

HYBRID-NANOCRYSTALLINE CDS SOLID-STATE SOLAR CELLS WITH IN SITU POLYMERIZED POLYACETYLENE PHOTOSENSITIZER

Wonjoo Lee, R. S. Mane, Sung-Hwan Han
Department of Chemistry, Hanyang University
Haengdang-dong 17, Sungdong-ku, Seoul, (Korea) 133-791
shhan@hanyang.ac.kr

ABSTRACT

The polyacetylene photosensitizer with quaternary pyridinium salts were layered on CdS nanocrystalline film by in situ polymerization of 2-ethynylpyridine and 4-bromobutyric acid as in situ polymerization enhances an interfacial contact between inorganic semiconductors and conjugated polymers. The hydrophilicity of polymer photosensitizers was controlled by the anion exchange to deposit good quality P3HT layers by spin coating. The hybrid cell shows a power conversion efficiency of 2.19% under air mass (AM) 1.5 condition ($I = 30 \text{ mW/cm}^2$).