

Ingénierie moléculaire des systèmes pi-conjugués



En bref

- › Langue(s) d'enseignement: Français
- › Ouvert aux étudiants en échange: Oui

Présentation

Description



Objectifs

This teaching block is dedicated to the main families of pi-conjugated systems used in organic electronics and photonics. The synthesis and functionalization of photo- and electroactive organic architectures will be discussed. A particular attention will be paid to the impact of functionalization over physico-chemical properties. In a pluridisciplinary manner, this unit will also raise awareness to the basic concepts of green chemistry and the interest of non-noble metals in synthesis.

Heures d'enseignement

CM - Ingénierie moléculaire des systèmes pi-conjugués	Cours magistral	24h
TD - Ingénierie moléculaire des systèmes pi-conjugués	Travaux dirigés	16h

Pré-requis obligatoires

Understand the reactivity of organometallic catalysts and their interest in molecular and macromolecular synthesis (C-C, C-heteroatom bond formation, direct arylations, metathesis).

Handle the main synthetic methods to prepare pi-conjugated systems (heterocyclic chemistry, organometallic coupling reactions, polymerization strategies, cycloadditions).

- # Design the retrosynthesis of a given pi-conjugated system by taking into account the concepts of green chemistry.
- # Understand the main principles of molecular engineering (polarity vs polarizability, extension and functionalisation of conjugated systems, dyes, pigments,...).
- # Comprehend the methods developed to fine-tune the levels of frontier orbitals and the band gap of molecular materials for organic electronics and photonics.
- # Use spectroscopic or electrochemical measurements to study a conjugated system and evaluate its potential in organic electronics.
 - Know the main classes of molecular and macromolecular systems reported in the literature and their respective synthesis
 - Differentiate nanocarbons and proposing well-suited functionalization strategies

infos pratiques

Lieu(x)

> Angers