

The fold-in approach to bowl-shaped aromatic compounds: synthesis of chrysaoroles.

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A new family of bowl-shaped aromatic compounds swims into view (see picture). Quite unlike true jellyfish, chrysaoroles possess a rigid skeleton, which is assembled from fused carbazole units. Their synthesis involves a fold-in step to convert a macrocyclic precursor into the bowl-shaped target molecule. The chemistry of bowl-shaped aromatic compounds, known as buckybowl and geodesic polyarenes, is an area of significant theoretical and practical interest.¹ The current extensive research on these systems has been largely motivated by their structural relationship to fullerenes and carbon nanotubes. Indeed, all-carbon buckybowl, such as corannulene^{1b, 1c, 1e, 2} and sumanene,^{1d, 3} can be viewed as nanotube end caps or fullerene sections, and have been explored as templates for controlled syntheses of well-defined molecular forms of elemental carbon.⁴ However, the interest in bowl-shaped aromatic compounds extends beyond the quest for new carbon-rich materials and encompasses aspects of their internal strain,⁵ aromaticity,⁶ metal coordination,^{1d, 7} and supramolecular chemistry.^{1e} All these facets of research create the need for new structural motifs and synthetic methodologies.^{1f, 8}

Słowa kluczowe

density functional calculations, fused ring systems, macrocycles, nitrogen heterocycles, NMR spectroscopy

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