Short Communication

Preparation of ZnO Nanosheets-Nanorods Hierarchically Structured Films and Application in Quantum Dots Sensitized Solar Cells

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ZnO nanosheets were electrodeposited on transparent conductive glass substrates. Thereafter, ZnO nanorods were grown vertically on the nanosheets by hydrothermal method to prepare the nanosheets-nanorods hierarchically structured ZnO films. The influence factors, such as the concentration of precursor solution and the hydrothermal reaction time, were studied. The obtained nanosheets-nanorods hierarchically structured ZnO films were co-sensitized with CdS and CdSe quantum dots and applied as the photoanodes of dye-sensitized solar cells. A photoelectric conversion efficiency of 2.50% was obtained after the coating of TiO₂ on the ZnO nanosheets-nanorods.

Keywords: ZnO, nanosheets, nanorods, hierarchically structured films, dye-sensitized solar cells

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