

Influence of Acetic Acid on the Photovoltaic Performance of Ru(II)-Dye Sensitized Solar Cells

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TiO₂ based dye-sensitized solar cells (DSSC) was fabricated by the use of acetic acid having the carboxyl acid functional groups. Influence of acetic acid treatment of TiO₂ electrode with different acids and concentrations on the photovoltaic performance of DSSC was investigated. The additional acetic acid formed assures both, necking between particles and film adhesion to the substrate. The photoelectrode obtained by acid treatment had been characterized by FE-SEM and I-V measurement. It was found that DSSC had better photovoltaic performance when the TiO₂ electrode was treated by acetic acid than that by hydrochloric acid and phosphoric acid. The acid treatment of TiO₂ electrode provides useful information on the mechanism of energy conversion of DSSC. Acetic acid treatment is advantageous for the adsorption to molecules and enhancement of the photoelectric performance of TiO₂ electrode.

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