

Electrochemical preparation of Bilayer p-n junction of n-CdS / p-P3HT.

ABSTRACT

Organic-inorganic p-n junction composed of electrically conducting poly(3-hexylthiophene) (P3HT) and cadmium sulphide (CdS) was prepared by electrodeposition of P3HT on ITO prior to CdS on P3HT by using the same method. This approach provides a low cost route for production of improved charge transfer photovoltaic cells. The optical properties of resulting hybrid films were analyzed by UV-visible spectrophotometry, the combined bandgap energy is between that of P3HT films (1.81 eV) and CdS (2.42 eV). The hybrid CdS/P3HT film presents a higher photocurrent response than that of pure P3HT and absorbs radiation in wider region.

Keyword: Bilayer; Electrodeposition; Cadmium sulphide; Poly (3-hexylthiophene); Photoelectrochemical properties.