

Spécialité de Master « Optique, Matière, Paris »

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

Proposition de stage

Date de la proposition : 05/10/2018

Responsable du stage / internship supervisor:			
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Adresse / address: 4 place Jussieu 75005 Paris			
Lieu du stage / internship place: INSP			

Titre du stage / internship title: Harvesting and Studying Magnetic Light Energy

Light is both made of an electric and a magnetic field, and the energy that light carries is actually perfectly shared between these two fields. Nevertheless, nowadays, the interactions between light and matter, that exists everywhere (photosynthesis, in our eyes, to create a rainbow and so on), are often considered as only due to the electric field of light, neglecting its magnetic counterpart.

At the interface between nanophotonics (optics at nanometer scales) and quantum optics (optics of energy quanta), this master project consists in using metallic nanostructures, known as optical nanoantennas, to isolate and enhance the optical magnetic field with respect to its electric counterpart. From there, a luminescent nanoparticle will be placed, using a near field optical microscope, in the center of the magnetic hot spot, in order to reveal the coupling between the 'magnetic light' and matter (figure 1).

This experimental master project is part of a complete new field of research with high potential both in terms of scientific publications and possible applications.

The master student will work in close collaboration with Cyrine Ernandes, third year PhD student, and Mathieu Mivelle, CNRS Researcher.

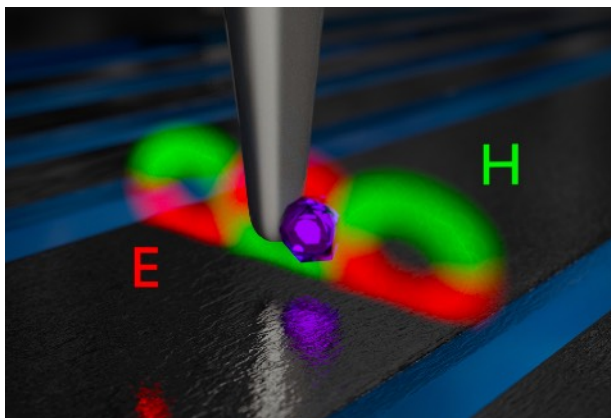


Figure 1. Illustration of a nanoparticle (purple) coupled to the magnetic or electric optical field around a photonic nanostructure.

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: Ecole doctorale ou projet

Lumière, Matière, Interactions

Lasers, Optique, Matière