

# Symposium

from 8th to the 12th september 2014

Monday 8<sup>th</sup> September

2:00 – 3:00 pm

Topic : High resolution optical microscopy

Laurent Cognet, LP2N

[laurent.cognet@u-bordeaux.fr](mailto:laurent.cognet@u-bordeaux.fr)

**ABSTRACT** : Over the last years, high-resolution optical microscopy techniques have revolutionized imaging capabilities offered by far-field optical microscopy in complex environments. The development of these newly developed techniques was mainly driven by the need for improved resolutions to study biological processes in live samples. In particular, several super-resolution microscopy techniques were invented to surpass the diffraction limit, thus allowing to push optical resolutions down to the scale of individual biomolecules in order to give access to nanoscale molecular organizations. In this introductory course I will present the main state-of-the-art optical methods that allow achieving such improved resolutions in the far-field. They are based on controlling fluorescence emission volumes to highly localized regions, on using structured illumination schemes or on stochastic detection of single emitters. These techniques will be described and compare in terms of instrumentation and capabilities.