

Spécialité de Master « Optique, Matière, Paris »

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

Proposition de stage

Date de la proposition : 6/10/2016

Responsable du stage / internship supervisor:			
Nom / name:	Boer-Duchemin	Prénom/ first name :	Elizabeth
Tél :	01 69 15 73 52	Fax :	01 69 15 67 77
Courriel / mail:	Elizabeth.Boer-Duchemin@u-psud.fr		
Nom du Laboratoire / laboratory name: Institut des Sciences Moléculaires d'Orsay (ISMO)			
Code d'identification :	UMR 8214	Organisme :	CNRS / Univ Paris-Sud
Site Internet / web site:	http://www.nanosciences.ismo.u-psud.fr/spip.php?article65		
Adresse / address:	Bâtiment 210, Université Paris-Sud, 91405 Orsay Cedex		
Lieu du stage / internship place:	ISMO, Bâtiment 210, Université Paris-Sud, Orsay		

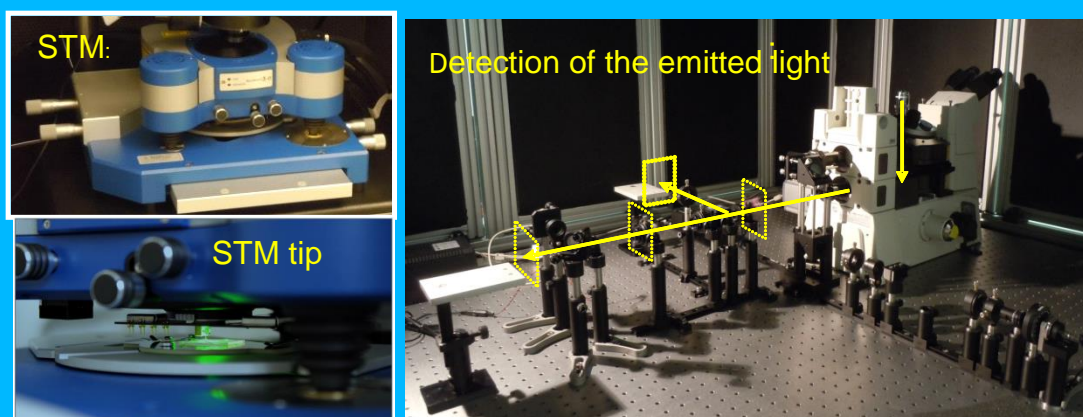
Titre du stage / internship title: **An integrated electrical plasmon nanosource**

Plasmonic nanostructures are metallic objects which have at least one nanoscale dimension (i.e., nanoparticles, nanowires, thin films, etc.) Such structures can support *surface plasmons*, i.e., collective surface electron oscillations coupled to an electromagnetic wave. Surface plasmons are intensely studied at the moment as they may one day replace electrons in electronics and photons in photonics, leading to small and fast plasmonic devices.

In this internship/thesis, the goal is to build an efficient, electrical, low-energy nanoscale source of surface plasmons that could be integrated into a plasmonic circuit. Such a nanosource could consist of a nano-antenna in which a tunnel junction is embedded.

The internship/thesis student will be involved in the plasmon nanosource design and fabrication, but will be particularly responsible for the testing of the nanosource. This will involve using a scanning tunneling microscope (STM) and atomic force microscope (AFM) coupled to an optical microscope. During this project, the student will acquire experience in optical and scanning probe microscopy (AFM/STM), optical (laser) and electrical (STM) excitation of nanostructures, plasmonics and the optical properties of metals

Experimental set-up: STM coupled to an inverted optical microscope



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 / bourse EDOM**

Lumière, Matière, Interactions	X	Lasers, Optique, Matière	X
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Fiche à transmettre (fichier pdf **obligatoirement**) sur le site <http://stages.master-omp.fr>