

# Report on Workshop Computational Magnetism and Spintronics (CCMS08 = CompMag2008)

November 03-07, 2008

Sponsors: MPI-PKS, psi-k.org, and ESF

Organizers

Olle Eriksson – University of Uppsala, Sweden,

Ingrid Mertig and Peter Zahn – Martin-Luther-Universität Halle, Germany

The workshop was attended by about 90 scientist from 22 countries from Europe and overseas. They presented new theoretical developments and methods, and actual experimental results in 30 talks. Nearly all participants took the chance to present their own results on 52 posters. Younger scientist were invited to present their findings on an international podium (C. Heiliger, Cs. Jozsa, C. Ederer, V. Garcia, N. Stern). This, in addition to talks of internationally highly-ranked specialists provided an aspiring atmosphere for discussions and lively exchange of ideas, which were centered at computer simulations of known, as well as brand new spintronics phenomena. This includes the understanding of the magnetic order and dynamics of nanostructures, spin dynamics under the influence of magnetic and electrical fields, the currently discovered Spin Hall effect, and the behavior of electrons in Graphene.

The addressed topics of the invited talks were:

- Spin Hall Effect (Stern, Buhmann, Jin, Bruno)
- Graphene (Katsnelson, Józsa, Louie, Nieminen, Kelly)
- Multiferroics (Picozzi, Alexe, Ederer, Garcia, Ravindran, Dörr)
- Electronic correlation effects (Schulthess, Temmermann, Lichtenstein)
- Magnetic structures and spin dynamics (Blügel, Wulfhekel, Nordström)
- Diluted magnetic semiconductor (Sanyal, Sato)
- Spin dependent transport (Turek, Ebert, Györffy, Heiliger, Resta, Tosatti)

The intense interaction of experiment and theory will boost the field for the future. Financial support of the Max-Planck-Institute, the psi-k.org network and the ESF Activity 'Towards Atomistic Materials Design' is kindly acknowledged.

The workshop is the second in the series CompMag, which started 2006 in Jülich. It provides a European forum for the development of computational solid state physics with special emphasis on magnetism. The next meeting of the series will be organized by Stefan Blügel in Jülich in spring 2010.