

“New Synthetic Methods in Porphyrin Chemistry and Applications to Artificial Light-Harvesting Arrays”

Jonathan S. Lindsey
Department of Chemistry
North Carolina State University

The development of molecules that carry out artificial photosynthetic functions remains one of the fundamental challenges in chemistry. Advances in synthetic methodology spanning heterocyclic, supramolecular, and materials chemistry are essential to meet this challenge. We have been working to develop new approaches for constructing porphyrinic macrocycles (analogous to chlorophyll) and incorporating the macrocycles in large arrays. The architecture shown below, which self-assembles in high yield in dilute solution, is one example of a porphyrin-based light-harvesting array that undergoes efficient energy transfer.

