Novel Energy Relay Dyes for High Efficiency Dye Sensitized Solar Cell via Förster Resonance Energy Transfer

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We investigated the Förster resonance energy transfer (FRET) from novel energy relay dyes (ERDs) to the high efficient *cis*-diisothiocyanato-bis (2,2'-bipyridyl-4,4'-dicarboxylato)ruthenium(II) bis(tetrabutylammonium) (N719) dye in liquid-junction based dye-sensitized solar cell (DSSC) with I^-/I_3^- as a redox shuttle. The increased light harvesting of N719 in both UV and Visible region was attributed to non-radiative (FRET) and radiative energy transfer, respectively, from ERDs, 4',6-diamidino-2-phenylindole (DAPI) and Hoechst 33342 (H33342) to N719. The complementary light absorption with N719, suitable energy band position, and high energy transfer efficiency (ETE) induced the enhancement of the photoconversion efficiency up to *ca.* 18 and 14 %, for DAPI and H33342, respectively.