

Jun 15, 2025&ensp;&#0183;&ensp;Abstract Phase change materials (PCMs) are crucial for efficient energy storage, yet their inherent challenges include low thermal conductivity, limited latent heat capacity, and ...

The thermal-magnetic synergy enables innovative applications including: magnetocaloric-enhanced thermal energy storage (TES) systems with high exergy efficiency, spin caloritronic ...

Mar 1, 1981&ensp;&#0183;&ensp;Abstract Phase-change energy storage devices have an inherent disadvantage due to the insulating properties of the phase-change materials (PCM"s) used. Such systems are ...

Nov 25, 2023&ensp;&#0183;&ensp;Abstract Latent heat thermal energy storage (LHTES) is often employed in solar energy storage systems to improve efficiency. This method uses phase change materials ...

Aug 6, 2024&ensp;&#0183;&ensp;Peng Wang,<sup>1</sup> Xuemei Diao,<sup>2</sup> and Xiao Chen<sup>2,\*</sup> Conventional phase change materials struggle with long-duration thermal energy storage and controllable latent heat ...

Jul 16, 2025&ensp;&#0183;&ensp;Technical Terms Phase Change Material (PCM): A substance capable of storing and releasing thermal energy during a phase transition, typically from solid to liquid and vice ...

Are phase change materials suitable for thermal energy storage? Volume 2, Issue 8, 18 August 2021, 100540 Phase change materials (PCMs) having a large latent heat during solid-liquid ...

Jan 22, 2025&ensp;&#0183;&ensp;Abstract Phase change energy storage (PCES) materials have attracted considerable interest because of their capacity to store and release thermal energy by ...

Mar 22, 2023&ensp;&#0183;&ensp;Functional phase change materials (PCMs) capable of reversibly storing and releasing tremendous thermal energy during the ...

Feb 23, 2025&ensp;&#0183;&ensp;Thermal energy storage (TES) technology relies on phase change materials (PCMs) to provide high-quality, high-energy density heat storage. However, their cost, poor ...

Sep 1, 2019&ensp;&#0183;&ensp;This paper concerns the thermal performance of composite phase change materials (CPCMs) based thermal energy storage (TES) from component to device le...

Mar 22, 2023&ensp;&#0183;&ensp;Functional phase change materials (PCMs) capable of reversibly storing and releasing tremendous thermal energy during the isothermal phase change process have ...

Apr 28, 2025&ensp;&#0183;&ensp;This article designs a high-altitude border guard post that can fully utilize the heat absorbed by solar collectors to continuously store thermal energy during the day and stably ...

May 25, 2024&ensp;&#0183;&ensp;Applications of Phase Change Thermal Energy Storage Phase change thermal energy storage finds applications in several fields: Building Energy Management: PCTES can ...

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