sunlight. We present a sustainable solution based on norbornadiene-quadricyclane pairs for molecular solar ...

In this article, we introduce the requirements for a MOST system, the structures of different photoswitches, their general charging and discharging mechanisms, highlight the accessibility of the ...

Web: https://www.falconengineering.co.za