Synthesis of Triphenylamine Trisazo Dye and Study of its Uses in Dye Sensitized Solar Cells

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ABSTRACT

A new triazo dye was synthesized from tri(p-aminophenyl)amine and 2 hydroxy-3-napthoic acid and explored the possibilities of its uses in dye sensitized solar cells for the first time. The photocells were able to generate reasonably high photocurrent in the presence of the electron donating ionic liquids in the electrolyte composed of redox couple I_3^-/I^-. Cells fabricated by sensitizing TiO_2 generated a short-circuit photocurrent of ~ 3.5 mA cm^{-2}, an open-circuit photovoltage of ~ 500 mV with a total power conversion efficiency of ~ 1 % under simulated full sunlight of 100 mW cm^{-2} (Air Mass 1.5).