Electronique organique

ECTS
4 crédits

Composante
Faculté des sciences

En bref

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

Présentation

Description

Objectifs

Organic conducting and semiconducting materials based on #-conjugated systems or organic/inorganic hybrid materials have become essential components in the field of low-cost flexible electronics. They are used in three key technological areas with very high industrial development potential: organic light-emitting diodes for lighting and displays, organic field-effect transistors and photovoltaic cells. The main objectives of this course are to:

i) present these classes of organic and organic/inorganic hybrid materials, their properties and their characterization methods,

ii) establish structure / property relationships and

iii) describe the operating principle of electronic components incorporating such materials as well as the laws that govern their efficiencies.

The physical methods used for the characterization of the performance of these devices will also be introduced in order to give a global vision of their design, manufacturing and evaluation. Although this course does not intend to dwell on synthesis of #-conjugated systems, a specific attention will be paid to the chemical and electrochemical synthesis of polymers for electronic organics as well as their application in the fields of electro-chemical and optical sensors, transparent conducting or electrochromic materials.

Heures d'enseignement

CM - Electronique organique	Cours magistral	35h
TD - Electronique organique	Travaux dirigés	5h
TP - Electronique organique	Travaux pratique	20h

Pré-requis obligatoires

Establish relationships between molecular structures and properties in solution, in the solid state and in the devices

Characterize organic compounds endowed with electronic properties

Work in a multidisciplinary team to produce and characterize electronic devices

İntegrate organic materials into lab scale electronic devices

Guide technological choices

Develop or improve tests and trials, manufacturing processes

Perform measurements and analyzes, collect data, analyze and transmit them

Know the principles of polymerization, the main families of polymers used for organic electronics and their properties.

İnfos pratiques

Lieu(x)

› Angers