

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 :

Responsable du stage / internship supervisor:			
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Nom du Laboratoire / laboratory name: Laboratoire pour l'Utilisation des lasers intenses			
Code d'identification :	UMR7605	Organisme :	CNRS
Site Internet / web site:	http://www.luli.polytechnique.fr/accueil/le-personnel/equipes-de-recherche/sources-de-particules-de-rayonnement-intenses/		
Adresse / address:	Ecole Polytechnique, Palaiseau (91)		
Lieu du stage / internship place:	Ecole Polytechnique, Palaiseau (91)		

Titre du stage / internship title: Ion beam interactions with matter
Résumé / summary
<p>The characteristics of charged particles interacting with other materials have been studied since the discovery of their existence and vast amounts of experimental data has been accumulated on this topic. However, ion interactions with dense plasmas are still untouched. The main reason is that the bunch length of existing particle sources produced by conventional accelerator (typically ns) are too long to probe such dense plasmas before they disassemble. However, many theories exist for ion interaction in warm plasmas, although unchecked. To overcome this difficulty, we have developed for several years a new, compact, low-cost, experimental platform that utilizes short pulse laser produced ion beams which have different, but complementary, characteristics compared to conventional accelerators. Such laser-based platform, by producing very short ion bunches, presents the potential to finally breakthrough in studying the temporal dynamics and interactions with plasmas. The project will focus on performing measurements of the energy loss of protons and alpha particles after passing through several types of un-heated and heated low-Z, dense gases, using a new technology that we have recently developed. We expect such data to finally allow us to benchmarking the codes and semi-empirical theories that specialize in this regime. The intern will participate to various levels in this program depending on the duration of his/her stay and his/her level.</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: bourse EDX			
Lasers, Optique, Matière		Lumière, Matière : Mesures Extrêmes	X
Plasmas : de l'espace au laboratoire			

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