

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

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Lieu du stage / internship place: Collège de France	

Titre du stage / internship title: Quantum simulation with chains of trapped Rydberg atoms
Résumé / summary <p>The dynamics of a quantum system, particularly in condensed matter, can be utterly complex, due to the huge size of its Hilbert space. Quantum simulation aims at emulating this dynamics with a simpler system, of which all parameters are under control and on which all relevant observables can be measured. Quantum simulation is the focus of an intense activity, particularly with cold atoms or trapped ions. We propose to explore an alternate, promising route, based on cold atomic ensembles in Rydberg levels, coupled by van der Waals dipole-dipole interaction. This experimental work will explore quantum transport with small chains of ordinary Rydberg atoms. The final goal is to realize a regular chain of high-angular-momentum (circular) Rydberg atoms in an optical lattice, inside a spontaneous-emission-inhibiting structure. The long time quantum dynamics of large chains of atoms, with a complete read-out of the final state, will be explored.</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>