

Spécialité de Master « Optique, Matière, Paris »

Stage de recherche (4 mois minimum, à partir de début mars)

Proposition de stage (ne pas dépasser 1 page)

Date de la proposition : Oct. 1st, 2017

Responsable du stage / internship supervisor:			
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Nom du Laboratoire / laboratory name: Institut des Sciences Moléculaires d'Orsay (ISMO)			
Code d'identification :	UMR 8214	Organisme :	CNRS – Université Paris-Sud
Site Internet / web site:	www.ismo.u-psud.fr/		
Adresse / address:	Bât. 520, Université Paris-Sud, 91405 Orsay cedex		
Lieu du stage / internship place:	Bât. 520, Université Paris-Sud, Orsay		

Titre du stage / internship title: Electrically excited organic molecules for tomorrow's electronics
Résumé / summary
<p>Single organic molecules may become the basic components of tomorrow's electronics. Their size (~1 nm) is one order of magnitude lower than the smallest components in today's silicon electronics (~10 nm). An organic molecule can store energy by absorbing light and transfer this energy on a very short scale (~1 to 10 nm) by resonant dipole-dipole coupling to neighboring molecules, which can be used to transfer information in highly miniaturized devices. In the view of integrating organic molecules with electronics at the nanometer scale, a way to convert electrons into elementary excitations in organic molecules (excitons) must be found. One of the most promising strategies is the use of a tunnel junction, where the inelastic effects of the tunnel current can excite molecules inside the junction.</p> <p>The student will investigate the electrical excitation of organic molecules using the electrons tunneling from the tip of a scanning tunneling microscope (STM) in ultrahigh vacuum at low temperature. A model system consisting of a single molecular layer on a thin insulating film will be prepared and characterized using surface science tools (low-energy electron diffraction, STM imaging and spectroscopy, X-ray spectroscopy at the Synchrotron SOLEIL...). Thus, the properties of the system can be controlled at the atomic scale. The student will also participate to the development of an instrument allowing the collection and spectral analysis of the light emitted from below the STM tip. We are looking for a candidate who is highly motivated for experimental and instrumental work and data analysis.</p> <p>Stipend: 550 Euros per month</p>
Toutes les rubriques ci-dessous doivent obligatoirement être remplies

Ce stage pourra-t-il se prolonger en thèse ? Possibility of a PhD ? : Yes			
Si oui, financement de thèse envisagé/ financial support for the PhD: ANR			
Lumière, Matière, Interactions	<input checked="" type="checkbox"/>	Lasers, Optique, Matière	<input checked="" type="checkbox"/>

Fiche à transmettre (fichier pdf **obligatoirement**) sur le site <http://stages.master-omp.fr>