

Phase change materials pave the way to revolutionizing energy storage technologies as cost-effective, scalable solutions without rare earth dependency. In addition, if they are bio-derived, ...

This study presents a comprehensive numerical investigation into the thermal management of lithium-ion battery packs using advanced hybrid and passive cooling strategies involving nano ...

This study presents a hybrid passive battery thermal management system integrating nano-enhanced phase change material (CuO/paraffin), aluminum fins, and copper metal foam. A 2D ...

Phase Change Materials Market Size & Share Analysis - Growth Trends & Forecasts (2025 - 2030) The Phase Change Material Market Report Segments the Industry by Product Type (Organic, Inorganic, and Bio-Based), ...

The scalability and declining costs of solar power are making it increasingly accessible and cost-effective. However, the efficiency of PV modules tends to decrease as their temperature rises. ...

In this work, we demonstrate ultralow-loss programmable silicon photonics enabled by the phase-change material Sb₂S₃. Utilizing inverse design techniques, we introduce pixelated Sb₂S₃ ...

Phase change materials (PCMs) can provide significant heat storage to improve natural energy applications. However, organic PCMs have the problem of easy leakage of liquid phase, which limits their application in the field of energy ...

Additionally, research focuses on optimizing isopentane-based systems to reduce environmental impact and improve overall sustainability in thermal management applications. 02 Phase change materials incorporating isopentane Isopentane ...

Multiferroic Materials Electric-field driven reversal of magnetization in (110)-oriented Co-substituted BiFeO₃ thin films at room temperature is theoretically and experimentally demonstrated by Takuma Itoh, Kei Shigematsu, Hena ...

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A shape-stabilized composite phase change material (PCM) comprising paraffin (PA) as the phase change material, bamboo charcoal (BC) and expanded graphite (EG) as the ...

Phase change materials (PCMs) offer substantial latent heat storage to mitigate overheating and overcooling but suffer from leakage and interfacial instability during liquid-solid phase transitions.

Conventional battery thermal management systems in electric vehicles often face critical limitations, such as excessive system weight, low thermal conductivity of phase change ...

We present a device integrated thermal and optical induced phase change materials vanadium dioxide and spin-orbit torque magnetic tunnel junction. This device showcases the ability to ...

Inspired by the adhesion and peeling process of Boston Ivy, a novel dual-layer composite photothermal phase change material (cPCM-LIG) is proposed, integrating laser-induced ...

Phase change materials (PCMs) are highly effective in thermal energy storage, absorbing and releasing large amounts of latent heat during phase transitions. This helps regulate ...

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