Two-layer ZnO nanowire arrays: Fabrication and its photovoltaic property sensitized by CdSe and CdS quantum dots

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Two-layer ZnO nanowire arrays: fabrication and its photovoltaic property sensitized by CdSe and CdS quantum dots

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Abstract

Two-layer ZnO nanowire arrays have been synthesized by a low temperature hydrothermal method. The two-layer structure enables the absorption of CdSe and CdS quantum dots (QDs) on different nanostructured layer, respectively. Solar cell based on the QDs sensitized ZnO nanowire arrays is fabricated. Due to sequential light adsorption of different sensitizer happens in two different layers, the photoanode can reduce the interaction possibility among different QDs and extends the absorption range, and result in improved photovoltaic properties.

Keywords: Quantum dots; ZnO nanowire array; Solar cell