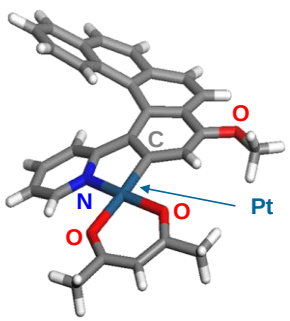
15.02.2017 (środa), godzina 12.00
sala 30

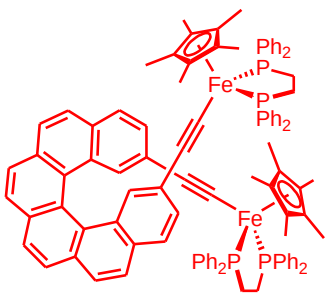
The fruitful combination of helicenes and metallic ions

Dr. Jeanne Crassous

Institut des Sciences Chimiques de Rennes, France
jeanne.crassous@univ-rennes1.fr

Helicenes display a helical shape combined with an extended π-conjugation which provide them with peculiar properties such as huge chiroptical properties (circular dichroism and optical rotation) and good emission properties (circularly polarized luminescence). Therefore, helicenes appear interesting for applications in molecular materials (circularly polarized emitters, chiroptical switches). The molecular engineering using coordination and organometallic chemistry of helicenic ligands offers a simple way to generate structural diversity and to tune the properties of helicenes. We will present a set of representative examples.





Selected references:

a) *Helicene-based transition metal complexes: synthesis, properties and applications.*
N. Saleh, C. Shen, J. Crassous, *Chem. Sci.* **2014**, *5*, 3680.

b) *Acid-base triggered switching of circularly polarized luminescence and electronic circular dichroism in organic and organometallic helicenes.*
N. Saleh, B. Moore, II, M. Srebro, N. Vanthuyne, L. Toupet, J. A. G. Williams, C. Roussel, K. K. Deol, G. Muller, J. Autschbach, J. Crassous, *Chem. Eur. J.* **2015**, *21*, 1673-1681.

c) *Conformational changes and chiroptical switching of enantiopure bis-helicenic terpyridine upon Zn^{2+} binding.*
H. Isla, M. Srebro-Hooper, M. Jean, N. Vanthuyne, T. Roisnel, J. L. Lunkley, G. Muller, J. A. G. Williams, J. Autschbach, J. Crassous, *Chem. Comm.* **2016**, *52*, 5932.

d) *Iron-alkynyl-helicenes: redox-triggered chiroptical tuning in the vibrational and telecommunication domain.*
C. Shen, G. Loas, M. Srebro-Hooper, N. Vanthuyne, L. Toupet, O. Cador, F. Paul, J. T. López Navarrete, F. J. Ramírez, B. Nieto-Ortega, J. Casado, J. Autschbach, M. Vallet, J. Crassous, *Angew. Chem. Int. Ed.* **2016**, *55*, 8062.