# Les mardis de L'IAB



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GOLD, LANTHANIDES, AND FLUOROPHORES IN PLASTIC: POLYMERIC NANOPARTICLES FOR IN VITRO AND IN VIVO BIOIMAGING

### 10.JUNE 2025 - 11 AM - LECTURE HALL

Luminescence based bioimaging and sensing are powerful tools for advancing in the understanding of biological structures and processes, the behavior of biomaterials in the body, and in biomedicine. A key to achieve this is the design of bright and biocompatible probes that allow studying complex biological systems with high precision. One way of achieving probes with very high brightness with desired physicochemical and optical properties is to encapsulate high amounts - hundreds to ten thousands - of emitters, e.g. fluorophores, gold nanoclusters or lanthanide complexes, within polymer nanoparticles.

Here, the design principles for such luminescent nanoprobes including ways to control their brightness, size and surface properties will be presented, and their implication for diffusion, entry, and intracellular behaviour will be discussed. The potential of such polymer nanoparticles in bioimaging applications will be evaluated. Recent developments of NPs for background-free imaging in complex biological environments using Short Wave InfraRed (SWIR, or NIR II, 1000 – 1700 nm) or molecular upconversion luminescence will be introduced as a way towards single particle in vivo imaging.

#### Invited by : Xavier Le Guevel

Twitter : IAB\_Officiel Website <u>: https://iab-grenoble.fr/</u>

Allée des Alpes, 38700 La Tronche (tram line B, stop : Grand Sablon) The seminar is followed by discussions and exchanges with the speaker and a sandwich buffet is offered



