

Postdoc position € 12 months

Optical imaging and spectroscopy of individual biomolecules during their translocation through a carbon nanotube

Location: Laboratoire Charles Coulomb, University of Montpellier & CNRS, Montpellier, France

Project description

The project aims at detecting and identifying short chains of biopolymers during their electrophoretic transport through carbon nanotubes (CNT). Our study will couple two original optical methods (absorption spectroscopy, polarization imaging) to detect the transport of individual biomolecules and study their interaction with the CNT. The atomic structure of each CNT and its interaction with its environment will be studied by resonance Raman spectroscopy. DNA oligonucleotides and Tau proteins will be used as model biopolymers to study the influence of the length, nucleotide/amino-acid sequence, chemical modification (eg methylation) and charge density (eg phosphorylation rate) of the molecular chain.

The research will be based at Laboratory Charles Coulomb, a joint research centre of the University of Montpellier and of the French National Centre of Scientific Research (CNRS) which is the leading French research institution for Chemistry, Physics and Nanoscience. The project will be hosted in the team %Nanostuctures and Spectroscopy+which has a strong expertise in the fabrication and study of nanofluidic devices based on carbon nanotubes.

Profile

Candidates must have a PhD in Physics, Chemistry, Biophysics or Materials science. A strong experience in the optical study of individual biomolecules or nanostructures is compulsory. Self-motivation, taste for experimental work, analysis skills and strong English communication skills are key aspects.

Application date: before 17 October 2016 (NB: due to funding rules, later applications will not be considered)

Starting date: between 1 January 2017 and 30 April 2017 (NB: strict dates imposed by funding rules)

Duration: 12 months

Contact: Dr Vincent Jourdain (vincent.jourdain@umontpellier.fr), Dr Thierry Michel, Pr François Henn

Website of Laboratoire Charles Coulomb:

<http://www.coulomb.univ-montp2.fr>

Web page of the host team:

<http://www.coulomb.univ-montp2.fr/-Equipe-Nanostructures->

Webpage of the University of Montpellier:

<http://www.umontpellier.fr/>

Application details: the candidate should send a **personalized motivation letter** detailing his/her interest for the project and his/her aptitudes for leading the proposed research, a **detailed CV** and the contact details of **three reference persons**. Incomplete applications will not be considered.