

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 : 9/10/15

Responsable du stage / internship supervisor:	
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Lieu du stage / internship place: Collège de France	

Titre du stage / internship title: Trapped circular atoms for cavity QED and atomic state engineering
Résumé / summary <p>Rydberg atoms are remarkable tools for fundamental quantum studies. Their rich level structure opens the way to exotic quantum states engineering for quantum enabled metrological measurements of electric and magnetic fields and for fundamental decoherence studies. Their very strong coupling to microwave cavities is also ideal to tailor quantum states of the cavity field, for instance through quantum Zeno dynamics. Most of these experiments require atoms at a very low velocity, to increase the atom-cavity interaction time or to limit the adverse effects of the unavoidable fields spatial inhomogeneity. We are thus setting up an experiment with cold Rydberg atoms in an atomic fountain arrangement. After an initial training on this set-up, this experimental work will push the experiment one step beyond, by laser-trapping high angular momentum (circular) Rydberg atoms in a cavity. The Rydberg atoms will then be kept at rest enabling advanced manipulation of the atomic and cavity field quantum states.</p>
Toutes les rubriques ci-dessous doivent obligatoirement être remplies

Ce stage pourra-t-il se prolonger en thèse ? Possibility of a PhD ? : OUI			
Si oui, financement de thèse envisagé/ financial support for the PhD: EDPIF			
Lumière, Matière, Interactions	X	Lasers, Optique, Matière	X

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