Electronically Coupled Porphyrin Systems for Photoinduced Processes : Synthesis and Properties

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Our consistently better understanding of the finer details of the photosynthetic processes found in plants and in bacteria demonstrates that this marvelous photochemical machinery can be duplicated with artificial systems if a very specific organization of molecular components, in the dimension of space, of their excited states and redox potential in the dimension of energy and of their elementary acts in the dimension of time, are achieved.

Our group is particularly interested in the development of electronically coupled multi-component systems in order to achieve long range photoinduced-electron or -energy transfer with few steps. To this end, we have developed a flexible synthetic approach based on cross-coupling reactions with *meso* iodo porphyrins and organometallics reagents which allows for efficient preparation of porphyrins-containing molecular assemblies.

The synthesis of the linear porphyrin assemblies connected via different types of π-conjugated spacers will be described along with their electronic and photonic properties (light harvesting antenna and photoinduced charge separation).

References :

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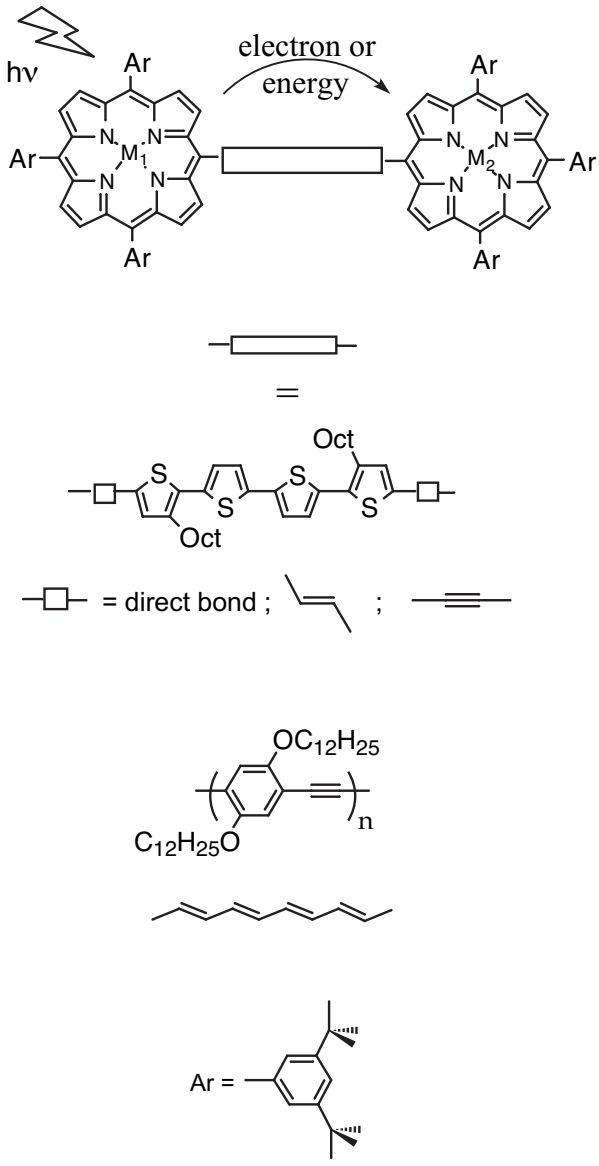

Figure : Structures of some porphyrin dyads prepared for photoinduced electron or energy transfers.