

Organic solar cells that are semitransparent in the visible and strongly absorbing in the near-infrared spectral regions present unique opportunities for applications in buildings and agriculture ...

For the last three decades, the author has worked with organic photovoltaic materials and devices, in an effort to make cheap organic photovoltaic systems suitable for powering the Earth from sunlight... Abstract The development of organic semiconductors for photovoltaic devices, over the last three decades, has led to unexpected performance for ...

Organic photovoltaics (OPVs) have become a timely research topic for their advantages of light weight, low cost, low toxicity, environmental adaptability, flexibility, and large-area manufacture, especially after non-fullerene acceptor ITIC reported in 2015. The highest power conversion efficiency (PCE) is currently above 18% for OPV. However, there are still ...

Organic photovoltaics (OPVs) are an emerging solar cell technology that is cost-effective 1,2,3, lightweight 4,5 and flexible 4,6,7,8. Moreover, owing to their energy-efficient production and non ...

International Summit on Organic and Hybrid Photovoltaics Stability (ISOS-14) and Women Leaders in Solar Energy 2023/11/8 (Wed) - 2023/11/10 (Fri) Yokohama, Japan. overview. contact. OVERVIEW.

This book reports on the design, synthesis and characterization of new small molecule electron acceptors for polymer solar cells. Starting with a detailed introduction to the science behind polymer solar cells, the author then goes on to review the challenges and advances made in developing non-fullerene acceptors so far.

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This work reports core-shell photovoltaic nanocells to enhance the photoresponse of the active layer and realize photolithographic manufacturing of large-scale-integrated organic ...

Number of published articles from 2005 to 2015 from Web Of Science-Core Collection with the topic keywords " solar cell OR photovoltaic cell " AND " organic OR polymer OR small molecular " .

The sustainability of energy and food supplies has come to represent a major concern throughout the world today. Greenhouse cultivation, an intensive food-production system, contributes fresh ...

photovoltaic (PV) technologies. The three major original contributions reported in this thesis are described as follows. Firstly, by thorough and in-depth researches into PV output characteristics, complete PV output

characteristics are presented and analyzed in this thesis, which facilitate the subsequent PV output power maximization research.

Morphology of organic thin film, including the in-plane and out-of-plane directions, plays a crucial role in determining the performance of organic solar cells, yet the characterisation is ...

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thickness of this blend for an optimized organic solar cell structure. [7] It shows that, despite the fact that the theoretical J. sc. of a P3HT: PCBM blend could be close to 19 mA cm

Abstract. This study aimed to achieve the following two goals; first, developing an inclusive model which simulates solar irradiance to a tilted surface, electric energy generated by organic ...

Recognizing the growing interest in the application of organic photovoltaics (OPVs) with greenhouse crop production systems, in this study we used flexible, roll-to-roll printed,...

In 1986, Tang reported the first example of an organic solar cell based on a bilayer planar heterojunction structure using a CuPc/Perylene derivative as the active component []. A typical single-junction OPV device usually consists of a "sandwich" structure: the active layer, where the photon-to-free charge-carrier conversion occurs, is sandwiched between the anode and ...

The study comprehensively analyzed the advancements in enhancing organic solar cell stability and suggested potential future research areas. Another study by Status et al. [91] explored the potential of small molecules as components in developing efficient and scalable organic photovoltaic systems. The research highlighted the significance of ...

Organic photovoltaics: We are working on the development of lighter, more flexible and more environmentally friendly solar cells based on semiconducting materials made from hydrocarbons. ... Two Young Scientists at Fraunhofer ISE Distinguished ...

Organic solar cells have the potential to provide low-cost photovoltaic devices as a clean and renewable energy resource. In this thesis, we focus on understanding the energy conversion process in organic solar cells, and improving the power conversion efficiencies via controlled growth of organic components.

Semantic Scholar extracted view of "Modeling and Optimization of Crop Production and Energy Generation for Economic Profit in an Organic Photovoltaics Integrated Greenhouse" by K. Okada

An organic solar cell (OSC [1]) or plastic solar cell is a type of photovoltaic that uses organic electronics, a

branch of electronics that deals with conductive organic polymers or small organic molecules, [2] for light absorption and charge transport to produce electricity from sunlight by the photovoltaic effect.

This is followed by the description of baseline organic solar cell (OSC) structures and materials. Then, some of the existing modelling approaches that have implemented either a one- or a two ...

Photovoltaic cells based on organic semiconductors (OSs) have got attention due to low-cost fabrication, printability, lightweight, scalable, and easy modification compared to traditional silicon ...

1.1. Aim and Outline of the Thesis This thesis will treat the synthesis and characterization of a wide array of conjugated polymers used in various organic electronics applications, mainly photovoltaics and electrochromics. A recurring theme will be the modification of side chains, instead of just the polymer backbones.

The performance of organic photovoltaic cells is constantly improving, thanks to the development of new p-conjugated low-bandgap polymers. However, these poorly soluble polymers must be processed ...

Organic photovoltaic (OPV) cells are currently attracting a great deal of scientific and economic interest and are playing a crucial role as one of the leading emergent photovoltaic technologies ...

A Thesis presented for the degree of Doctor of Philosophy Department of Engineering Durham University ... Increased lifetime of Organic Photovoltaics (OPVs) and the impact of degradation, efficiency and costs in the LCOE of Emerging PVs Balder Adad Nieto-Díaz Emerging photovoltaic (PV) technologies such as organic photovoltaics (OPVs)

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