

## Photoinduced Electron and Energy Transfer Processes in Fullerene-Based Donor-Bridge-Acceptor Systems

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The electrochemical and photophysical properties of fullerene derivatives covalently tethered to one or more photoactive chromophores is one of the most intensively investigated areas of fullerene chemistry [1]. Its ability to accept up to six electrons, and the small reorganisation energy upon reduction, make [60]fullerene an attractive candidate for artificial systems for energy conversion and energy storage.

We report herein our strategies towards [60]fullerene-based photoactive donor-bridge-acceptor dyads and triads in which visible light ignites efficient intramolecular electron/energy transfer processes. A significant problem with the use of fullerenes as electron-acceptor units is the reduced electron affinity resulting from most derivatisations. Various approaches followed in order to overcome the deficiencies of conventional derivatisation will be illustrated, including the use of fluorinated [60]fullerenes.

### References.

1. (a) D. M. Guldi, *Chem. Soc. Rev.*, 2002, 31, 22.; (b) D. M. Guldi and N. Martin, *J. Mater. Chem.*, 2002, 12, 1978.; (c) D. M. Guldi and M. Prato, *Acc. Chem. Res.*, 2000, 33, 695; (d) S. Fukuzumi and D. M. Guldi "Electron-transfer Chemistry of Fullerenes", in V. Balzani (Ed.) *Electron Transfer in Chemistry*, Wiley-VCH, Weinheim, 2001, Volume II, Part I, Chapt.5, p. 270.