

## Supramolecular Mg Phthalocyanine – Fullerene and Mg Naphthalocyanine – Fullerene

Rachel Jacobs

*Chemistry*

**Abstract:** Photosynthesis, the process of converting light energy into chemical energy, involves two major steps, viz., absorption and transportation of light energy of appropriate wavelength by the antenna light harvesting molecules to the reaction center, and photoinduced electron transfer (PET) to generate charge separated entities by using the electronic excitation energy. In the reaction center, the excitation energy is converted into chemical energy in the form of transmembrane charge separation via a multistep electron-transfer reaction.

Mimicking the photosynthetic functions by using synthetic model compounds is important to further our understanding of the process of bioenergetics. Research in this area also holds promise for technological advances in solar energy conversion, and building molecular optoelectronics such as photonic wires and switches.

In the present study, self-assembled donor-acceptor photosynthetic reaction center model systems are built using Mg phthalocyanine and Mg naphthalocyanine as electron donors and an imidazole-appended fulleropyrrolidine as electron acceptor (see Schemes below). The presentation will focus on the synthesis of the donors and their characterization, donor-acceptor assembly formation, and photochemical studies revealing occurrence of photoinduced electron transfer from the donor to acceptor.

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