

To investigate these behaviors and the temporal evolution of oxide growth in cerium LPPs, nanosecond-LA will be implemented with laser-induced breakdown spectroscopy to analyze ...

Cerium oxide ( $\text{CeO}_2$ ) and its derivatives have attracted extensive interest as redox materials in solar thermochemical hydrogen production due to their high oxygen exchange capacity, rapid redox ...

The development of modifications to surpass such drawbacks is fundamental for the further application of this material. Herein, the addition of low concentrations of citric acid and cerium nitrate in the ...

The growing global demand for efficient and sustainable energy storage systems has led to extensive exploration of nanostructured materials with enhanced electrochemical properties. In ...

In high performance perovskite solar cells (PSCs), the electron transport layer (ETL) has overwhelmingly been dominated by compact titanium oxide ( $\text{TiO}_2$ ), which typically requires sintering at around 500 ...

A concise orientation to cerium oxide nanoparticles highlighting their multifunctional properties, industrial relevance, and the intersection of materials science with commercial adoption ...

The global pursuit of carbon neutrality has highlighted hydrogen as a key clean energy carrier, with solar-driven thermochemical water splitting emerging as a promising pathway for large-scale green ...

The applicability of cerium oxide, as a surrogate for plutonium oxide, was evaluated for the fabrication process of a MOX (mixed oxide) fuel pellet. Sintering behavior, pore former effect and ...

Cerium oxide nanoparticle as interfacial modifier for efficient and UV-stable perovskite solar cells Guo-Bin Xiao a c 1, Ruiqian Meng b 1, Shengrong Yang a c, Jing Cao b, Yu Tang a b ...

Cerium oxide nanoparticles ( $\text{CeO}_2$  particles) are exceptional lanthanide nanomaterials noted for their redox activity, oxygen storage capacity, and free radical scavenging abilities, making ...

In solar thermal systems, cerium oxide is used as a selective absorber coating due to its high solar absorptivity and low thermal emittance. This enables efficient conversion of sunlight into heat, which ...

Ultraviolet (UV) illumination can induce the generation of defects at the interface of perovskite and commonly used electron transport materials (ETMs, such as  $\text{TiO}$  and  $\text{SnO}$ ) in perovskite solar cells ...

Characterization of Enhanced Antibacterial Effects of Silver Loaded Cerium Oxide Catalyst The Oxidation of



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Macroporous Cerium and Cerium-Zirconium Oxide for the Solar Thermochemical ...

In electrocatalysis, ceria, also known as cerium oxide ( $\text{CeO}_2$ ), plays a significant role in various processes, including, three-way catalyst CO oxidation, water oxidation process and water ...



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