Planar micro solar container device

What is a solarcontainer?
The Solarcontainer is a photovoltaic power plantthat was specially developed as a mobile power generator with collapsible PV modules as a mobile solar system,a grid-independent solution represents. Solar panels lay flat on the ground. This position ensures maximum energy harvest Panels lays flat on the ground.

What is a solar concentrator?
This research is a continuation of our previous studies in which a novel solar concentrator approach was introduce. The solar concentrator employ a (20 × 20) rectangular micro-lens array (MLA) with a 100% fill factor, seamlessly integrated into a planar waveguide.

What is a planar waveguide solar concentrator (PWSC)?
In response,the concept of a planar waveguide solar concentrator (PWSC) has emerged,employing a shared planar waveguide to replace individual PV cells. Incident sunlight is concentrated by a lens array and directed into the waveguide using a coupling structure positioned at the focal point of each lens.

Are waveguide-based planar solar concentrators A shaped-up technology?
Summary Recently,waveguide-based planar solar concentrators have been influencing the research and development sector of Concentrated Photovoltaics (CPV) as a shaped-up technologydue to its applicability in compact built environments. However,the sector is scattered with many methodological advancements,over the last two decades.

What makes a planar C-PSC a good carrier?
Finally,the optimized device configuration afforded sufficient carrier generation and excellent carrier transport. The best-performing planar C-PSCs attained an efficiency of up to 20.04% and excellent long-term stability.

Do planar heterojunctions improve crystallization and diffusivity of nonfullerene SM?
In the field of organic solar cells (OSCs),planar heterojunctions (PHJs) have received less attention. This study demonstrates that enhancing the crystallization and diffusivity of nonfullerene sm...

An integral component in these devices is planar micro-supercapacitors (MSCs), which hold immense promise for compatibility with flexible electronic products, especially in terms of their ...

In recent years, waveguide-based planar solar concentrator technology has garnered increased attention within the Concentrated Photovoltaics (CPV) sector due to its compact design, ...

These micro-devices can be electrically configured in series to deliver area-normalized output voltages exceeding 500 V/cm 2, which is an unprecedented benchmark for integrated PMESDs.

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A device capable of containing at least one planar battery having a positive electrode and a negative electrode and capable of supplying a power to a circuit when the battery has been completely ...

Herein, the recent works on CTLs in planar PVSCs are reviewed and the device physics for designing high-performance PVSCs is unveiled. This work describes the (1) materials and strategies for efficient ...

Similar to the planar transparent c -Si substrate (Figure 1d), the pyramidal transparent c -Si substrate also exhibited vertical micro-hole structures as light-transmitting areas (Figure 1e). ...

The planar micro-optic concentrator is composed of a square lenslet in the upper layer, low-index cladding in the middle layer and a rectangular-shaped waveguide with the prism-shaped ...

Abstract The ever-increasing demand for light, thin, flexible, and small-sized smart electronics has developed a market for planar micro energy storage devices with high performance, ...

In this paper, a novel micro-positioning device based on a 3D digital actuator is presented. The proposed system allows realizing planar motions of micro-objects, which could be implemented in ...

We report the fabrication of an encapsulated, high-performance, stretchable array of stacked planar micro-supercapacitors (MSCs) as a wearable energy storage device for waterproof applications. A ...

Micro-sized energy storage devices (MESDs) are power sources with small sizes, which generally have two different device architectures: (1) stacked architecture based on thin-film ...

The simple architecture of planar C-PSCs imparts stringent requirements for device configuration. In this study, we fabricated high-performance planar C-PSCs through device ...

The Swiss start-up Insolight has developed a micro-CPV module based on high-efficiency III-V multi-junction solar cells that incorporates planar micro-tracking and a hybrid CPV/flat-plate architecture.

Kim, Chan Ul ; Yu, Jae Choul ; Jung, Eui Dae et al. / Optimization of device design for low cost and high efficiency planar monolithic perovskite/silicon tandem solar cells.

Planar waveguide-based diffraction solar concentrators use holograms or diffraction gratings alone or in combination with Fresnel lenses or conventional lenses for redirecting and ...

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Computational Study of Ternary Devices: Stable, Low-Cost, and Efficient Planar Perovskite Solar Cells Nano-Micro Letters (IF 36.3) Pub Date : 2018-05-17, DOI: 10.1007/s40820-018-0205-5 Sajid Sajid, ...

However, sensors cannot work inde-pendently and require power. Flexible in-plane micro-supercapacitor (MSC) is a suitable power device that can be integrated with sensors on a ...

Apart from planar devices, cadmium sulfide (CdS)/CdTe, SiNW, and GaAs nanostructured solar cells are reviewed. We present current developments in R& D, existing problems ...

In this regard, planar micro-supercapacitors (PMSCs) are considered as candidates for energy storage devices owing to the unique two-dimensional structure, fast charge/discharge rate, high power ...

With the boom of portable, wearable, and implantable smart electronics in the last decade, the demand for multifunctional microscale electrochemical energy storage devices has increased. Owing to their ...