



Chemistry  
GRADUATE SCHOOL

Université  
Paris Cité



## Summer School 2026

Program July 15<sup>th</sup> and 16<sup>th</sup>

### *Emerging Frontiers in Nanomaterials: From Design to Function*

#### Learning Objectives

- Provide an integrated and modern overview of nanomaterials science
- Introduce emerging concepts (active nano-objects, quantum materials, programmable matter, etc.)
- Present advanced synthesis and characterization tools
- Highlight applications in energy, health, electronics, and environment
- Train PhD students and Master's students in an interdisciplinary approach

#### Opening Conference : *Dielectric metasurfaces: a new platform for nonlinear optics*

○Giuseppe LEO, lab. MPQ, UPC

*Metasurfaces are emblematic of next-generation materials because they are engineered, programmable, multifunctional, and ultra-compact, shifting the focus from discovering materials to designing them with specific functions in mind. Metasurfaces are nanostructured materials that enable unprecedented control over light, going far beyond conventional optical components. The goal is to provide conceptual tools to help integrate these emerging photonic platforms into modern chemistry research, particularly at the interface with materials science. Metasurfaces sit at the intersection of physics, chemistry, and materials science. They can be combined with functional materials (molecules, 2D materials, catalysts), making them attractive for sensing, photochemistry, and spectroscopy.*

#### Symposium 1 : **Advanced and Emerging Nanomaterials – From Design to Function**

○Clémence Sicard (OK mais pas libre le 15 matin **OK pour le 16 à 8h30**), MOF et matériel biologiques.

○Caroline Salzemann, MONARIS, SU

○matériaux 2D: **Julien Chaste** - CNRS researcher Univ. Paris Saclay / C2N / Groupe Mat

## Symposium 2 : Multiscale Characterization and Advanced Instrumentation

- Louis Godeffroy CR à l'ENS dans l'équipe de Lydéric Bocquet,
- Débora Pierucci, Institut des NanoSciences de Paris (INSP), Synchrotron
- Nathaly Ortiz Pena, MPQ, UPCités, TEM (16/07, pas libre le 15)

## Symposium 3 : Applications, Innovation, and Outlook

### Collaborative Workshop

#### Prospective Hackathon – Nanomaterial for Global Health 2035

***Objective** : To engage school participants in a hands-on, collaborative exercise where they envision and design innovative material and its fabrication technics for global health challenges. The workshop will encourage strategic thinking, interdisciplinary collaboration, and futuristic problem-solving.*