

## **Plasmonics and Nanophotonics (3 ECTS)**

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### **Objectives :**

This course is designed to provide students with a solid grounding in selected areas of nanophotonics, which has been expanding rapidly over the past fifteen years: plasmonics (localized modes, propagative modes), metamaterials, photonic crystals and their developments.

This knowledge is reinforced by its experimental application, enabling students to acquire operational skills in this field.

### **Contents :**

- Localized plasmon (principle, properties, influence of morphological parameters, applications of near-field exaltation to color, photo-induced energy exchange, electronic dynamics, photothermal conversion and applications)
- Propagative plasmon (principle and applications of SPP, spaser...), metamaterials, metasurfaces, nano-antennas
- Nanophotonics (Bloch modes, band structure, bandgap, cavities, defect modes, 2D photonic crystals, guiding, introduction to cavity electrodynamics, fabrication and digital tools)
- Two sessions of practical work

**Place :** Jussieu