

RESEARCH ENGINEER ON UHI100 EXPERIMENTAL PLATFORM (PERMANENT POSITION) – ORME DES MERISIERS H/F

General information



Reference

2023-30239

Job type

Mobility / Recruitment

Directorate

The mission of CEA's Fundamental Research Division, based at all the CEA's civilian centers, is to carry out research in line with the CEA's missions in the fields of physics, chemistry and life sciences, areas in which its excellence is recognized worldwide.

Research Unit

The Laboratory Interactions, Dynamics and Lasers (LIDYL) conducts fundamental research activities related to laser-matter interaction in the high-intensity, short-duration regime. In particular, LIDYL manages the state-of-the-art ATTOLab-Orme platform (dedicated to ultrafast dynamics studies in gas and solid phases on femtosecond and attosecond scales), and UHI100 (dedicated to radiation generation and particle acceleration by laser-matter interaction at very high intensities). This second facility is based on a 100TW Titanium-Sapphire laser, and its experimental room where the geometry and equipments were optimized to fit in the brand new renovated experimental space (Orme des Merisiers site). UHI100 is a state-of-the-art facility, able to deliver two intense, synchronized laser beams of very high intensity and ultra-high contrast. This configuration allows for a wide range of experiments in the fields of relativistic optics with plasma mirrors and laser-driven particle acceleration in dense and gaseous media.

Job description

Domain

Laser-matter interaction

Contract

Permanent position

Job type

Research Engineer on UHI100 experimental platform – location: Orme des merisiers (Saint Aubin)– Male /Female

Job status

Engineer

Detailed description

La personne recrutée aura en charge la gestion, le développement et la maîtrise de l'ensemble des équipements et des diagnostics utilisés dans le cadre de l'activité expérimentale sur l'installation UHI100, en collaboration avec l'équipe d'expérimentateurs du groupe PHI. Il accompagnera l'équipe PHI au cours des différentes campagnes expérimentales menées sur l'installation, que ce soit sur la partie « interaction laser-matière à haut contraste sur miroir plasma », ou sur la partie « accélération de particules par laser ». Elle sera également impliquée, en soutien aux équipes spécialistes laser du groupe SLIC, dans les activités d'exploitation, de maintenance et R&D de la chaîne laser elle-même, au maximum à hauteur de 50% de son temps. De par cette mission, elle assurera également l'interface entre les expérimentateurs du groupe PHI et les spécialistes laser du groupe SLIC en charge de l'exploitation du laser UHI100.

Enfin, UHI100 étant une plateforme ouverte aux utilisateurs extérieurs via des programmes nationaux et européens, la personne sélectionnée pour le poste sera également responsable de leur l'accueil.

The recruited person will be responsible for the management, development and operation of all equipment and diagnostics used for experimental activities on the UHI100 facility, in collaboration with the experimental team of the PHI group. They will support the activities of the PHI group during the experimental campaigns carried out on the facility, whether on subjects related to "high-contrast laser-matter interaction on a plasma mirror" , or on "laser particle acceleration" . They will also be involved in the operation, maintenance and R&D activities of the laser itself, by supporting the SLIC group's laser specialists up to a maximum of 50% of their time. As part of this mission, they will also act as an interface between PHI group experimentalists and SLIC group laser specialists in charge of UHI100 laser operation.

Finally, as UHI100 is a platform opened to external users via national and European programs, the person selected for the position will also be responsible for the assistance of these external users.

The tasks entrusted to the candidate will be:

- Operate the UHI100 platform.
- Manage and optimize experimental room equipment/diagnostics (optical diagnostics, particle diagnostics (electrons/ions), radiation diagnostics (XUV in particular) and develop new ones in collaboration with the experimental team of the PHI group.
- Contribute to the operation, management and R&D activities of the UHI100 laser in close collaboration with the laser operation team (SLIC group),.
- Contribute to the development of new diagnostics to improve the capabilities of the laser facility.
- Help prepare experiments and welcome external users/collaborators on the different experimental lines.
- Contribute to the research activities carried out on the UHI100 platform by the PHI group (conception of experiments, interpretation of the results ...).

Required qualification

The ideal candidate should have carried out experimental activities on one or more laser facilities, preferably femtosecond laser facilities with a peak power of 100TW class or higher.

They should master the physics of laser-matter interaction at high intensity, and they should be able to propose experimental solutions (e.g., diagnostics) relevant for this regime. They must be able to develop data analysis/processing methods to achieve a detailed understanding of the physics involved in the experiments. They will be committed to developing the facility, working in close collaboration with PHI group scientists.

Knowledge of laser optics and diagnostics, and in particular of methodologies to control the temporal contrast of the laser with plasma mirrors, will be considered as an asset.

Having a PhD thesis related to laser-driven particle acceleration or high-intensity laser-matter interaction would be a plus.

Fluency in English (spoken and written) is essential.

The candidate must be autonomous, able to adapt to different technical/scientific contexts, and capable to integrate and work in a team, and to assist new users.

Creativity is also required in terms of design, technology and experiments.

Application/selection procedure

Selection is based on an open international competition.

You must apply via the CEA website (<https://www.emploi.cea.fr/offre-de-emploi/liste-offres.aspx>) and also by sending a complete application file to jobs.lidyl@cea.fr.

The application file will contain:

- a CV ;
- a comprehensive record of professional achievements (publications, fellowship, etc....) including a short

- description of the main personal accomplishments (conceptual, technical,);
- a cover letter highlighting the motivations for applying to this position;
 - contact data for 3 professional references that could be contacted

Applications will be evaluated on the basis of the submitted files, and only shortlisted candidates will be invited for an interview.

Location

Site

Orme des Merisiers

Route du Cyclotron, 91400 Saclay, France

Candidate criteria

Languages

English fluent

Recommended qualification

Engineer or more

Position availability

from April 2024