

Photo-induced Charge Transfer in Azapyrene-Tetrathiafulvalene Triads

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Tetrathiafulvalene (TTF)-based donor-acceptor (D–A) ensembles have attracted a lot of attention due to their unique (opto)electronic properties and potential applications in organic semiconductors, photovoltaics, sensors, switches and molecular electronics.^{1–3} To develop high-performance electronic devices, control over multiple charge-transfer (CT) pathways in D–A ensembles is of prime importance. Recently, we have demonstrated chemical and ultrafast optical regulation of distinct photo-induced charge flows within such D–A systems.^{4,5} As a continuation of our ongoing work, we herein describe redox and optical properties of new D–A ensembles (Chart 1) which were prepared by covalent linkage of two TTF donor units to a central azapyrene acceptor either with or without two tert-butyl groups. A detailed experimental and theoretical study of electronic interactions between D and A units and ICT processes in these triads is presented.

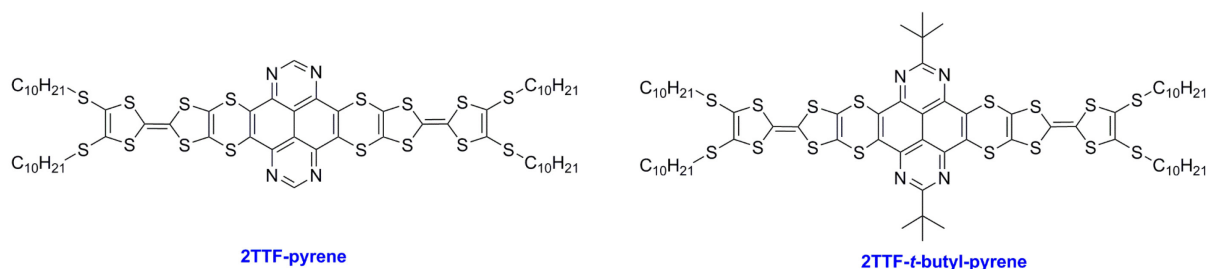


Chart 1. Chemical structures of triads 2TTF-pyrene and 2TTF-*t*-butyl-pyrene.

References

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