

Effect of Ligand Attached to Fluorescein on the Photocurrent of Solid-state Dye-sensitized Solar Cells

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Abstract

Organic dyes have received much attention due to environmental compatibility. Fluorescein is one of the environmental friendly dyes. The effect of ligands attached to fluorescein on the photo-performance of TiO₂|dye|p-semiconductor type solar cells was examined. CuI and CuSCN were used as the p-type semiconductor. A relatively higher photocurrent was observed for TiO₂|dye|CuI cells than TiO₂|dye|CuCNS cells. The Maximum photocurrent was observed for mercurochrome among the dyes used from fluorescein family. Our results give an idea that not only the chromophore but also the ligands attached to the chromophore influences the absorption properties of the dyes and thereby dye- sensitized solar cells.

Keywords: organic dyes, solid-state cells, effect of the ligands