



CRANN

Postdoc position in multi-scale transport theory for spin-transfer torque devices

One postdoctoral researcher position is available from September 2015 in the CRANN Institute (www.crann.tcd.ie) at Trinity College Dublin (Ireland). This is sponsored by Science Foundation of Ireland (SFI) and aims at constructing a predictive, multi-scale, theory of spin transport and spin dynamics in nanoscale devices. In particular the project will combine electronic transport methods based on density functional theory with micromagnetic algorithms to develop a full magnetic devices simulator. The project will include a significant part of methodological algorithm development and will involve collaboration with both theoretical and experimental groups, as well as with data storage industry. The successful applicant will join a team of 2 PhD students and 1 Postdoctoral researcher and will be hosted by the *Computational Spintronics Group* of Prof. Sanvito at Trinity College Dublin (www.spincomp.eu). The position is tenable for up to 4 years.

The main theoretical tool will be density functional theory combined with the non-equilibrium Green's function method for transport and most of the development will be done within the *Smeagol* code (www.smeagol.tcd.ie). *Smeagol* will be interfaced with a micromagnetic simulator so that the magnetic response of a device to an electrical current will be modeled entirely from first principles.

Essential/Desirable Criteria

Strong overall motivation and a keen interest in theory and computation, as well as in interdisciplinary work between physics and materials science. Previous experience in UNIX/Linux environment and with programming in either Fortran and/or C/C++ is essential. Ability to work independently and also function as an active and efficient team player. Excellent writing skills. Previous knowledge of density functional theory and/r micromagnetic methods will be considered as an advantage.

How to apply?

Applications must include a cover letter detailing how you meet the selection criteria for the post, together with a CV and the name and contact details of referees (e-mail address). Informal enquiring and applications should be sent to:

Prof. S. Sanvito (Trinity College Dublin, sanvitos@tcd.ie)



Trinity College Dublin
The University of Dublin