

<div class="df_qntext">Is Cu₂FeSnS₄ a suitable candidate for thin film solar cells?

Recently, Cu₂FeSnS₄ (CFTS), one of the important Cu based chalcogenide has drawn prime attention in research and development due to their nontoxic and earth abundant constituent elements. The optical properties of CFTS make it a suitable candidate for thin film solar cells (TFSCs).

<div class="df_qntext">Can Cu₂O thin films be used in a solar Harvester?

Semiconducting Cu₂O is attractive for photovoltaic and optoelectronic devices, though balancing high hole mobility with low-cost fabrication is challenging. Here, Cu₂O thin films with high hole mobility of 92 cm²/Vs are deposited in air, and applied in a semi-transparent solar harvester.

<div class="df_qntext">Is Cu₂O a potential absorber for low-cost solar cells?

The need for low-cost solar cells increased the interest in Cu₂O as a potential absorber, given the abundance and nontoxicity of copper, and the potential of Cu-based compounds to provide a better cost-efficiency ratio than the current main technology based on crystalline silicon [2,3].

<div class="df_qntext">Can AP-SALD be used to deposit Cu₂O thin films?

In this study, a solid and stable Cu precursor, Cu(hfac)(cod), has been used to deposit Cu₂O thin films by a CVD approach, namely, AP-SALD. The effect of the deposition temperature on the microstructure, optical, and transport properties of the obtained thin films has been studied.

<div class="df_qntext">Can composite PCMS be used in solar thermal energy storage?

Additionally, the Cu@C matrix also endowed the composite PCMs with good photo-thermal transformation capability, implying their potential application in solar thermal energy storage. This article has not yet been cited by other publications.

<div class="df_qntext">Can paraffin phase change material be used in solar energy storage systems?

The utilization of the paraffin phase change material (PCM) in solar energy storage systems is limited by its low thermal conductivity, easy leakage, and insensitivity to solar energy. In the present study, the solution combustion synthesis method was applied to fabricate a porous carbon matrix that is embedded with Cu nanoparticles (Cu@C).

In the present paper, the hierarchical TiO₂ nanomaterials with thickness >10 μm were synthesised using Ti-Cu amorphous alloy as the starting material. The field emission scanning ...

An obvious stress-luminescence of ZnS:Cu, appearing reproducibly strong visible emission under mechanical pulse load, is found. The stress-luminescence mechanism of the non ...

o Amorphous materials with unique structural features of long-range disorder and short-range order possess

advantageous properties such as intrinsic isotropy, abundant active sites, ...

Abstract Crystalline/amorphous (C/A) metallic nanolaminates have been increasingly studied due to its excellent mechanical behaviors. Here, the effects of layer thickness and sample size on the ...

Morphological and structural control of amorphous nanomaterials is challenging due to the long-range disordered atomic arrangements. Herein, we firstly propose a controllable self ...

However, when partial crystallization occurs in amorphous alloys, it can impact the properties of the original amorphous alloy. To study the crystallization phenomenon in the Zr-based amorphous alloy, ...

Three-point bending and uniaxial microcompression tests were performed on Cu/Cu-Zr crystalline/amorphous nanolaminates (C/ANLs) with equal layer thicknesses ~50 nm to investigate ...

Amorphous tin-gallium oxide (a-SGO) grown with atomic layer deposition was evaluated as a buffer layer in (Ag, Cu)(In,Ga)Se₂ thin-film solar cells in search for a new material that is compatible ...

Among them, Cu-based metal-organic framework (Cu-MOFs), as a cost-effective material, has emerged as a multifunctional candidate distinguished not only by its exceptional ...

Finally, the chemical compatibility of the Cu-Ge alloy was evaluated using a high-temperature test with candidate materials of a phase change material container vessel [stainless ...

An amorphous solar panel is a type of thin-film solar panel made from amorphous silicon (a-Si), a non-crystalline form of silicon. Unlike traditional crystalline silicon solar panels (monocrystalline or ...

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At present, solar energy is primarily harnessed through photoelectric, photothermal, photocatalytic, and photobiological processes [19, 20]. Among these, solar-thermal conversion and solar-steam ...

Nowadays, a variety of high-performance solar cells are constantly emerging. Thin-film solar cells made from inorganic materials have constituted one of the major categories of solar cells ...

Herein, this study reports that amorphous TiO₂ layers can act as a passivating contact, which not only passivates defective rear-interfaces but also provides excellent electrical conduction, for solution ...

Solar evaporation, which enables water purification without consuming fossil fuels, has been considered the most promising strategy to address global scarcity of drinkable water. However, the suboptimal ...

Cu amorphous solar container materials

The aim of the present study is to investigate the crystallization behavior, microstructural evolution and mechanical behavior of the Fe-based amorphous alloy with three various compositions (at%): ...

B2-CuZr phase reinforced amorphous alloy matrix composites has become one of the research hotspots in the field of materials science due to the "transformation-induced plasticity" ...

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