MA09-029 - Micromagnetic Simulations and Computational Design of Future Devices

Abstract

The aim of this project is the unprecedented fundamental understanding of technologically relevant phenomena including spin transport and magneto-elastic phenomena using advanced numerical methods and new high performance computing. This newly gained knowledge will be incorporated into a modelling and design software for future spin-electronic/magneto-electronic devices. Information and Communication Technology (ICT) industry will benefit from this project guiding the development of emerging functional magnetic applications and potentially creating new technologies in wireless communication and sensing. Applications include tunable microwave generators for mobile phones and wireless computer networks. The key understanding of magneto-elastic phenomena will open a wide range of wireless sensor applications for measuring stress or temperature remotely, using a principle that is very similar to current article surveillance systems.

Keywords:
FEM, BEM, Micromagnetics, Spin-torque

Principal Investigator:	Gino Hrkac
Institution:	University of Sheffield (current home institution), Vienna University of Technology (project affiliation)
Further collaborators:	Dirk Praetorius (Vienna University of Technology) Thomas Schrefl (St. Pölten University of Applied Sciences) Dieter Suess (Vienna University of Technology)



Status: Completed (01.04.2010 – 31.12.2013)

Further links to the persons involved and to the project can be found under
https://wwtf.at/funding/programmes/past/ma/MA09-029/