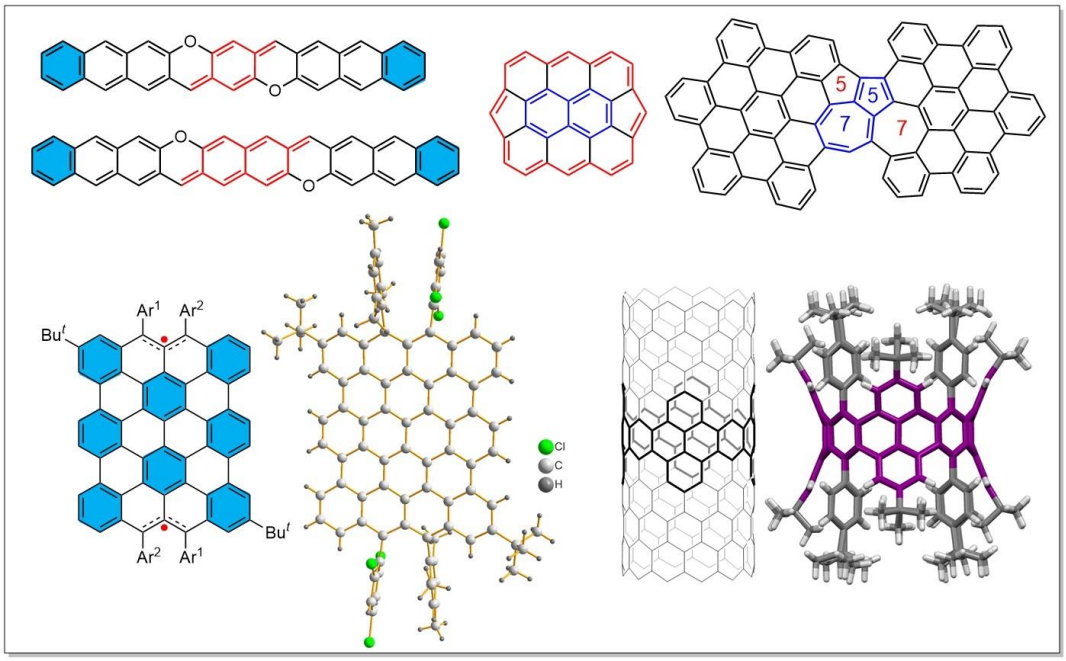
π-Structures with Different Topologies: Synthesis, Aromaticity and Electronic Properties

Chunyan Chi
National University of Singapore

Carbon-based nanostructures have shown revolutionary influence in the area of chemistry, physics and materials science. Recent efforts have been focused on novel topological structures of sp^2-carbons such as carbon nanohoops, nanobelts, molecular cages, and open-shell nanographenes, which provoked new chemistry and materials. However, synthesis of this kind of molecules is extremely challenging mainly due to strain or intrinsic high reactivity. Another issue is that most of these carbon nanostructures have a localized aromatic character; that means, the π-electrons are not globally delocalized along the backbone, which limits their optical and electronic properties and applications. Herein, synthesis of a series of novel pi-structure with different topologies will be introduced, and their physical properties, aromaticity and diradical character will be discussed.[1-7] Some structures are shown below.



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