

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 :

Responsable du stage / internship supervisor:			
Nom / name:	DUBIN	Prénom/ first name :	FRANCOIS
Tél :	01 44 27 63 80	Fax :	
Courriel / mail:	francois.dubin@insp.jussieu.fr		
Nom du Laboratoire / laboratory name: INSP			
Code d'identification :UMR 7588	Organisme :Sorbonne University - CNRS		
Site Internet / web site:	www.insp.jussieu.fr		
Adresse / address:	4 place Jussieu, 75005 Paris		
Lieu du stage / internship place:	Jussieu		

Titre du stage / internship title: Trapping and Cooling single Rubidium atoms
<p>Here we propose a research training to develop an experiment where single Rubidium atoms are laser cooled and trapped optically under ultra-high vacuum conditions. This will be achieved by realising a cold atomic vapour, using a magneto-optical trap where a set of six counter-propagating cooling laser beams are intersected at the zero-crossing point of a magnetic field gradient. From the atomic vapour, an individual atom can then be isolated by using an additional tightly focussed laser beam, that is an optical tweezer, where at most a single atom is trapped and then potentially manipulated.</p> <p>The research training aims at acquiring the experimental techniques necessary to characterise atomic trapping , for example by measuring the number of atoms confined in the magneto-optical trap or the lifetime of a single atom in the optical tweezer, as well as to test the transport of single atoms in moving optical tweezers. The student will have the opportunity to contribute to the early stage of experimental developments, a situation particularly favourable to acquire solid experimental background.</p> <p>Longer term perspectives of the proposed research, beyond this particular training, include the trapping of single atoms in the near-field of photonic nanostructures, that is at distances of around 50 to 100 nm from the surface of a photonic crystal. Applicants willing to acquire knowledge regarding the design and the fabrication of photonic devices, using nano-fabrication techniques, are then welcome.</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: Doctoral school

Lumière, Matière, Interactions		Lasers, Optique, Matière	
--------------------------------	--	--------------------------	--

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