

KIDS TALK

“Probing the spintronic properties of buried interfaces by extremely low energy photoelectron spectroscopy”

Speaker: Roman Fetzner, AG Aeschlimann

Abstract: State-of-the-art magnetic sensors as used e.g. in hard disk read heads consist of two ferromagnetic (FM) layers typically made of Fe or Co, separated by an insulating MgO barrier. It is predicted that implementation of half-metallic compounds like Co_2MnSi as FM electrodes should lead to a virtually infinite increase of the sensor sensitivity, since these materials exhibit a band gap at E_F for *one* spin direction.

In general, the device performance almost exclusively depends on the wavefunction symmetry and spin polarization of the electronic states at the FM/MgO *interface*. Hence direct investigation of these features would be of utmost interest. However, up to now there is no experimental technique known which allows to probe both the electronic symmetry and spin properties of such a buried interface.

In this talk we will show how spin-resolved photoelectron spectroscopy (SR-PES) is able to overcome this hindrance by using UV light of extremely low photon energy. Furthermore, this technique is applied to the $\text{Co}_2\text{MnSi}/\text{MgO}$ interface, which allows us to determine the main origin of the puzzling performance loss of Co_2MnSi -based tunnel junctions at elevated temperatures.

When: Friday, July 4th 2014, **10:00 am**

Where: Room 46-387/388

All undergraduate and graduate students as well as postdocs are welcome and encouraged to join our discussion!

For subscription to kids talk mailing list, questions, comments or suggestions: vlauer@rhrk.uni-kl.de

***** COFFEE, TEA AND COOKIES WILL BE SERVED *****

