

Thiophene-based helicenes: eclectic scaffolds in organometallic chemistry

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Helicenes are *ortho*-annulated polycyclic aromatic compounds, endowed with an inherently chiral π -conjugated system that are intensively studied in different areas of science.¹ Among helicenes, thiophene-based helicenes are emerging as an intriguing and promising class of screw-shaped structures, thanks to the presence of the thiophene rings, which confer peculiar chemical, structural, and electronic features.² For several years, we have been interested in the synthesis and functionalization of tetrathia[7]helicenes (7-TH, Figure 1), which are configurationally stable heterohelicenes, potentially very interesting for applications in optoelectronics,³ catalysis,⁴ and biology.⁵ In particular, transition metal-based 7-TH systems are an extremely appealing class of complexes, in which the coordination of metals with the π -helical ligand, bearing proper coordinating groups, provides unusual chiral architectures. Indeed, the selective functionalization of 2 and 13 positions of the 7-TH scaffold allows the introduction of a variety of substituents, including those with efficient coordinating ability (*e.g.* cyano, phosphane, phosphine oxide).

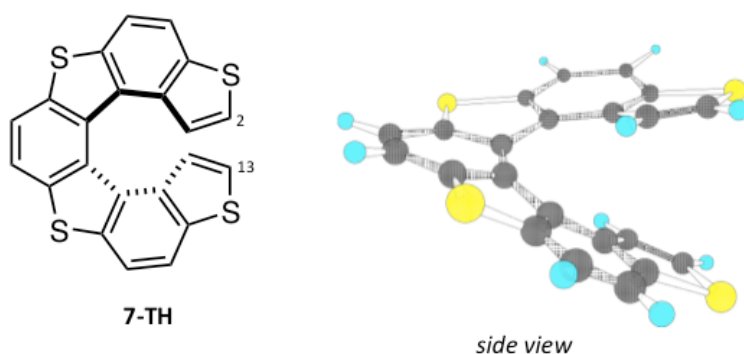


Figure 1.

In this communication we report our recent studies on the synthesis and characterization of 7-TH-based organometallic complexes, and their potential applications in optoelectronics and catalysis.

References

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