

# Spécialité de Master « Optique, Matière, Plasmas »

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

Proposition de stage (**ne pas dépasser 1 page**)

Date de la proposition :

<b>Responsable du stage / internship supervisor:</b>			
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<b>Nom du Laboratoire / laboratory name:</b>			
Code d'identification :	CNRS UPR3346	Organisme :	Institut Pprime
Site Internet / web site:	www.pprime.fr		
Adresse / address:	Boulevard Marie et Pierre Curie, BP 30179, F86962 Futuroscope Chasseneuil		
Lieu du stage / internship place:	Département Fluides, Thermique et Combustion de l'Institut Pprime		

<b>Titre du stage / internship title:</b>
Résumé / summary
<p>The interaction of plasmas with solid interfaces is a subject of increasing importance because of the rise of low-temperature atmospheric-pressure plasma (APP) physics as a major field. The interest in APPs has been driven by numerous potential applications in combustion, aerodynamics, nanotechnology, medicine, electrochemistry, water treatment, surface treatment, to name a few. Such plasmas are particularly sensitive to interface problems because of their high surface-to-volume ratios.</p> <p>The objective of this internship is to perform an initial study of the plasma interface of nanosecond repetitively pulsed (NRP) microplasmas, with an emphasis on hydrodynamic effects. Such a study requires synthesizing elements of gas discharge physics, hydrodynamics, and surface processes. As such, experiments to provide quantitative measurements on plasma properties, fluid velocity fields, and surface properties are proposed. Analysis of the results will provide insight into key processes at the plasma interface and the extended flow field.</p> <p>The internship will first involve the fabrication of the microplasma reactor, which will require the design and construction of an electrode assembly. The second phase of the internship will be an experimental study of NRP microplasmas in ambient air using at least one of the following diagnostic methods: optical emission spectroscopy, electrical measurements, particle image velocimetry, and/or Raman spectroscopy. The student can expect to gain a working knowledge of plasma physics and electrohydrodynamics, as well as practical skills in electronics, optics, and/or spectroscopy.</p> <p>Supervision of the internship will be undertaken jointly between the electrohydrodynamics (EFD) and thin films and nanostructured materials (FMMN) groups at the Institut Pprime. The student can expect to work closely with permanent staff.</p> <p>This internship is intended to enable the student to explore his/her interests in research and subsequent pursuit of a PhD can be discussed based on interest, performance, and available funding.</p>
<b>Toutes les rubriques ci-dessous doivent obligatoirement être remplies</b>

<b>Ce stage pourra-t-il se prolonger en thèse ? Possibility of a PhD ? : oui, selon conditions de financement</b>			
<b>Si oui, financement de thèse envisagé/ financial support for the PhD:</b>			
<b>Si accordé, une bourse de ministère (MESR) ou du CNRS</b>			
Lasers, Optique, Matière		Lumière, Matière : Mesures Extrêmes	
Plasmas : de l'espace au laboratoire	X		

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