

**Dienstag, 12.06.2012**

**Hörsaal D, Chemie Zentralbau, 17:15 Uhr**

**Sprecher: Martin Aeschlimann**  
***Technische Universität Kaiserslautern***

**Thema: Organic spintronics and the great  
potential of ferromagnetic metal-  
organic interfaces**

**Abstract:** The study of the spin properties of organic semiconductors (OSC) is recently receiving great attention. One of the most promising routes to employ them for spintronics applications is to exploit the high spin injection achievable across ferromagnetic metal-organic interfaces [1,2]. Combined with the extreme flexibility and tunability of OSC, it is expected that such hybrid interfaces will constitute a fundamental building block for advanced spintronics devices, where spin-injection is controlled by fine-tuning of the interface physical and chemical properties. An example has been recently presented in [3], where doping of the OSC copper phthalocyanine (CuPc) has been successfully used to tune the spin functionality of a cobalt-CuPc interface. In particular, the presence of a spin-polarized hybrid interface state, acting as a spin-filter at the interface, has been used to enhance the efficiency of spin injection to values above 100%. Besides the cobalt-CuPc interface, we have studied the iron-CuPc, cobalt-Tris(8-hydroxyquinolinato)aluminium (Alq3) and iron-Alq3 interfaces. The studies have been conducted by means of spin polarized scanning tunnelling microscopy and spectroscopy, spin-resolved ultraviolet photoemission spectroscopy and spin- and time-resolved two-photon photoemission.

[1] M. Cinchetti et al., Nature Materials 8, 115-119 (2009);

[2] H. Ding, et al., Phys. Rev. B 78, 075311 (2008);

[3] M. Cinchetti et al., Phys. Rev. Lett. 104, 217602 (2010).

**Organisation: T. Brixner**

Kontakt: Prof. Dr. Tobias Brixner, Institut für Physikalische und Theoretische Chemie,  
[brixner@phys-chemie.uni-wuerzburg.de](mailto:brixner@phys-chemie.uni-wuerzburg.de)

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