

Nuclear magnetic resonance

 **ECTS**
3 crédits**Etablissement(s)**
UFR Chimie,
UFR des
Sciences
fondamentales
et biomédicales**Volume horaire**
24h**Période de
l'année**
Semestre 2

En bref

- **Langue(s) d'enseignement:** English
- **Forme d'enseignement :** Cours magistral, Travaux dirigés & Travaux pratiques
- **Ouvert aux étudiants en échange:** Non

Présentation

DESCRIPTION

This lecture will introduce the main features of NMR pulse sequences. A simplified theoretical formalism will be developed to describe and understand the evolution of macroscopic nuclear magnetization during the NMR experiment. The fundamental concept of multi-dimensional NMR will be introduced. Heteronuclear NMR will be addressed: the sensitivity and the quality of the data that are available for a selection of heteronuclei in the field of organic chemistry will be discussed. Finally, nuclear spin relaxation will be introduced, and its application to the determination of molecular dynamics and self-diffusion processes will be described. Tutorials will allow for completing theoretical concepts with exercises focused on applications. A practical session will allow students for applying the acquired knowledge to the acquisition of data targeting dynamic and/or structural analysis. Basis of solid-State NMR will also be introduced.

Content:

Pulsed NMR and Fourier Transform

- Magnetic Resonance Phenomenon
- What Do We Detect in NMR Spectroscopy?
- The NMR Spectrometer
- Pulsed NMR

Multi-dimensional NMR

Pour en savoir plus, rendez-vous sur > u-paris.fr/choisir-sa-formation

- Principle of Multi-Dimensional NMR
- Implementation of a 2D NMR Experiment
- Analytical Strategies in 2D NMR

Relaxation

- Principle of Nuclear Relaxation
- Cross Relaxation

Introduction to Solid-State NMR

HEURES D'ENSEIGNEMENT

Nuclear magnetic resonance	Cours Magistral	12h
Nuclear magnetic resonance	Travaux Dirigés	8h
Nuclear magnetic resonance	Travaux Pratiques	4h

PRÉ-REQUIS OBLIGATOIRES

Fundamentals of NMR: magnetic properties of the nucleus, Zeeman effect, chemical shift, scalar spin-spin coupling. Dynamic process in molecular samples

En bref

CONTACTS

Responsable pédagogique

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