Highly Stabilized Charge-Separated States in C_{60}-TTF Systems

Luis Sánchez, Marta C. Díaz, Beatriz M. Illescas, Nazario Martín*

Departamento de Química Orgánica I, Facultad de Química, Universidad Complutense de Madrid, E-28040 Madrid (Spain)

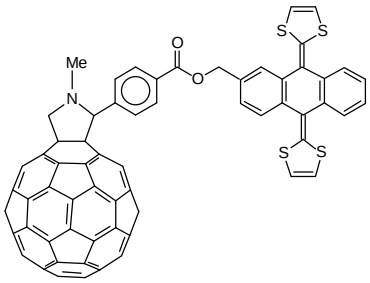
Dirk M. Guldi

University of Notre Dame, Radiation Laboratory, Notre Dame, IL-46556, USA

In the last decade [60]fullerene derivatives have been succesfully used in the preparation of photovoltaic devices[1] as well as artificial photosynthetic systems.[2] In this regard, an enormous amount of work to obtain more sophisticated C_{60}-based dyads has been done. Upon excitation a charge-separated (CS) state can be observed in this donor-acceptor (D-A) molecules.[3] The lifetime of the CS states strongly depends on the nature of the D moiety as well as on the length and structure of the spacer connecting the C_{60} core and the D moieties.[2]

In our research group the synthesis and photophysical studies of several C_{60}-spacer-TTF systems have been reported. These dyads have shown, upon excitation, moderate to good lifetime values for the generated CS state.[4]

In this communication we will report on the synthesis and photophysical measurements of a new series of C_{60}-TTF compounds (**1-4**). A new family of C_{60}-based dyads will be presented in which the π-extended TTF moiety is directly linked to the fulleropirrolidine fragment through the 1,3-dithiole ring (**3**). Finally, the synthesis and the photophysical properties of new triads [C_{60}-πextTTF-C_{60} (**2**) and C_{60}-πextTTF-πextTTF (**4**)] will be presented.



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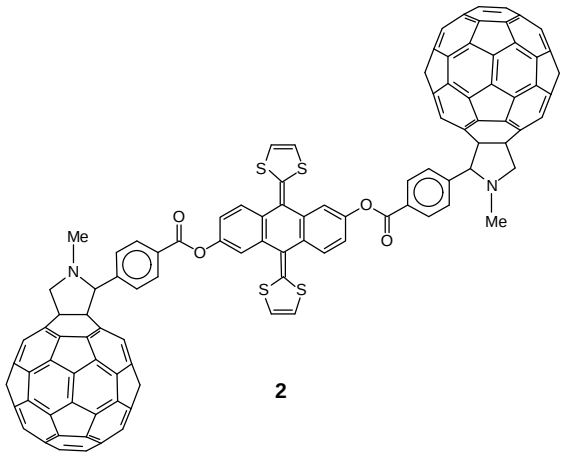

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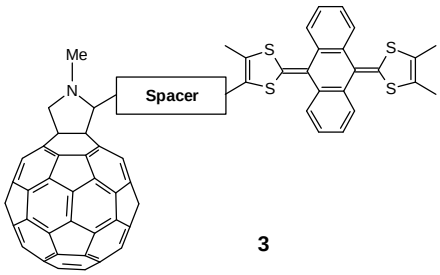

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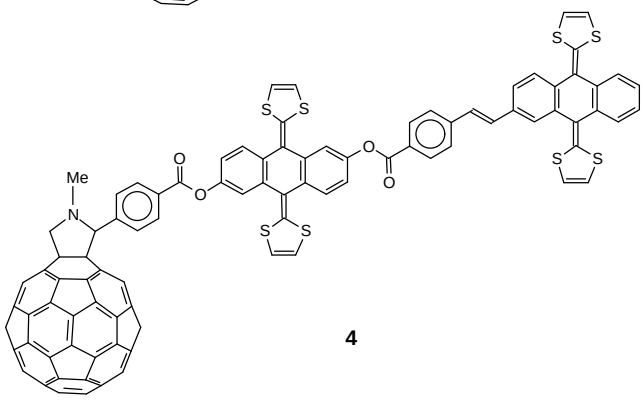

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