

Short Communication

Hydrothermal Synthesis of NiS₂ Cubes with High Performance as Counter Electrodes in Dye-Sensitized Solar Cells

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doi: 10.20964/2017.05.100

Received: 7 October 2016 / Accepted: 31 October 2016 / Published: 12 April 2017

Electrocatalytic NiS₂ cubes were directly synthesized on F-doped tin oxide using a hydrothermal approach and used as counter electrode in dye-sensitized solar cells (DSSCs). The NiS₂ cubes displayed an excellent electrocatalytic activity in the reduction of I₃⁻ showing a power conversion efficiency of 5.56%, which is close to that of the Pt-containing DSSC (7.05%). Furthermore, the NiS₂ cubes showed a comparable stability to Pt. This is ascribed to the low resistance to diffusion and transfer of electrolyte ions. These results suggest that the NiS₂ cubes prepared through a facile process is a promising substitute to Pt electrode.

Keywords: Nickel disulfide cubes; counter electrode; dye-sensitized solar cells

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