

## Energy and Electron Transfer Processes in Subphthalocyanine-Fullerene Dyads

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Subphthalocyanines<sup>[1]</sup> (SubPcs, Figure 1) are 14- $\pi$  electron aromatic homologues of phthalocyanines which possess a  $C_3$  cone-shaped structure.<sup>[2]</sup> These compounds have demonstrated very interesting photophysical properties which have been exploited in the fields of nonlinear optics and photonic devices.<sup>[3]</sup>

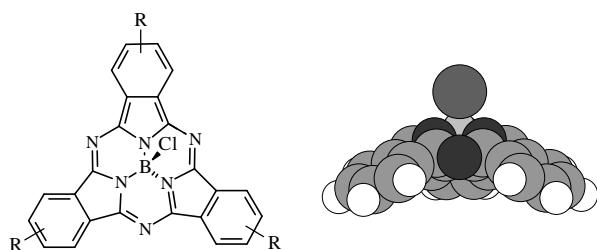


Figure 1

Due to their rich electronic properties, our research group is greatly interested in the synthesis and properties of subphthalocyanine-based systems that are able to experience electron or energy transfer phenomena. For this reason, we have recently carried out the synthesis and the electrochemical and photophysical characterization of a set of SubPc- $C_{60}$ <sup>4</sup> and SubPc- $Pc$ <sup>5</sup> dyads.

In the former, the average distance between the two subunits was regulated by the nature of the spacer (figure 2) and the donor/acceptor character of the SubPc macrocycle was modified by the introduction of different substituents (R in figure 1).

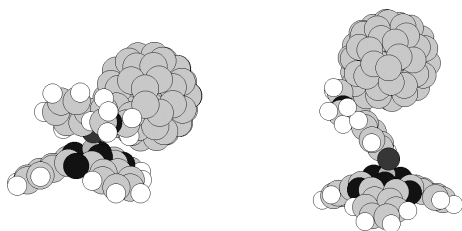


Figure 2.

Photophysical measurements reveal energy/electron transfer events between the two subunits. The fate of the initial photoexcitation of the subphthalocyanine chromophore will depend on the structural and electronic characteristics of the compounds.

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