

Fabrication of Nanostructured CdSe/P3HT Hybrid Solar Cells using Block Copolymer Template

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We fabricated Nanostructured Hybrid Solar Cells with Cadmium Selenide (CdSe) nanorod array and Poly(3-hexylthiophene) (P3HT) onto Indium Tin Oxide (ITO) by using nanoporous template based on polystyrene-*b*-poly(methyl methacrylate) copolymer thin film. We used ordered nanostructure to make an improvement in the donor (P3HT) – acceptor (CdSe) interfacial morphology within the active layer of device. ITO/CdSe/P3HT/MoO₃/Ag devices were fabricated. The CdSe nanorod array on a substrate was prepared from Cadmium and Selenium sources in solution by electrochemical deposition into the nanoholes, and remaining template was removed by burning at 500°C under atmospheric environment. After removing template, organic ligands were applied to CdSe nanorod array to passivate the surface. Then P3HT was coated on CdSe nanorod array.