

Organic Electronics Devices : Physics, Technology and Applications

J.P.PARNEIX

Laboratoire de l'Intégration du Matériau au Système (IMS)

Institut Polytechnique de Bordeaux (IPB)

Abstract

This course will review basic concepts describing the principle, design, fabrication, and operation of three dominant types of organic electronic devices : light emitting diodes, photovoltaic cells, and field effect transistors. The talk aims to present a broad and practical survey and recent advances in this field of Organic Electronics.

The course will begin with an overview of organic semiconductors, their structures, general physical and electronic properties in comparison with inorganic semiconductors. Then, it will review basic concepts describing the principle, design, fabrication, and operation of three dominant types of organic electronic devices : light emitting devices (OLEDs), photovoltaic devices (solar cells ; OPVs), and field effect transistors (OFETs).

A table of content of the topics covered in the tutorial is outlined below :

1/ Organic semiconductors

- structure, physical and electronic properties
- comparison with inorganic semiconductors (structure, doping, í)

2/ Organic Electronics devices (OLED, OPV, OFET)

design, fabrication and operation