



école  
normale  
supérieure  
paris-saclay



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## Post-doctoral position available:

### *“Multiscale study of mechanofluorochromic molecular materials”*

– Salary ~2000€ net income per month –

**Keywords:** AFM, fluorescence, nanomaterials

**Context:** the Laboratory of Supramolecular and Macromolecular Photophysics and Photochemistry (PPSM, CNRS UMR 8531), located at École Normale Supérieure Paris-Saclay (Cachan) has a well-established experience in the field of design and spectroscopy of multifunctional photoactive materials. MECHANO-FLUO is a research project funded by the European Research Council (ERC StG-2016 - 715757), focused on mechanofluorochromic molecular materials, *i.e.* fluorescent materials which fluorescence emission changes upon application of a mechanical stimulus. The MECHANO-FLUO project aims at preparing mechanofluorochromic molecules and materials, understand and tune their mechano-responsive photophysical properties, and implement these new materials as quantitative mechanical force sensors.

**Position available:** within this context, we are involved in the comprehensive study of mechanofluorochromic molecular materials, both at the macro- and the nanoscale, in order to shine light on the mechanisms of mechanofluorochromic properties. One of our targets is related to the amplification effect of the mechanofluorochromic response at the nanolevel. This investigation can be performed using a home-made optical microscope combined with an atomic force microscope (AFM), and we have already demonstrated a mechanofluorochromic response at the nanoscale on two different compounds. Consequently, the scientific target of the post-doctoral work will be devoted to the following aspects:

- Fabrication of mechanofluorochromic samples (bulk materials and nano-systems), using molecular derivatives already synthesized in our team
- AFM and fluorescence microscopy studies, topology and photophysical correlation
- Force- and temperature-induced fluorescence characterizations, from the macro- to the nanoscale
- Structure-properties relationship investigations

**Profile:** applicants must be experienced in AFM and/or fluorescence microscopy and have a strong interest in interdisciplinary research projects. Knowledge in the elaboration, photophysics and characterization of organic materials will be appreciated.

**Duration:** one to three years (position available immediately)

#### **Contact:**

Interested candidates are encouraged to submit their CV along with a list of publications and reference contacts to:

Dr. Clémence Allain ([callain@ppsm.ens-cachan.fr](mailto:callain@ppsm.ens-cachan.fr)), Dr. Rémi Métivier ([metivier@ppsm.ens-cachan.fr](mailto:metivier@ppsm.ens-cachan.fr))