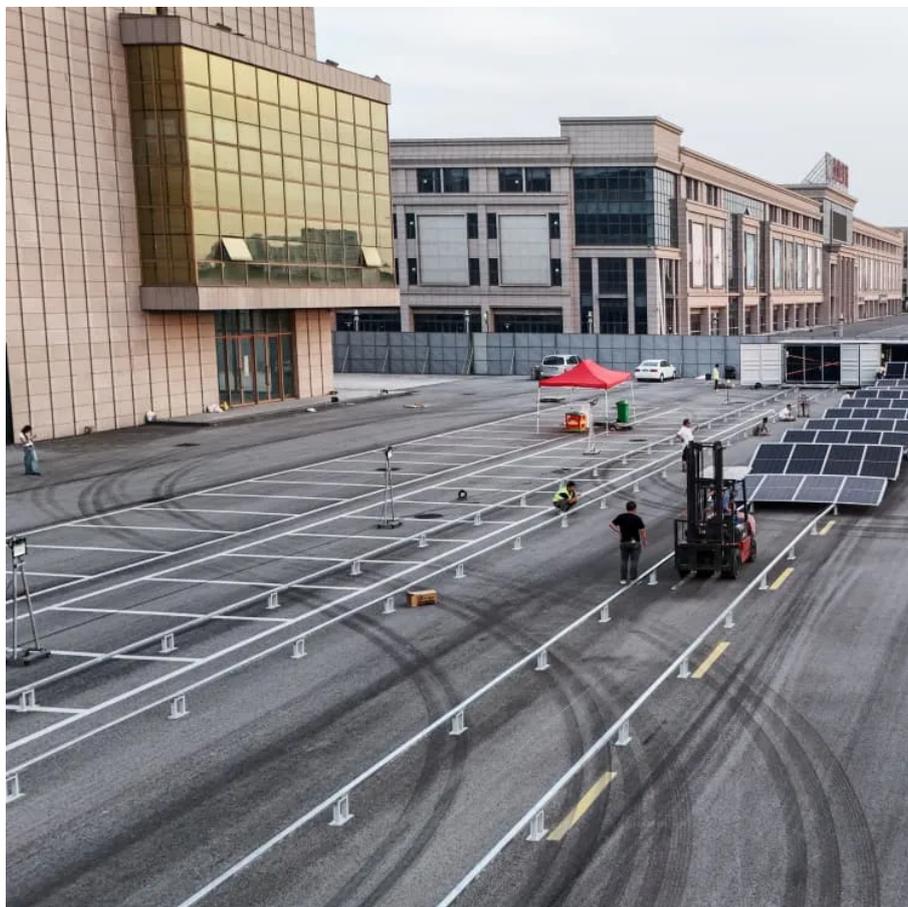




# Solar glass with cerium oxide





## Overview

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Cerium-doped (Ce) glass has emerged as a promising cover material for space photovoltaics, owing to its superior resistance to solarization, UV-induced darkening, and ionizing radiation[10-14].

Cerium-doped (Ce) glass has emerged as a promising cover material for space photovoltaics, owing to its superior resistance to solarization, UV-induced darkening, and ionizing radiation[10-14].

Cerium is a rare-earth metal commonly used as a dopant in various metal oxides to enhance their performances or provide optoelectronic properties. Cerium oxide (ceria) is particularly valuable owing to its unique properties and applications in various fields, such as biomedical research.

Ce-doped glass is a well-established solution for ultraviolet and ionizing radiation shielding of solar cells in space. Traditionally, Ce-glass protected Si or III-V based devices as an overlaying cap. However, for emerging photovoltaics such as halide perovskites, thin Ce-glass coated with.

The results of an investigation to determine the feasibility of using an inexpensive, radiation-resistant solar-cell cover glass to replace synthetic fused quartz are reported. Several samples of a frequently used solar-cell cover glass were doped with various amounts of cerium. These samples were.

Extensive studies were carried out in order to develop an effective antireflection coating for monocrystalline solar cells. Here we report on the preparation of a nanostructured cerium oxide thin film by pulsed laser deposition (PLD) as an antireflection coating for silicon solar cell. The.

University Park, Pa -- Adding cerium oxide to phosphate glass rather than the commonly used silicate glass may make eyeglasses that block ultraviolet light and have increased radiation damage resistance while remaining colorless, according to Penn State researchers. These cerium-containing.

The glass composition of the invention are suitable for use as protective covers for solar cells, especially solar cells which are used in satellites. The classifications are assigned by a computer and are not a legal conclusion. Google has not performed



a legal analysis and makes no representation.



## Solar glass with cerium oxide

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### [Thermal performance assessment by cerium oxide nano](#)

This substantial enhancement suggests that the 0.8 um thickness coating effectively captures a wider spectrum of solar radiation, making it highly advantageous for applications ...

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### [Effect of radiation on cerium-doped solar-cell cover glass](#)

The results of an investigation to determine the feasibility of using an inexpensive, radiation-resistant solar-cell cover glass to replace synthetic fused quartz are reported. Several samples ...

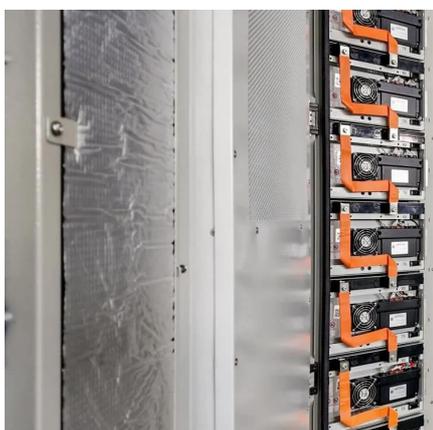
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### [Rare-earth metal enhances phosphate glass](#)

Adding cerium oxide to phosphate glass rather than the commonly used silicate glass may make eyeglasses that block ultraviolet light and have increased radiation damage ...

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## Pulsed laser deposition of nanostructured CeO<sub>2</sub> antireflection ...

...

Here we report on the preparation of a nanostructured cerium oxide thin film by pulsed laser deposition (PLD) as an antireflection coating for silicon solar cell.

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## Heterojunction solar cell based on cerium-doped indium oxide ...

Researchers at the Delft University of Technology have developed new cerium-doped indium oxides for applications in heterojunction solar cells. A transparent conductive ...

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## Specifics of ITO properties deposited on cerium-doped glass ...

In this study, we investigated the structural, optical, and electrical properties of ITO films deposited on cerium-doped glass substrates with reactive ion-beam sputtering technique.

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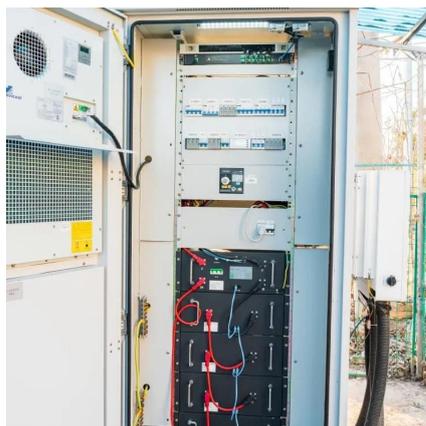
## Cerium-Based Materials: Shaping the



## Future of Energy Conversion

In solar energy conversion, cerium-doped materials are used to create photovoltaic cells that can efficiently convert sunlight into electricity. The addition of cerium improves the absorption ...

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## [Borosilicate glass compositions incorporating cerium oxide](#)

More particularly, the invention relates to borosilicate glass compositions which incorporate cerium oxide and which are suitable for use as protective covers for solar cells, especially

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## [Cerium-Doped Oxide-Based Materials for Energy and ...](#)

Studies have shown that Ce-doped SiO<sub>2</sub> thin films exhibit luminescence properties and proton shielding capabilities, and that Ce-doped ZnO has potential applications ...

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## [Synthesis of nanostructured semiconducting cerium oxide ...](#)

Using the Sol-Gel method, a cerium oxide (CeO<sub>2</sub>) and titanium dioxide (TiO<sub>2</sub>) nanocomposite (CeO<sub>2</sub>-TiO<sub>2</sub>) was created in this work and used as photoanodic components ...

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