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Post-doctoral position in spin-orbit torque engineering for spintronic sensors (M/F)

This offer is available in the following languages:



Postuler

Date Limite Candidature : jeudi 4 décembre 2025 23:59:00 heure de Paris

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Informations générales

Intitulé de l'offre : Post-doctoral position in spin-orbit torque engineering for spintronic sensors (M/F) (H/F)

Référence : UMR137-HENJAF-016

Nombre de Postes : 1

Lieu de travail : PALAISEAU

Date de publication : jeudi 13 novembre 2025

Type de contrat : Chercheur en contrat CDD

Durée du contrat : 12 mois

Date d'embauche prévue : 1 février 2026

Quotité de travail : Complet

Rémunération : between €3,081.33 and €4,291.70 gross salary/month (depending on experience)

Niveau d'études souhaité : Doctorat

Expérience souhaitée : 1 à 4 années

Section(s) CN : 03 - Matière condensée : structures et propriétés électroniques

Missions

The missions of the post-doc candidate will be to define and develop multilayers integrating magnetic materials and light metals for magnetic torque engineering. He/she will also be responsible for lithographic manufacturing of the samples. An important objective will be to optimize magnetic torques on structures such as spintronic tunnel sensor electrodes. The strategy will be to engineer the local electrical conductivity in order to exploit new potential sources of spin-orbit (SO) couples within the ferromagnetic material. The postdoc recruited will have to qualify and quantify the various components of SO couples by f-2f second harmonic measurements (or possibly STT-FMR) and/or by measuring critical magnetization reversal currents in well-identified structures and stacks.

Activités

The candidate's activities will include :

- Ensure the growth and characterization of nanometer-thick multilayers combining 3d ferromagnetic materials, 5d heavy materials and light materials by sputtering (also possibly rare earth materials).
- Guarantee microfabrication using UV lithography and/or e-beam electron lithography techniques.
- Measure spin-orbit (SOT) and orbital magnetic torques using f-2f second harmonic techniques (or STT-FMR).
- Analyze experimental data
- Present results at international conferences
- Present results in the form of scientific articles

Compétences

The post-doc candidate will need to demonstrate competence/skills in the following areas:

- materials physics and solid state physics.
- spintronics/orbitronics
- materials and multilayer engineering
- spin-orbit pair physics (SOT)
- second harmonic measurements (possibly STT-FMR) and data processing
- Nanofabrication by UV lithography (and possibly electronic e-beam lithography)

Contexte de travail

The post-doc will work on the experimental benches of the Albert Fert Laboratory, CNRS, Thales on heterostructures produced in the laboratory or prepared in external laboratories as part of scientific collaborations (CEA-SPEC, Gif/Yvette).

The post-doc is expected to produce monthly scientific reports, either as oral presentations at thematic meetings, or as written reports for circulation within the supervisory team.

Le poste se situe dans un secteur relevant de la protection du potentiel scientifique et technique (PPST), et nécessite donc, conformément à la réglementation, que votre arrivée soit autorisée par l'autorité compétente du MESR.

Contraintes et risques

No constraint