Multi-Anchoring Organic Sensitizers containing Improvement of electron life time and Diffusion length of the Dye-sensitized Solar Cell

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The standard structure of the DSSC comprises an electrochemical cell composed of sensitizer-adsorbed wide band gap oxide semiconductor electrode such as TiO2 or ZnO, electrolyte containing I-/I3- redox couples, and Pt-coated counter electrode. The sensitizer dye plays an important role in capturing the photons and generating the electron/hole pair, as well as transferring them to the interface of the semiconductor and the electrolyte, respectively.
In this work, we have studied on the synthesis and characterization of the organic dyes containing different number of electron acceptor moieties in a molecule. The photovoltaic properties of the solar cells composed of organic dye chromophores were measured and evaluated by comparison with that of ruthenium dye (N3). It is observed that the organic dye containing more number of electron acceptor moieties in a molecule exhibits better solar energy conversion efficiency.