

Weak intramolecular interactions involving metalloporphyrins

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Porphyrins are key building blocks for the construction of photoactive supramolecular ensembles and molecular machines. As part of this research, our group is involved in a program on the development of supramolecular systems combining porphyrin building blocks with fullerene acceptors and different strategies have been developed to obtain stable non-covalent conjugates.¹ These results will be presented with special emphasis on positive cooperative effects resulting from the existence of secondary weak intramolecular interactions in the supramolecular assemblies. On the other hand, our group has also developed multiporphyrinic arrays to generate supramolecular ensemble mimicking the primary events observed in the natural photosynthetic system, in particular light harvesting devices in which multiporphyrinic antenna collect light and channel the absorbed energy to a single energy acceptor.² During this work, weak intramolecular coordination interactions have been observed between metalloporphyrins and triazole subunits allowing us to control the conformation of complex multiporphyrinic arrays. Based on this observation, we have designed molecular machines mimicking the blooming of a flower.³

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