

## **INVERTED BULK HETEROJUNCTION ORGANIC SOLAR CELL WITH ZnO NANOROD ARRAYS**

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### **ABSTRACT**

Inverted bulk heterojunction organic solar cells based on a blend of poly[2-methoxy-5-(2-ethylhexyloxy)-1,4-phenylenevinylene] (MEHPPV) as donor and (6,6)-Phenyl-C61 butyric acid methyl ester (PCBM) as acceptor with a structure of FTO/ZnO nanorods array/MEHPPV:PCBM/Au utilizing ZnO nanorods array as electron collecting layer and gold as a hole collecting electrode were investigated. The organic layer consisting of MEHPPV and PCBM was spin-coated on ZnO nanorod arrays. ZnO nanorod arrays were grown on fluorine-doped tin oxide (FTO) glass substrates which were pre-coated with ZnO nanoparticles using a low temperature chemical solution method. The device gave a short circuit current density of 0.18 mA/cm<sup>2</sup> and an open circuit voltage of 0.38 V under illumination of a simulated AM 1.5 G sunlight at 100 mW/cm<sup>2</sup>. The power conversion efficiency of the solar cell was increased from 0.0015 % to 0.016 % through the introduction of ZnO nanorods arrays.

<http://journal.masshp.net/wp-content/uploads/Journal/2011/Jilid%201/C.C.%20Yap%20101-106.pdf>

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