# Spécialité de Master « Optique, Matière, Plasmas »

*Stage de recherche (4 mois minimum, à partir de début mars 2011)*

**Proposition de stage pour l'année 2010-2011 (ne pas dépasser 1 page)**

*Date de la proposition :*


**Responsable du stage** / *internship supervisor*:

| | | | |
|---|---|---|---|
| Nom / *name*: | Ciardi | Prénom/ *first name* : | Andrea |
| Tél : | 01 44322580 | Fax : | |
| Courriel / *mail*: | Andrea.ciardi@obspm.fr | | |

**Nom du Laboratoire** / *laboratory name*: **LERMA**

Code d'identification : umr8112 Organisme : Observaotire de Paris

Site Internet / *web site*:

Adresse / *address:* 5 Place J Jansenn, Meudon

Lieu du stage / *internship place*: **Observatoire de Paris et CEA-Gramat**


**Titre du stage** / *internship title*: **Time-resolved interferometry for dense plasmas**


Résumé / *summary*

The SPHINX pulsed-power z-pinch generator at the CEA-Gramat is the largest in Europe and one of the most powerful in the world. One of the area of research is the study of hypersonic plasma jets dynamics, which are generated using conical arrays of thin metallic wires. These long-scale (10 cm), long-lived (micro-second) radiatively cooled jets have wide use, including applications to study astrophysical jets from newly born stars. Preliminary experiments have been performed in 2010 and the student will work on analysing some of this data to better understand jet formation, and help designing diagnostics and load configurations for future experiments. The main tasks of the "stage" however will consist in helping to develop a time-resolved, laser interferometer to diagnose the electronic density profiles of the plasma jets. The work will be carried out both at the Observatoire de Paris and at the CEA-Gramat. The student will work closely with Prof. Hammer (in sabbatical from the Cornell University) for the plasma diagnostics, Dr. Ciardi for the connection of the experiments to astrophysics, and Dr. Calamy, who leads the SPHINX experiments. The student will be expected to spend a significant time at the CEA-Gramat, and should speak english fluently. We plan to open a PhD position on the subject starting in October 2011.


**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***: CEA**

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|---|---|---|---|
| Lasers et matière | **x** | Lumière, Matière : Mesures Extrêmes | |
| Optique de la science à la technologie | | Physique des plasmas | *x* |

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