Communication Solar Cells

What are organic solar cells?
Organic solar cells (OSCs),as a type of lightweight,flexible,and solution-processable photovoltaics,have shown promising prospects in integrating with wearable clothes,smart electronics and eco-friendly buildings 1,2,3,4,5,6,7.

Does Assembly control film forming kinetics for large-area solar cells?
The film-forming kinetics for large-area devices remains unclearfor organic solar cells. Here,the authors propose assembly-controlled kinetics with the assembly determined by molecular configuration and tuned via external effects,contributing to the screening of device fabrication conditions.

Can Interfacial Engineering improve efficiency of organic solar cells?
Interfacial engineering is an effective strategyto improve efficiency of organic solar cells. Here,the authors report two alcohol-soluble cathode interfacial materials based on carbolong and achieve device efficiency of 21.7% and long thermal stability in perovskite/organic tandem solar cells.

What is the fill factor of ternary organic solar cells?
Chen,C. et al. Realizing an unprecedented fill factor of 82.2%in ternary organic solar cells via co-crystallization of non-fullerene acceptors. Adv.

Can conjugated polymers improve intermolecular packing in organic solar cells?
The low structural order of conjugated polymers limits their photovoltaic properties in organic solar cells. Here,the authors report a conjugated molecule as molecular bridge via electrostatic force for enhancing intermolecular packing,achieving certified efficiency close to 19% in binary devices.

Can photo-induced ion migration improve performance of organic solar cells?
Here, authors characterize photo-induced ion migration in perovskites by in situ laser illumination inside scanning electron microscope and observe long-range migration of halide ions. Non-radiative recombination loss suppression is critical for boosting performance of organic solar cells.

Dans ce contexte, la communication sans fil par voie optique (Optical Wireless Communication - OWC) est une solution notamment pour les environnements intérieurs. D"autre part, l"utilisation de...

The resultant perovskite solar cells deliver a power conversion efficiency of 25.7% (certified 25.04%) and retain >90% of their initial value after almost 1000 hours aging at maximum power point ...

Wide-bandgap perovskite solar cells (WBG-PSCs) are critical for developing perovskite/silicon tandem solar cells. The defect-rich surface of WBG-PSCs will lead to severe interfacial carrier loss ...

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Nature Communications - The nanoscale fibrillar morphology of the photoactive layer is critical to improve performance of organic solar cells. Here, the authors incorporate ...

Nature Communications - Development of tandem organic solar cells has been limited by the choice of near-infrared absorbing materials for the rear cell. Here, the authors report a simple strategy...

While very good single-layer polycrystalline solar cell may practically convert a maximum of 25% of the solar energy to electricity, tandem solar cells could increase this figure to beyond 30%. That"s according to ...

Perovskite solar cells degrade quickly under natural day/night cycling, compared with continuous illumination, owing to periodic lattice strain during cycling; the lattice strain can be regulated ...

the integration of polycrystalline Si solar cells [32], GaAs solar cells [33], organic solar cells [34], and perovskite solar cells [35] for light reception and energy harvesting. Intriguingly, the potential of InGaN solar cells for FSO communication re-mains untapped. Recent investigations have spotlighted third-generation solar cells like ...

In this paper, we propose to compare the behavior of a PV module and a commercial APD-based photodetector (without any optical lens or colored filter) for ...

Nature Communications - nip-Type tin-based perovskite solar cells have underperformed largely due to the metal oxide electron transport layers originally designed for lead-based devices. Here ...

Duan C, Ding L. The new era for organic solar cells: non-fullerene small molecular acceptors. Sci Bull, 2020, 65, 1231 [1] Li W, Chen M, Cai J, et al. Molecular order control of non-fullerene acceptors for high-efficiency polymer solar cells. Joule, 2019, 3, 819 [2] Tong Y, Xiao Z, Du X, et al. Progress of the key materials for organ-ic solar ...

The growing demand for energy-efficient communication systems has triggered the interest in using photovoltaic (PV) panels to power optical receivers in Visible

In this paper, a solar panel utilized as a photodetector with simultaneous energy harvesting is proposed in visible light communication (VLC). The solar cell is a self-styled passive device, which can convert optical signals into electrical signals. The generated energy can potentially be used to power user terminals or at least to prolong operation time. This work is an important step ...

1 ??· In this review, we recapitulate the recent efforts on side chain engineering of organic small molecules and their effect on molecular packing, crystallinity, charge transport, and solar cell properties. The influence of the length and branching position of side-chains on device performance are comprehensively discussed. The challenges and ...

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19th European Photovoltaic Solar Energy Conference and Exhibition, Paris, France, 7-11 June 2004 Conference Subject: 5 PV Modules and Components of PV Systems 1 SOLAR CELL ANTENNAS IN WIRELESS COMMUNICATION AND RADIO BROADCAST SYSTEMS Dr. C. Bendel 1, J. Kirchhof, N. Henze2 1 Institute for Solar Energy Supply Technology Koenigstor ...

This work focuses on exploring the impact of lighting conditions on the frequency response of visible light communication (VLC) systems that utilize silicon PV cells ...

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