Mechanically Chiral Molecules: Synthesis and Applications

Steve Goldup
University of Southampton, University Road, Southampton, SO17 1BJ, UK
s.goldup@soton.ac.uk

Interlocked molecules can display forms of stereochemistry that do not rely on classical covalent stereogenic units, including many examples that have yet to be realised in chemical form.[1] We have pioneered the use of a “small” macrocycle[2,3] mediated active template[4] reaction in combination with covalent chiral auxiliaries in order to allow the synthesis of mechanically planar chiral rotaxanes[5,6] and topologically chiral catenanes (Figure 1).[7] In this lecture I will describe our recent efforts to improve access to these intriguing molecules, and their applications in enantioselective sensing and catalysis.

Figure 1. Schematic representation of our auxiliary approach to a topologically chiral catenane.

References