Lecture « Observing Ultrafast Phenomena »

Ultrafast light-induced phenomena are ubiquitous in molecules, metals, semiconductors and quantum materials at large. The tens of femto- to picosecond timescale is the natural timescale for motion of electrons and atoms. Femtosecond laser pulses create out-of-equilibrium conditions, and in the case of molecules, the absorbed photon energy is often used for photo-chemical transformations like photosynthesis or -catalysis.

Thanks to a series of Nobel prizes awarded over the last 35 years, ultrafast science is a largely established field of research with a large range of applications, like the development and improvement of functional molecular materials.

In this new lecture the students will learn:

- a) How femtosecond pulses are produced
- b) How ultrafast spectroscopy reveals the light-induced ultrafast phenomena
- c) About some of the most prominent examples of ultrafast molecular photochemistry
- d) How these processes are described by the theory of ultrafast light-matter interactions

The lecture will be given by two experts, Jérémie LEONARD and Stefan HAACKE (IPCMS, UMR7504), who are active in the field of ultrafast processes of (bio-) molecular systems and functional materials since more than 20 years.

Dates:

- 2 lectures on **26 and on 28 May 20**25 From 10h00 to 12h00
- 2 lectures on 3 and 6 June 2025
 03 June : 14H00 to 16H00
 06 June : 10H00 to 12H00
- 2 lectures on **11 and 13 June 2025**
- From 10h00 to 12h00

Venue : Auditorium, IPCMS (23 rue du Loess, Strasbourg)

Validation : 12 h. (transversal)