

Title (en)
ORGANIC PHOTOVOLTAIC ARRAY AND METHOD OF MANUFACTURE

Title (de)
ORGANISCHES PHOTOVOLTAIKARRAY UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)
GÉNÉRATEUR PHOTOVOLTAÏQUE ORGANIQUE ET PROCÉDÉ DE FABRICATION

Publication
EP 2638577 A2 20130918 (EN)

Application
EP 12746750 A 20120214

Priority
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Abstract (en)
[origin: WO2012112533A2] The fabrication and characterization of large scale inverted organic solar array fabricated using all-spray process is disclosed, consisting of four layers; ITO-Cs₂CO₃-(P3HT:PCBM)-modified PEDPT:PSS, on a substrate. With PEDPT:PSS as the anode, the encapsulated solar array shows more than 30% transmission in the visible to near IR range. Optimization by thermal annealing was performed based on single-cell or multiple-cell arrays. Solar illumination has been demonstrated to improve solar array efficiency up to 250% with device efficiency of 1.80% under AM1.5 irradiance. The performance enhancement under illumination occurs only with sprayed devices, indicating device enhancement under sunlight, which is beneficial for solar energy applications. The semi-transparent property of the solar module allows for applications on windows and windshields, indoor applications, and soft fabric substances such as tents, military back-packs or combat uniforms, providing a highly portable renewable power supply for deployed military forces.

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