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Wiedner Hauptstraße 8-10/E134, 1040 Wien/Vienna, Austria – Tel: +43 1 58801 13401 / Fax: +43 1 58801 13499 – E-mail: office@iap.tuwien.ac.at / <http://www.iap.tuwien.ac.at>

IAP-SEMINAR

ANNOUNCEMENT

attention - change of day and location

- Date: **Thursday, 23.6.2016**
Time: **14:00 p.m.**
Location: **Technische Universität Wien**
yellow tower „B“, 2th floor, lecture room *FH Hörsaal 2* (room number DB02O23), 1040 Wien, Wiedner Hauptstraße 8-10
- Lecturer: **Matthias Batzill**
Department of Physics, University of South Florida, Tampa, FL 33620, USA
- Subject: **Mixed surface oxides on rutile TiO₂(011) & One-dimensional electron systems in grain boundaries of MoSe₂**
- Abstract: Materials with reduced dimensions, i.e. two- or one-dimensional, often exhibit unique structural, chemical, and electronic properties compared to bulk (3D) materials. Here I will discuss two quite diverse systems. One system is the 2D mixed surface oxide on a bulk rutile TiO₂(011) surface. In particular we investigate the formation of intermixed FeO/TiO₂(011) and VO_x/TiO₂(011) surfaces. These surfaces form complex mixed oxides without bulk counterparts and may give insight on interfaces of oxide heterostructures or surface properties of mixed oxides. The other system is the twin grain boundary in MoSe₂. These boundaries form during van der Waals epitaxy of MoSe₂ on MoS₂ or HOPG substrates. A high density and crystallographical alignment enables angle resolved photoemission (ARPES) electronic structure characterization on crystal-defects for the first time. We demonstrate that these line defects are metallic and thus exhibit properties associated with electrons confined in 1D. We show that these line defects exhibit a charge density wave transition, Tomonaga-Luttinger liquid behavior, and present evidence for spin-charge separation in these 1D electron systems.

*All interested colleagues are welcome to this seminar lecture
(45 minutes presentation followed by discussion).*

*U. Diebold e.h.
(Seminar-Chairperson)*

*H. Störi e.h.
(LVA-Leiter)*