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Chemistry of a Rigid H-Shaped π-Scaffold

Pentiptycene is a rigid H-shaped π-scaffold, containing a central phenylene ring that is sterically shielded by four peripheral phenylene rings. Such a unique structural feature has led us to explore its possible applications. For example, its paddlewheel-like shape can function as a 4-bladed molecular rotor in molecular devices such as molecular brakes, gears, and motors. The bulkiness of pentiptycene can also tune the conformation and thus the electronic properties of the resulting π-conjugated systems. The synthesis of pentiptycene derivatives relies on the central-ring prefuctionalized pentiptycene building blocks. A useful approach toward the preparation of these building blocks is the derivatization of pentiptycene quinone. In this lecture, the story of our pentiptycene chemistry, synthesis and application, will be presented with an emphasis of the design concept.

Selected references

Date: 10th February 2015 (Tuesday)  
Time: 11:00am–12:30pm  
Venue: NTU SPMS CBC Building Level 2, Conference Room  
Host: Assoc Professor Tan Choon Hong