

Abstract Harry Anderson

Large monodisperse π -conjugated nanostructures are becoming increasingly accessible due to advances in template-directed synthesis. The properties of these systems are just starting to be understood. Is aromaticity restricted to small molecules, or can ring currents exist around conjugated macrocycles with more than 100 π -electrons? The answer to this question is unclear, but we recently reported aromatic and antiaromatic systems with circuits of 78 and 80 π -electrons and a diameter of 2.5 nm, and it seems likely that very large macrocycles can exhibit ring currents. This presentation will focus on the synthesis, aromaticity and electronic delocalization in large π -conjugated nanorings, nanotubes and nanoballs constructed from porphyrin units. The spectroscopy of the simple porphyrin nanorings continues to generate surprises, while advances in template-directed synthesis are rapidly providing access to new architectures.