The Synthesis and Characterization of [n]-Rung Ladders

Erin L. Elliott, C. Scott Hartley and Jeffrey S. Moore

Using current methods available for material fabrication, it is difficult to obtain macromolecular architectures with functionality at specifically prescribed locations. As a result, we set out to develop a method to form 2-D supramolecular grids using programmed oligomeric building blocks obtained using solid phase synthesis. The self-assembly process chosen for this task was a form of dynamic covalent chemistry, specifically imine formation. In order to test the feasibility of grid formation, a series of [n]-rung ladders (n = 0, 1, 2, and 3) were synthesized. The process of ladder formation can be seen below.