UMR 7645

Laboratoire d'Optique et Biosciences
Nanoimaging –Cell dyanmics and quantiative biology team

U1182

Post-doctoral position for ultra-sensitive optical detection of viral RNA based on luminescent lanthanide nanoparticles

The Optics and Biosciences Laboratory (LOB, Ecole Polytechnique, CNRS UMR 7645, INSERM U1182) is developing a disrupting technology for the *in vitro* diagnosis based on luminescent rare-earth-based nanoparticle detection, in collaboration with the LumediX start-up (a spin-off of the team, created in 2018). After the implementation of sensitive protein detection either under ELISA or Lateral Flow Assay formats, we propose a post-doctoral fellowship on the ultra-sensitive viral RNA optical detection, both for SARS-CoV-2 and hemorrhagic fevers. This project aims at (i) designing the methodologies for nanoparticle based nucleic acid detection and (ii) developing a portable optical set-up for an efficient and background-free nanoparticle detection based on a time-resolved approach, in order to achieve ultra-high sensitivity in actual autofluorescent and/or diffusing biological samples. The ultimate goal of this project is thus to obtain a device for fast, sensitive and multiplexed virus identification, which could be deployed in low-tech environments for accurate *in situ* diagnosis.

The applicant should have : (i) a thesis in the following domains: optics, biophysics, cell or molecular biology, (ii) an experience in one, or preferably several of these domains and (iii) a strong interest for fundamental and applied research in an interdisciplinary environment.

Project duration : 2 years.

Starting date : as soon as possible

Location: Laboratoire Optique et Biosciences – Ecole Polytechnique – Palaiseau, France

Contacts:

Cedric Bouzigues, cedric.bouzigues@polytechnique.edu

Antigoni Alexandrou, antigoni.alexandrou@polytechnique.edu