

Master Physique fondamentale et applications

Photon spectroscopy

Informations

Composante : Faculté des Sciences

Responsable

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Langue(s) d'enseignement

Anglais

Contenu

Photonics Spectroscopy is based on the interaction between light and matter. A knowledge of the molecule structure and matter physics is needed to understand different types of interaction processes.

The main objective of this course is to give students a fundamental basic understanding of the light-matter interaction processes used in spectroscopy.

- Molecular structure (2h)
- InfraRed absorption (4h)
- Raman scattering – point group symmetries (4h)
- Fluorescence (2h)
- Nonlinear optics: second harmonic and sum frequency generation, coherent Raman scattering (4h)

Compétences à acquérir

The students

- understand the different states of matter and what give materials their properties
- can describe the different processes, their usefulness, their advantages, drawbacks for spectroscopy or imaging purpose.
- are familiar with light matter interaction

Modalités d'organisation

Two hours sessions of mixed courses and tutorials

Bibliographie, lectures recommandées

- Principles of Fluorescence Spectroscopy, Lakowic
- Nonlinear optics, Boyd
- Symmetry and spectroscopy, Bertolucci

Pré-requis obligatoires

- Physics for Photonics 1
- Introductory Quantum Mechanics
- Solid mathematical background
- Imaging and systems in optics

VOLUME HORAIRE

- Volume total: 16 heures
- Cours magistraux: 16 heures

Codes Apogée

- SPFBU34J [ELP]

Pour plus d'informations

[Aller sur le site de l'offre de formation...](#)



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