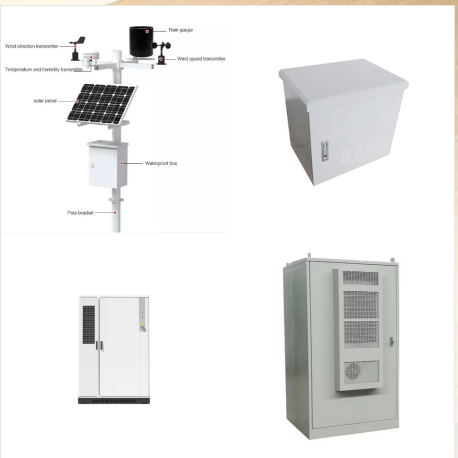
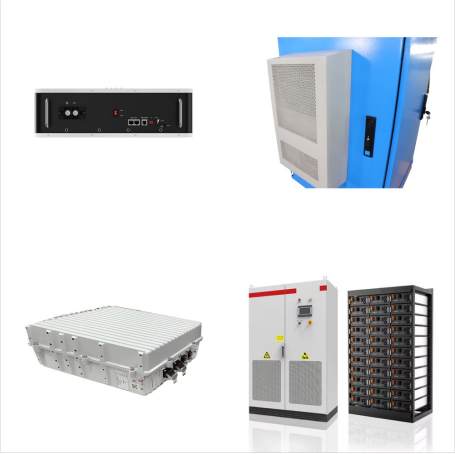
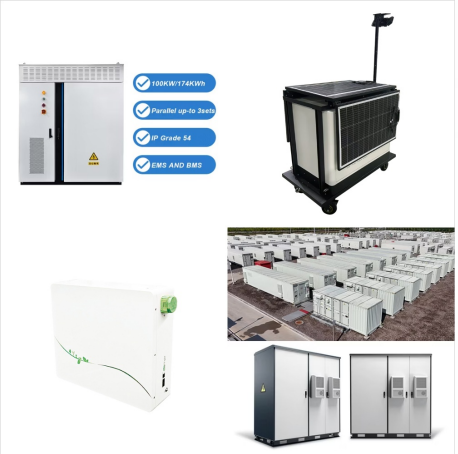


A concise overview of organic solar cells, also known as organic photovoltaics (OPVs), a 3rd-generation solar cell technology. OPVs are advantageous due to their affordability & low material toxicity. Their efficiencies are comparable to those of low-cost commercial silicon solar cells.

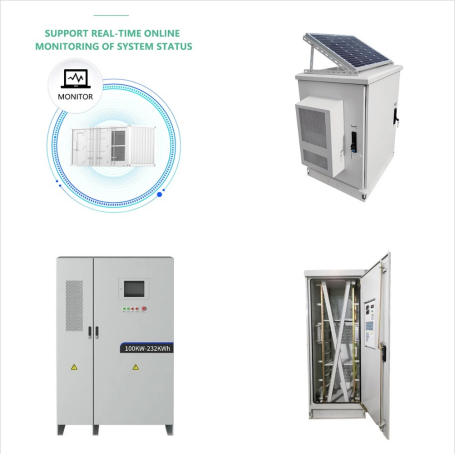


Then the new organic solar cell concepts are presented. the introduction of thin buffer layers at the interfaces cathode/organic acceptor and/or anode/organic donor, can strongly improve the

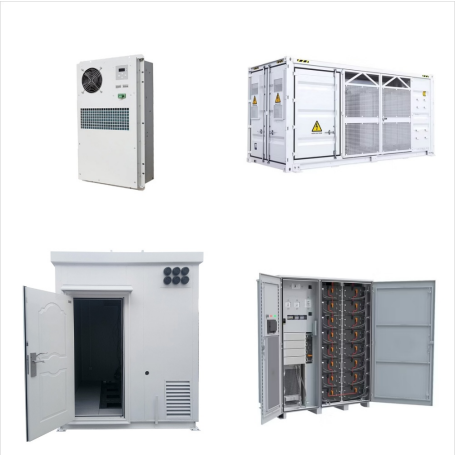


The performance of the organic solar cell???the J???V graph???is shown in Fig. 3.9. The chitosan eLbL films as cathode interlayer in inverted organic solar cells offer a power conversion efficiency of 9.34%. This is approximately a 200% improvement over cells with no cathode interlayer.

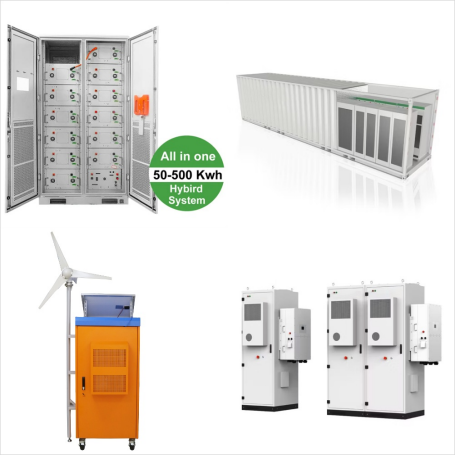
LANTHANIDES NEW METALLIC CATHODE FOR ORGANIC PHOTOVOLTAIC CELLS



The impacts of ambient factors on solar cell fabrication remain unclear. In this work, the effects of ambient factors on cell fabrication are systematically investigated, and it is unveiled that the oxidation and doping of organic light absorbers are the dominant reasons causing cell degradation when fabricated in air.

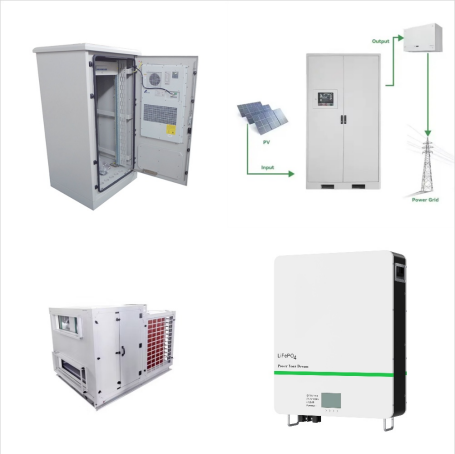


Recently, MoO3, which is typically used as an anode buffer layer in organic photovoltaic cells (OPVCs), has also been used as a cathode buffer layer (CBL). Here, we check its efficiency as a CBL using a planar heterojunction ???

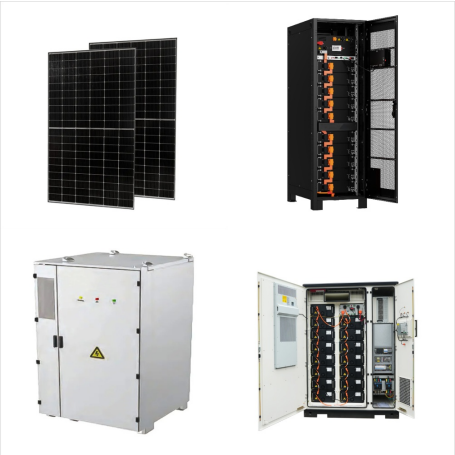


Organic photovoltaic (OPV) cells have demonstrated remarkable success on the laboratory scale. However, the lack of cathode interlayer materials for large-scale production still limits their practical application. Here, we ???

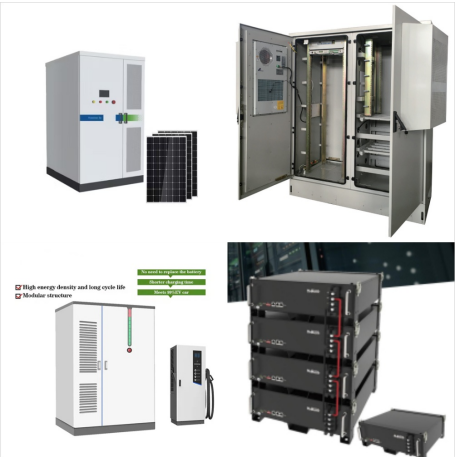
LANTHANIDES NEW METALLIC CATHODE FOR ORGANIC PHOTOVOLTAIC CELLS



?? The University of Texas at Dallas, 800 West Campbell Road, Richardson, Texas 75080-3021, United States ??? Department of Chemistry and Nano Science, Ewha Womans University, 11-1 Deahyon-Dong, Seodaemun-gu, Seoul, 120-750, Republic of Korea

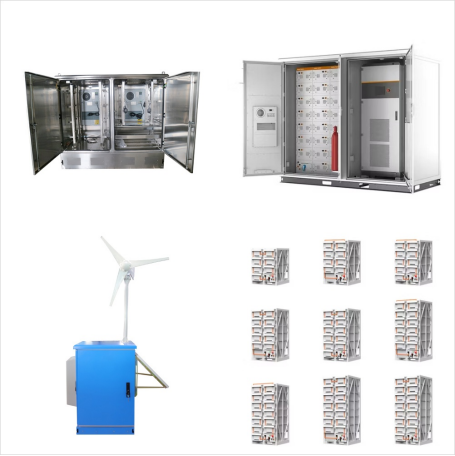


Cathode interlayer (CIL) materials play an important role in improving the power conversion efficiency (PCE) of organic photovoltaic (OPV) cells. However, the current understanding of the structure-property relationship in CIL materials is limited, and systematic studies in this regard are scarce. Here, two new CIL materials, NDI-PhC4 and NDI-PhC6 were ???

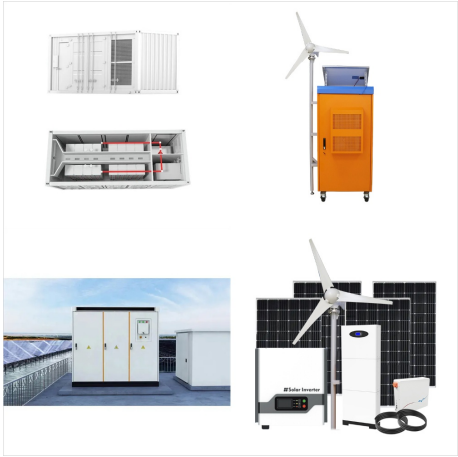


Abstract. This work highlights recent advancements in how the structures and chemical makeups of the active layer materials affect photovoltaic processes and performance in terms of power ???

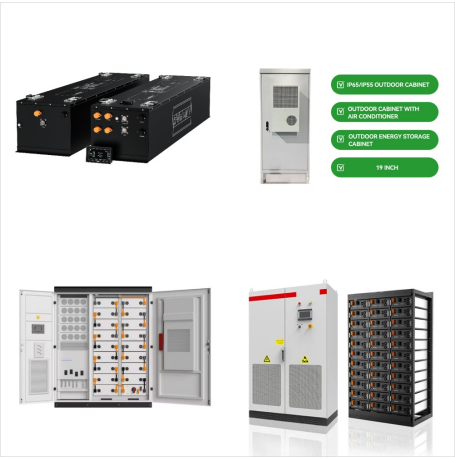
LANTHANIDES NEW METALLIC CATHODE FOR ORGANIC PHOTOVOLTAIC CELLS



Then the new organic solar cell concepts are presented. the introduction of thin buffer layers at the interfaces cathode/organic acceptor and/or anode/organic donor, can strongly improve the

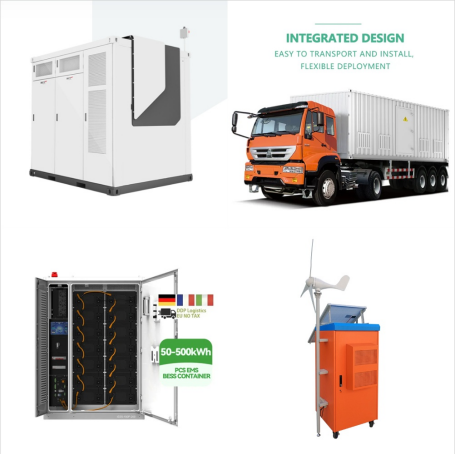


Research on spectral conversion is focused on organic dyes, quantum dots, lanthanide ions, and transition metal ion systems for up- and downconversion [13, a non-conductive reflector is a much better alternative than any metallic mirror, thus sending back both the unabsorbed super-bandgap photons as well as the upconverted super-bandgap

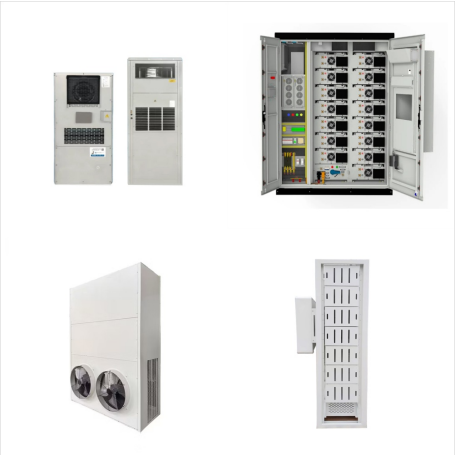


The PCE of the solar cell without CnPcH2 was 2.3% with I SC of 8.6 mA cm ???2, V OC of 0.57 V and FF of 48% that improves to 3.0% with I SC of 12.1 mA cm ???2, V OC of 0.56 V and FF of 44% with

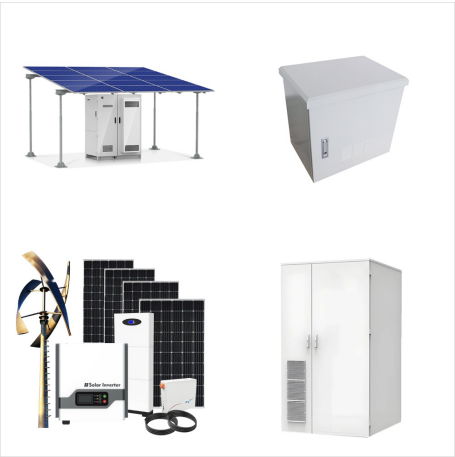
LANTHANIDES NEW METALLIC CATHODE FOR ORGANIC PHOTOVOLTAIC CELLS



Here we discuss the search for a new metallic cathode interlayer material that increases device stability and still provides device efficiency similar to that achieved with a Ca interlayer. ???

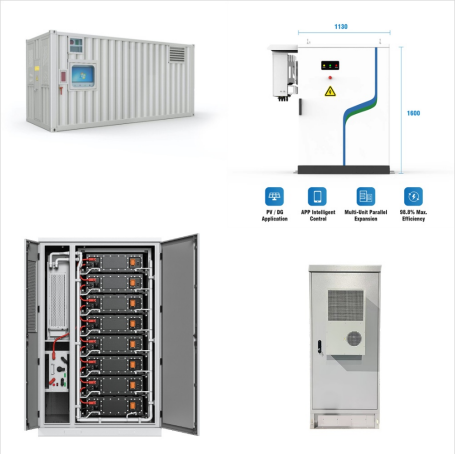


DOI: 10.1016/J.SOLMAT.2011.12.004 Corpus ID: 96294382; Ultrathin molybdenum oxide anode buffer layer for organic photovoltaic cells formed using atomic layer deposition @article{Tseng2012UltrathinMO, title={Ultrathin molybdenum oxide anode buffer layer for organic photovoltaic cells formed using atomic layer deposition}, author={Yu-Chih Tseng and Anil U. ???

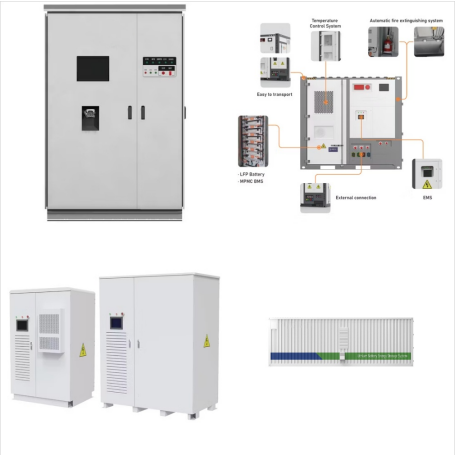


Improvement in the lifetime of organic photovoltaic cells by using MoO3 in conjunction with tris-(8-hydroxyquinoline) aluminum as a cathode buffer layer is analysed [22]. The concept of bandgap

LANTHANIDES NEW METALLIC CATHODE FOR ORGANIC PHOTOVOLTAIC CELLS



Role of Ultrathin Metal Fluoride Layer in Organic Photovoltaic Cells: Mechanism of Efficiency and Lifetime Enhancement. ChemSusChem 2014, 7, 1125-1132. DOI: 10.1002/cssc.201301152. Lanthanides: new metallic cathode materials for organic photovoltaic cells. Physical Chemistry Chemical Physics 2013, 15, 13052. DOI: 10.1039/c3cp52327f.



The search for a new metallic cathode interlayer material that increases device stability and still provides device efficiency similar to that achieved with a Ca interlayer is discussed. Organic ???

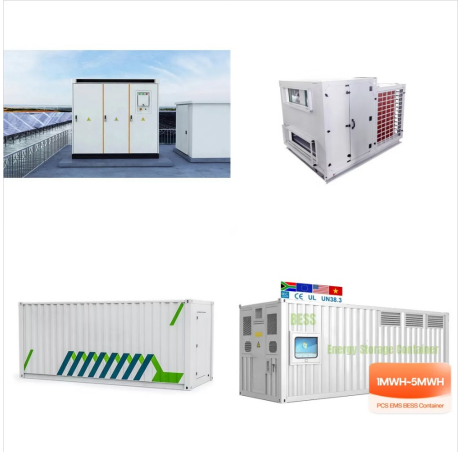
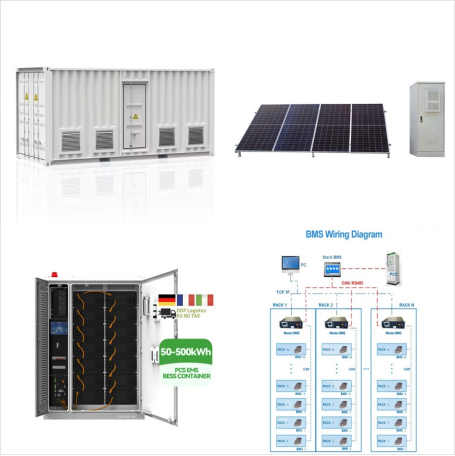
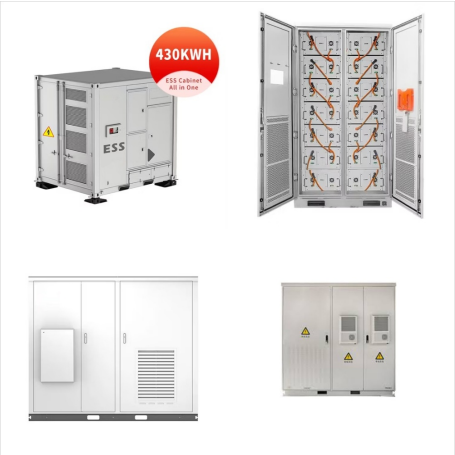


Fig. 1. Schematic of plastic solar cells. PET ??? polyethylene terephthalate, ITO ??? indium tin oxide, PEDOT:PSS ??? poly(3,4-ethylenedioxythiophene), active layer (usually a polymer:fullerene blend), Al ??? aluminium. An organic solar cell (OSC [1]) or plastic solar cell is a type of photovoltaic that uses organic electronics, a branch of electronics that deals with conductive organic

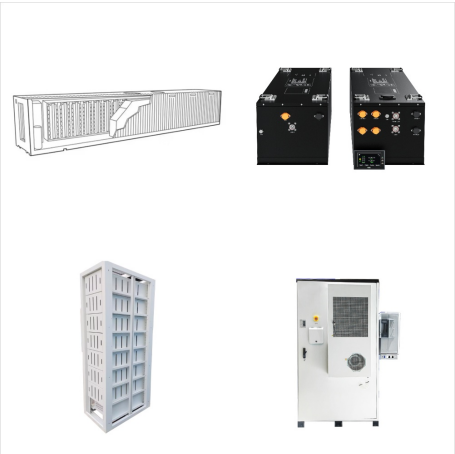
LANTHANIDES NEW METALLIC CATHODE FOR ORGANIC PHOTOVOLTAIC CELLS



Organic photovoltaics (OPVs) are compliant with inexpensive, scalable, and environmentally benign manufacturing technologies. While substantial attention has been focused on optimization of active layer chemistry, morphology, and processing, far less research has been directed to understanding charge transpo

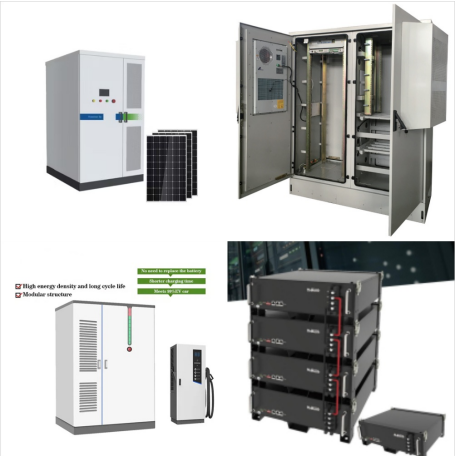


Improvement in the Lifetime of Planar Organic Photovoltaic Cells through the Introduction of MoO3 into Their Cathode Buffer Layers Linda Cattin, Mustapha Morsli, Jean Bern?de

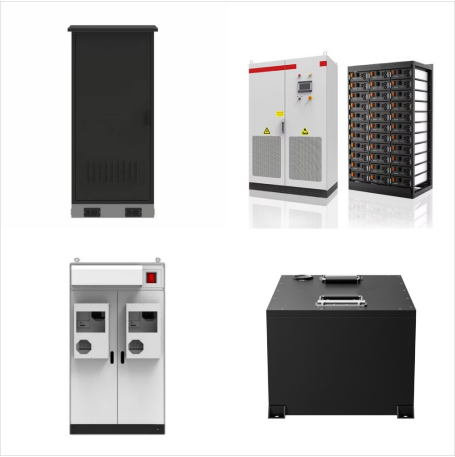


Organic photovoltaics (OPVs) represent a low-cost, lightweight, and scalable alternative to conventional solar cells. (PDTG-TPD)-based polymer solar cell. Here, the ZnO-PVP nanocomposite replaces ZnO colloidal nanoparticles for modifying the work function of the ITO and enhancing its coupling to the active layer. Lanthanides: new

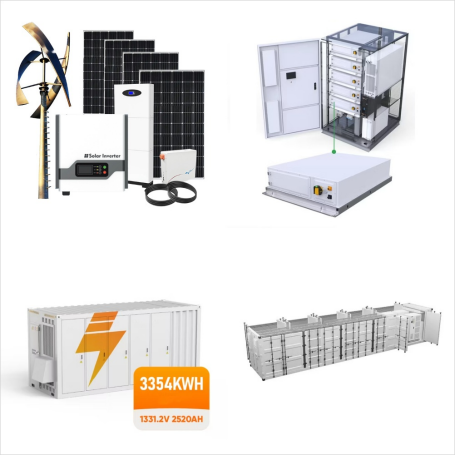
LANTHANIDES NEW METALLIC CATHODE FOR ORGANIC PHOTOVOLTAIC CELLS



Here we report efficient normal structure organic solar cells delivering promising stability under different conditions, based on PM6:BTP-eC9 blend and AZO/Al cathode. The impact of cathode on device stability is systematically studied by screening the leading electron transporting layers i.e., AZO, PFN-Br, PDINN, and metal electrodes (Al and Ag).



To qualify as potential transparent electrodes in solar cells, a metal-based material must satisfy a range of requirements in various aspects such as electrical conductivity, optical properties, mechanical flexibility, stability (chemical, thermal, electrical, mechanical), and processing compatibility (for scaling up and/or economical and technical constraints).



Mentioning: 8 - Organic photovoltaics (OPVs) are compliant with inexpensive, scalable, and environmentally benign manufacturing technologies. While substantial attention has been focused on optimization of active layer chemistry, morphology, and processing, far less research has been directed to understanding charge transport at the interfaces between the electrodes and the ???