Twisting and benting π-system with 7-membered P-rings

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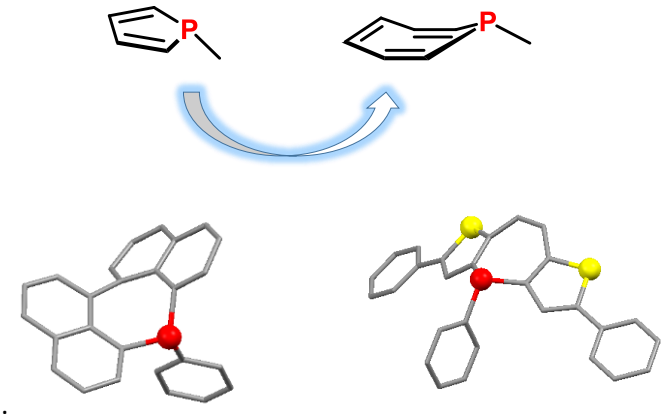
During the last two decades, the research on P-containing π-conjugated systems based on small molecules, oligomers and polymers has increased substantially thanks to the development of "plastic electronic" devices. Compared to purely organic π-systems, the presence of a heteroatom such as phosphorus affords multiple molecular engineering strategies in order to tune the chemical structure and the physico-chemical properties. Our research team showed that phospholes (Fig.) were excellent candidate to prepare Organic Light Emitting Diodes (OLEDs) [1]. In this communication, we will study the modification coming from the substitution of the 5-membered P-ring by a 7-membered P-ring (phosphepine, Fig.). In particular, this cycle induces molecular distortion (benting, twisting …). And eventually chirality These modifications will be studied through an experimental and theoretical approach. Finally, preparation of opto-electronic devices will highlight the potential of these derivatives for organic electronics [2].



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References:

[1] M. P. Duffy et al *Chem. Soc. Rev.* ***2016****, 45,* 5296.

[2] T. Delouche, A. Mocanu et al *Org. Lett.* **2019***, 21*, *21*, 802; T. Delouche, R. Mokrai et al *Chem. Eur. J*. **2020**, 26, 1856-1863 ; R. Mokrai, M. Duffy, A. Mocanu et al *Chem. Commun*. **2021**, 57, 7256-7259.