



Post-doctoral position
Finite element modeling for spintronics

SPINTEC offers a theoretical post-doctoral position in finite element modeling for Spintronics. The objective of our project is to combine key ingredients for modern Spintronics and SpinOrbitronics modeling within the original finite element based multi-physics software. The final goal is to make this software and its documentation accessible to a large community via the dedicated interface. In addition to conventional Spintronics phenomena and micromagnetics treated by our team previously [1,2], the advanced spin transport model should include the spin-orbit effects and the current-in-plane ballistic corrections inspired from the spin-dependent Boltzmann transport equations.

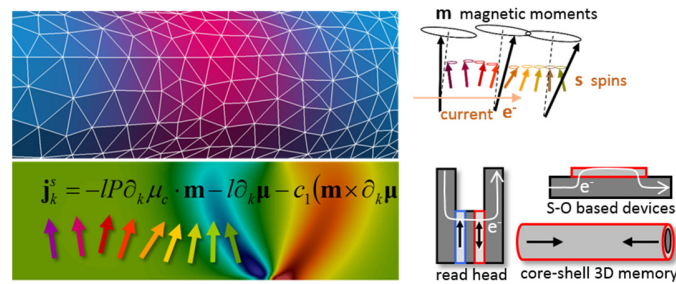


Figure: (Top Left) Non-regular finite element mesh, (Top Right) Mutual interaction between spin and magnetic sub-systems, (Bottom Left) Spatial distribution of spins for the transverse domain wall magnetic texture, (Bottom Right) Spintronics and SpinOrbitronics devices.

The postdoc will be involved in several steps required for the numerical tool development: from spin transport equations implementation to reliability tests and technical documentation writing. We are looking for motivated, autonomous and highly proficient in written English person. The candidate should possess a PhD in solid state physics or mathematics and have C++ programming experience. Knowledge of Boltzmann transport equation formalism applied to spintronics and of finite element analysis would be an asset.

Applicants are welcome to send their CV and motivation letter to Daria Gusakova at daria.gusakova@cea.fr.

[1] M. Sturma, PhD Thesis, <https://tel.archives-ouvertes.fr/tel-01250954>.
 [2] M. Sturma, C. Bellegarde, J.-C. Toussaint, D. Gusakova, Phys. Rev. B 94, 104405 (2016).