

August 27-28, 2018  
Zurich, SwitzerlandJ Org Inorg Chem 2018, Volume 4  
DOI: 10.21767/2472-1123-C5-015

## THREE DIMENSIONAL SOLAR CELLS

**M Jasim Uddin**

University of Texas Rio Grande Valley, USA

**S**olar cells that are flexible and three dimensionally structured to absorb light from any incident angle would serve a wide range of applications in the domestic, commercial, and military sectors, and can be readily incorporated into fabric-based systems. We report the fabrication of novel dye sensitized solar cells incorporating functional centers, CdS and CdSe quantum dot sensitizers, an efficient P3HT/PCBM bulk hetero junction layer, and well structure nano and micro porous TiO<sub>2</sub> oxide layers. The prepared cells were morphologically characterized using AFM and SEM, and were electrically tested over a range of cell lengths

and in series/parallel configurations. Efficiencies of up to 7% were observed, and the cells performed well in series and parallel configurations, suggesting that cells with this configuration are well suited for deployment in multi-cell systems. Therefore, solid state power wires have great prospects to develop multifunctional structural composites with inherent light sensing capabilities for structural or aerospace safety and e-textiles by weaving our optoelectronic wires into reinforcing fabrics.

[jasim.uddin@utrgv.edu](mailto:jasim.uddin@utrgv.edu)