Luminescent (nano)probes for quantitative imaging

Fluorescence imaging is well known as a facile, relatively cheap, fast, and sensitive set of techniques to obtain insightful information on a variety of samples. Our endeavors aim to design probes, also based on nanoarchitectures, that allow to obtain quantitative information from microscopy data.

We are developing new probes based on dye-functionalized biopolymers and on aggregation-induced emission luminogens (AIEgens), which we design and test for the following applications, that will be discussed in detail:

(1) detection of nanoplastics in environmental aqueous samples;

(2) monitoring early-stage protein aggregation;

(3) monitoring chain mobility transitions in polymers, both isothermal and as a function of temperature.