

A dye-sensitized nano-porous solid-state photovoltaic cell

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Abstract. A photovoltaic cell was fabricated by sandwiching a monolayer of the pigment cyanidin adsorbed on nano-porous $n\text{-TiO}_2$ film (deposited on conducting tin oxide glass) within a transparent polycrystalline film of $p\text{-CuI}$, filling the intercrystallite pores of the porous $n\text{-TiO}_2$ film. Photoexcited dye is found to inject electrons into $n\text{-TiO}_2$ and holes into $p\text{-CuI}$, generating photocurrents and photovoltages that are impressively high for a dye-sensitized solid-state photovoltaic cell.