

Zhong et al. [30] used lignin as a template to in situ-synthesize lignin-based silver nanoparticle composites using sodium borohydride or ascorbic acid as a reducing agent. The results confirmed that silver nanoparticles with good dispersibility were well anchored onto the lignin surface and that the nanoparticles had a pseudospherical shape with a dominant size of ...

Simultaneously passivating the perovskite surface defects and suppressing Li⁺ ions diffusion of hole transport layer (HTL) are still challenging issues. Herein, we report an effective "three birds with one stone" strategy by utilizing sodium 4,4'-(1,4-phenylenebis(oxy))bis(butane-1-sulfonate) (ZR3) containing sulfonic acid groups (SO₃⁻) and ...

For example, in the foaming process of PSU, ethanol (EtOH) was selected as the co-blowing agent with scCO₂ to significantly improve the solubility of the blowing agent in ...

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Gao et al. report that the addition of molecular engineered multi-functional ionic liquid into perovskite layer affords high-quality perovskite solar cells with long-term ...

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Perovskite solar cells (PSCs), the third-generation photovoltaic technology, have been developed since 2009 to meet global energy demands [1]. After more than ten years of development, the certified power conversion efficiency (PCE) of PSCs has reached 25.7%, demonstrating their huge potential for commercialization [2]. However, intrinsic defects and ion ...

Much attention has been paid to the design of direct Z-scheme photocatalysts for solar energy conversion due to their effectiveness in spatially separating photogenerated ...

To date, practical investigations into novel multifunctional coatings on solar modules have been very limited. This paper presents a comprehensive investigation of the ...

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The results demonstrate that the safety of perovskite solar cells cannot be guaranteed, and almost be toxic.

Polymer coatings are prone to delamination and can weaken the efficiency of solar panel power generation. While non-integrated actuators show excellent potential in intrinsic response, they lack flexibility and long-term actuation stability.

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