



Job offer

Research engineer position – development of thin films materials (M/W)

Job description and environment:

A European research project (ERC, Advanced grant PlanetDive) lead by Dr G. Fiquet, in collaboration with Dr M. Harmand and Dr G. Morard, will take place at IMPMC (University Paris 6, UMR CNRS 7590 – Sorbonne Universities) starting on 1st of January 2016. This project is centered on the study of exoplanet interiors using an experimental approach, involving very high pressures and temperatures (over 500 GPa and 10 000 K). These experimental conditions will be achieved using static (diamond anvil cell) and dynamic compression tools (laser shock and laser ramp). Manufacturing samples and laser targets will be a key point for the proposed experimental approach.

The Research Engineer position will be at the center of this project; he-she will be in charge of the installation and development of the target fabrication laboratory for experiments under extreme conditions. These samples will be made of multilayer materials (several microns) with different compositions (from pure to ternary compositions) that will have to be perfectly characterized (chemical composition and thickness). He-she will be in charge of setting up and development of deposition machines (PVD and CVD) for the target fabrication (deposition of several microns of iron alloys, silicates, metals, ...; deposition of polymers; flash deposition of several nm of metals; ...). He-she will also participate to the development of different diagnostics to characterize these targets (chemical composition, thickness, rugosity of the surface, crystallographic orientation) using electron microscopy or X-ray diffraction tools available at the IMPMC laboratory. His-her work will be done in strong collaboration the other member of the research team.

Main activities:

- Setting up a target fabrication laboratory for experiments under extreme conditions
- Support of deposition machines (PVD and CVD)
- Target characterization: control of the targets (chemical composition, thickness, rugosity of the surface, crystallographic orientation) regarding specifications required
- Development of mechanical systems for sample holding, putting together targets using specific techniques (micromanipulators, microscopes, UV glue, etc ...)
- Precision cutting, polishing, gluing
- Design of complex target assembly
- Setting up of documentation: file management and technical support
- Day-to-day management: ordering and storing of targets, material maintenance, and provision of consumables.

Expected competences:

- Experience on CVD and PVD deposition machines welcomed.
- Skills for manipulation of small objects, precision manipulation under microscope
- Basic notions in physics, optics, laser, instrumentation, vacuum techniques, electronics and computing welcomed.
- General knowledge in gluing, cutting and physics of materials.
- General knowledge concerning health and safety related to these activities

- Independence
- Good command of English to evolve in an international research team.

Education degree:

Masters degree or engineering school diploma. Exceptional applicants with lower diplomas can also be taken into account.

Miscellaneous:

- Contract type: one year contract renewable up to 3 times.
- Salary between 1900 and 2300 euros/months after taxes depending on the diploma and years of experience.

Contact:

For more information's on the job, please contact Guillaume Morard :
guillaume.morard@impmc.upmc.fr.

The job application must be submitted to the following email address:
erc-planetdive@impmc.upmc.fr

Deadline to apply: 1st March 2016