
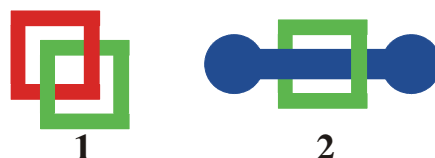


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Lecture Title:
Some Approaches to Molecular-scale Machines

Abstract:

One of the key recent developments in the field of Supramolecular Chemistry has been the exploration of approaches to “molecular-scale machines” which have potential applications in the macroscopic world.^{1,2} Key problems include controlled switching of the structure and read-out of the resulting change. One particularly interesting group of supramolecular systems which can be switched in a controlled manner are the catenanes **1** and rotaxanes **2** (together with their unstopped analogues, the pseudorotaxanes).



Each of these types of system shows dynamic behaviour and can be switched between different structural configurations by external stimuli such as photolysis or by altering the oxidation of one of the components. This can be accompanied by, for example, a change of the shape, surface properties, or the uv-visible absorption or luminescence spectrum of the supramolecular assembly, thereby providing the opportunity for macroscopic read-out of the nanoscale behaviour.

This talk will review the various approaches to and properties of systems such as **1** and **2**, and their potential applications in the field of functional materials.

(References ;)

1. V Balzani, A Credi, F. M. Raymo, and J. F. Stoddart, *Angew. Chem. Int. Ed.*, 2000, 39, 3348-3391.
2. F Vögtle and O Lukin, *Angew. Chem. Int. Ed.*, 2005, 44, 1456-1477.