



Quo Vadis Chemie

Ligands Chemistry for Catalysis and Sensing



which will be presented by

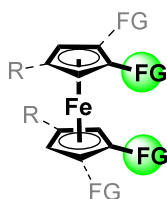
Prof. Jean-Cyrille Hierso

Head of the CNRS “*Institut de Chimie Moléculaire de l’Université de Bourgogne*”

on 07.10. at 15:40

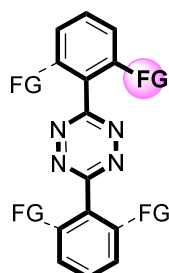
the Lecture Hall **CH2**, the School of Chemistry Building, FoS CU, Hlavova 8, Praha 2

The role of *Ligand Chemistry* has been decisive in the last fifty years of the fundamental and applied advances in Chemical Sciences. This influence is visible in multiple approaches, encompassing the interactions with transition metals, main metals, chiral and achiral organics, supramolecular and biological substances, *etc.* Organometallic chemistry has been shown to be pivotal for performances in modern homogeneous catalysis and organic synthesis with the formation of C–C, C–O, C–S, C–N and C–halogen bonds, or the activation and functionalization of the C–H bond. This activity of metal chemistry is now also declined in the field of composite materials as illustrated by the explosion of activity in inorganic carbon chemistry. Our group develops for 20 years the fundamental and applied chemistry of three families of ligands, based on platforms of very different and complementary features, namely: the 3D *organometallic rotational ferrocenyl* platform, the diamond-like sp^3 -cages *spherical rigid diamondoids* (adamantyl and diamantyl), and the *nitrogen-rich electron-poor planar polyheteroaromatic 1,2,4,5-s-aryltetrazine*. Most striking applications of these ligands will be presented.



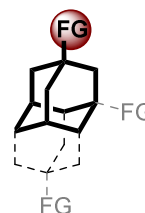
FG = H, PR_2 , $(CH_2)_nNR_2$, BR_2 , Br, COR, *etc.*

J. Am. Chem. Soc. **2004**, *126*, 11077.
Angew. Chem. Int. Ed. **2007**, *46*, 834.
Angew. Chem. Int. Ed. **2010**, *49*, 6650.
J. Am. Chem. Soc. **2022**, *144*, 10768.



FG = H, F, Cl, Br, I, OR, OS, N_3 , PR_2 , NR_2 , *etc.*

Angew. Chem. Int. Ed. **2016**
ACS Catalysis **2017**
Angew. Chem. Int. Ed. **2020**
Angew. Chem. Int. Ed. **2023**



FG = H, PR_2 , NR_2 , OH, Cl, Br, *etc.*

Adv. Funct. Mater. **2018**
Angew. Chem. Int. Ed. **2019**
Chem. Mater. **2020**
JACS Au **2021**