

New intelligent phase change energy storage system

?? Artificial Intelligence (AI) is leading the charge in revolutionizing research methodologies within the field of latent heat storage (LHS) by using phase change materials (PCMs) and ...

Sep 1, 2020 · Passive and active phase change materials integrated building energy systems with advanced machine-learning based climate-adaptive designs, intelligent operations, uncertainty ...

Apr 21, 2021 · Abstract It is necessary to develop new technologies for energy storage and use of renewable energy to improve energy ...

Aug 6, 2024 · Peng Wang,¹ Xuemei Diao,² and Xiao Chen^{2,*} Conventional phase change materials struggle with long-duration thermal energy storage and controllable latent heat ...

Apr 29, 2025 · The rising worldwide energy demand and the pressing necessity to reduce greenhouse gas emissions have propelled the advancement of sustainable thermal energy ...

Jul 7, 2025 · The incorporation of phase change materials (PCMs) within thermal energy storage (TES) systems represents a pivotal advancement in materials science, enabling the efficient ...

Aug 20, 2023 · Phase Change Materials (PCMs) have emerged as a promising solution for efficient thermal energy storage and utilization in various applications. This research paper ...

Nov 18, 2025 · In thermal energy storage (TES) systems, temperature conductivity is a crucial thermophysical feature that is essential to heat transmission methods for substances. Phase ...

Aug 7, 2024 · Conventional phase change materials struggle with long-duration thermal energy storage and controllable latent heat release. In a recent issue of *Angewandte Chemie*, Chen et ...

Inorganic hydrated salt phase change materials (PCMs) hold promise for improving the energy conversion efficiency of thermal systems and facilitating the exploration of renewable thermal ...

Jan 30, 2025 · Abstract The heating load, as well as the charging and discharging efficiency of phase change thermal storage devices, exhibit time-dependent variations. Consequently, the ...

Jan 13, 2025 · More notably, these materials have acquired new phase change temperature ranges, bringing additional possibilities to the realms ...

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Phase change materials (PCMs), capable of reversibly storing and releasing tremendous thermal energy during nearly isothermal and isometric phase state transition, have received extensive ...

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