

# Organic Optoelectronics

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Since the Nobel Prize in Chemistry was awarded to Alan Heeger in 2000 for the invention of semiconducting and metallic polymers, the interdisciplinary research field of organic optoelectronics has experienced dramatic progress and has strong impact on disciplines such as Physics, Chemistry and Materials Science. Due to their outstanding material properties compared to traditional inorganic semiconductors, organic conjugated materials are anticipated to impact strongly on the future development of semiconductor technology.

The course will give an overview of organic semiconductors, their structures and their general physical properties. Optical and electronic processes in organic molecules and polymers that govern the behavior of practical organic optoelectronic devices will be discussed. Various relevant material phenomena will be reviewed, including topics from photophysics, intermolecular charge transport mechanisms and energy transfer processes. The course will then describe the basic concepts underlying the design, fabrication and operation of four dominant types of organic optoelectronic devices: OLEDs, organic lasers, organic solar cells and OFETs.

### Main topics:

- Charge transport and photophysical properties of organic semiconductors
- Organic light-emitting diodes
- Organic lasers
- Organic solar cells
- Organic field-effect transistors and their applications in electronics

### Time:

2/02 , 9/02 , 14/02 , 16/02 , and 23/02, from 16:00 to 18:00.

### Place:

Auditorium de l'Institut de Physique et Chimie des Matériaux de Strasbourg, 23 rue du Loess, 67034 Strasbourg

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