



Laboratoire des Sciences des Procédés et des Matériaux – UPR 3407.
Institut des Sciences de l'Ingénierie et des Systèmes (INSIS)



UNIVERSITÉ
SORBONNE
PARIS NORD

Post-doctoral position: diamond-based electronic and quantum devices

Missions

The recruited person will participate in various ongoing projects within the Diamond and Carbon Materials (DCM) team focusing on the integration of diamond layers in devices for power electronics (PEPR Électronique FrenchDiam) and quantum technologies (ANR projects TRAMPOLINE and SINFONIA). These projects require, initially, to master the process of developing single crystal diamond layers doped with boron, for integration into vertical power components, and doped with nitrogen, for the creation of colored centers with quantum properties that can be exploited in different fields, notably in magnetometry. Secondly, the design of demonstrators using clean room technologies should make it possible to link the physicochemical and usage properties of diamond single crystals to the characteristics of electronic and quantum devices and to demonstrate the added value of diamond compared to conventional materials.

Activities

The post-doctoral fellow will ensure the running of research projects by participating in the various planned tasks, in particular:

- Optimization of the process for producing single crystal diamond layers doped with boron and nitrogen;
- Physico-chemical and microstructural characterization of the layers produced (SEM, optical microscopy, Raman spectroscopy, electrical measurements, ODMR, etc.);
- Micro- and nano-manufacturing in clean rooms;
- Characterization of the electronic and quantum demonstrators produced.

Skills

- Knowledge of materials deposition techniques, more particularly microwave plasma assisted CVD techniques;
- Electrical, quantum and microstructural characterizations of materials;
- Materials physics for wide gap electronics and/or quantum technologies;
- Micro-and nano-technologies in clean rooms.

Know how to be

- Ability to work in a team;
- Spirit of initiative and autonomy in work;
- Sense of organization;
- Ability to respect directives and specifications;
- Flexibility and adaptability.

Work context

The work will be carried out at the Process and Materials Sciences Laboratory, CNRS LSPM UPR3407, on the Villetaneuse campus (University Sorbonne Paris Nord). The postdoctoral fellow will work within the PPANAM axis (Plasma Processes, Nanostructures and Thin Films) and more particularly the DCM Research operation (Diamond and Carbon Materials). The position is located in a sector falling under the protection of scientific and technical potential (PPST), and therefore requires, in accordance with regulations, that your arrival be authorized by the competent authority of the MESR.

Duration : 12 mois

Contract Period: 12 months

Expected date of employment: 1 January 2025

Proportion of work: Full time

Salary: Between €3,081 and €4,291 gross monthly, depending on experience.

Desired level of education: PhD

Contacts:

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To apply: <https://emploi.cnrs.fr/Offres/CDD/UPR3407-FABBEN-003/Default.aspx>