Unconventional thin film photovoltaics rsc energy and environment series

Unconventional Thin Film Photovoltaics (Energy and Environment Series, Volume 16) [Da Como, Enrico, De Angelis, Filippo, Snaith, Henry, Walker, Alison] on Amazon . *FREE* shipping on qualifying offers. Unconventional Thin Film Photovoltaics (Energy and Environment Series, Volume 16) ... ? Royal Society of Chemistry; 1st edition ...

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Covering both organic materials, where recent advances in the understanding of device physics is driving progress, and the newly emerging field of mixed halide perovskites, which are challenging the efficiencies of conventional thin film PV cells, this book provides a balanced overview of the experimental and theoretical aspects of these solar cell classes.

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For photovoltaic devices, the main effects of interest in impedance spectroscopy are the capacitive charge storage and the resistive processes of transport and recombination. The combination of these parameters provides important information about properties such as conductivity, diffusion length and carrier lifetime.

1. Introduction Increasing worldwide demand for energy and limited fossil fuel reserves on the planet Earth require the development of reliable, sustainable and renewable energy sources. 1 Among various technologies available, PVs are believed to be the cleanest way to achieve the desired goals from the viewpoint of solar energy conversion. The II-VI semiconductors have ...

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Specifically, the role of doping and energy level manipulation, high interfacial surface area for charge separation, and ordered nanostructure arrays for photon manipulation are highlighted. The materials presented here are divided into two main groups, 1D and 2D nanostructures for TCOs and TiO 2 nanocrystals for electron transport layers.

At some stage in the near future, the rapid expansion of photovoltaic solar energy conversion based on thin films of semiconductors such as cadmium telluride (CdTe) and copper indium gallium diselenide (CIGS) could become subject to constraints arising from materials availability and security.

Such doped layers offer a number of advantages when used in organic solar cells: they improve the built-in field, allow easy optimization of thin-film optics and thus absorption in the photovoltaically active layers, and lead to good ohmic contacts even when the work function of the electrodes does not fit well to the adjacent organic transport ...

Much thin film photovoltaic (PV) device research is based on a "shake and bake" approach, uninformed by an understanding of the underlying mechanisms. ... Energy and Environment Series Unconventional Thin Film Photovoltaics. Edited by ... in Unconventional Thin Film Photovoltaics, ed. E. Da Como, F. De Angelis, H. Snaith, and A. Walker, The ...

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The physics of organic solar cells is still being extensively investigated. While important questions regarding e.g. the mechanisms of exciton dissociation have been rather convincingly addressed highlighting the role of electrostatic (here emphasized) but also delocalization and entropy effects in pulling apart the charge carriers, much less is known on ...

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