Templated Synthesis of Cyclic [4]Rotaxanes Consisting of Two Stiff Rods Threaded through Two Bis-macrocycles with a Large and Rigid Central Plate as Spacer


A Cyclic [4]Rotaxane

Significance: The authors synthesized the two cyclic [4]rotaxanes 1 and 2. The structure of 2, containing zinc porphyrin units, was determined by X-ray crystallography and is the largest rotaxane molecule characterized in this way.

Comment: The synthetic strategy includes the quantitative copper-driven assembly and threading of 5 through the macrocycles 3, 4 and the attachment of stoppers 8 by click chemistry in high yields. Compound 2 was tested as a receptor for ditopic guests in complexation studies.