Twin Helicenes Twist Benzene

Significance: The authors report a new approach to construct distorted benzene rings by constraining a benzene ring between two opposing [5]helicenes. Double helicene 5 was synthesized via a tandem intramolecular phospha-Friedel–Crafts reaction. By X-ray crystallography, the central benzene ring of 5 was found to possess a bending angle of 23°, and the sulfur atoms were found to be in a cis arrangement.

Comment: Distorted double helicene 5 can be desulfurized with triethylphosphine to yield bis(phosphine) 7, which could find potential use as a C₂ symmetric ligand for bimetallic complexes, following separation of enantiomers.