



## Recruiting a **postdoc** on **Modeling for spintronics: simulation at the interface between micromagnetism and electron microscopy**

### SPINTEC

Positioned at the crossroad of science and technology, **SPINTEC (SPINtronique et TEchnologie des Composants, <https://www.spintec.fr>)** is one of the leading spintronics research laboratories worldwide. SPINTEC was created in 2002 and rapidly expanded to currently exceed 100 persons, of which 53 permanent staff from CEA, CNRS and Grenoble-Alpes University. The lab aims at bridging the gap between fundamental research and applications in spin electronics. As such, the outcome of the laboratory is not only scientific publications and communications at international conferences, but also a consistent patent portfolio and implementation of relevant functional demonstrators and device nanofabrication. The lab has launched six start-up companies in the past 15 years, and another two are in the pipes. This synergy has placed SPINTEC at the forefront of spintronics research, having actively contributed to the emergence in industry of spintronic memories called MRAM, on which the laboratory holds key patents and develops further exploiting magnetic tunnel junctions for various technologies.

#### **SPINTEC benefits from an idea local environment with a large spectrum of opportunities:**

- SPINTEC belongs with the Interdisciplinary Research Institute of Grenoble ([IRIG](#)), gathering 10 laboratories with of total of 1000 researchers, technicians, doctoral and post-doctoral students. IRIG covers interdisciplinary skills (physics, chemistry, biology), and provides access to cutting-edge scientific and technological platforms such as PTA cleanroom, and nano-characterization PFNC.
- The [Giant Campus](#) Site (also called Scientific Presqu'île) offers an exceptional scientific environment with partners such as CEA-LETI, Néel Institute and major European facilities (ESRF and ILL on the EPN Campus).
- The entire Campus of [Grenoble Alpes University](#), whose excellence was recently recognized by the national IDEX award, bears a collective dynamics of research challenges in all fields of knowledge.

**Grenoble is a cosmopolitan city at the heart of the French Alps.** One out of five people living there works in the field of research, innovation or higher education. In addition, Grenoble offers various cultural and sportive opportunities all year round.

### CONTEXT

The aim of this project is to develop a digital twin for spintronics - a platform for simulating and characterising a magnetic object from its theoretical design through to analysis by magnetic microscopy. To achieve this, it is necessary to bring together, make compatible and carry out the calibration between different existing codes that are used during the key stages: micromagnetic simulation, conversion of theoretical data into experimental contrast and acquisition of experimental images. The work will be carried out by three teams: theory/simulation, spin textures within the Spintronics and Component Technology Laboratory (SPINTEC) and micro- and nanomagnetism at the Institut Néel.

### POSITION

We expect that the candidate has knowledge and practical experience of micromagnetic simulations, programming in Python, advanced vector data analysis software (e.g. Paraview), knowledge of condensed matter physics, magnetism and/or electron microscopy.

The applicant is expected to

- contribute to the development of calculation code extensions,
- carry out and analyze micromagnetic simulations,
- contribute to the post-treatment of experimental microscopy images,
- contribute to the development of a man-machine interface in Python,
- contribute to the writing of the user manual,
- Write reports, take active part in working meetings and in the supervision of students

**How to apply:** please, send your CV to [daria.gusakova@cea.fr](mailto:daria.gusakova@cea.fr)