

# **PETRA IV Workshop: “Imaging of Surfaces, Interfaces and Nanoobjects: Local Structure, Defects and Composition”**

(October 9 – October 11, 2017, FLASH SemRoom, Bldg. 28c)

## **Schedule**

**Monday, October 9, 2017**

13:00 Registration FLASH SemRoom, Bldg. 28c

**Introduction** *Chair: Vedran Vonk*

14:00 Ralf Röhlsberger (DESY Photon Science)  
Science at PETRA III + IV: Conditions and Opportunities

14:35 Andreas Stierle (DESY NanoLab, Photon Science)  
Bridging the gap between real and reciprocal space

15:10 Coffee break

**Session 1: Electrochemistry and Corrosion** *Chair: Andreas Stierle*

15:40 Jinshan Pan (KTH, Sweden)  
Microscopic and electrochemical study of corrosion of advanced alloys with heterogeneous microstructure

16:15 Frank Renner (Hasselt University, Belgium)  
Nanoscale Insights into Corrosion and Batteries

16:50 Olaf Magnussen (CAU, Germany)  
Electrochemical interface structure under reaction conditions

17:25 Ben Ocko (Brookhaven National Laboratory, USA)  
Static and Dynamic Grazing Transmission Small Angle X-ray Scattering

18:00 – Discussion

19:00 Dinner (Barbecue)

**Tuesday, October 10, 2017**

**Session 2: Nano devices** *Chair: Ralf Röhlsberger*

9:00 Regina *Dittmann* (FZ Jülich, Germany)

Uncovering switching and failure mechanism in memristive devices by operando spectro-microscopy

9:35 Thomas Schröder (IHP, Germany)

From Nanomaterials to Nanodevices: An opportunity for advanced synchrotron research

10:10 Coffee break + group photo

10:40 Hans Joachim Elmers (Uni Mainz, Germany)

Spin and Momentum resolved spectroscopy of electronic states using time-of-flight momentum microscopy

11:15 Svetoslav Stankov (KIT, Germany)

Title: Lattice dynamics of individual nano-objects from in situ nuclear inelastic scattering: towards phonon nanoengineering

11:50 Erica Lilleodden (HZG Geesthacht)

Structural characterization of nanoporous gold: On the potential of correlating results from a multitude of measurements

12:30 Lunch (DESY canteen)

**Session 3: Heterogeneous Catalysis and Oxides** *Chair: Heshmat Noei*

14:00 Beatriz Roldan (Ruhr-Uni Bochum, Germany)

Operando Investigation of Structure, Chemical state, Composition and Reactivity correlations in Nanocatalysis

14:35 Axel Knop (FHI Berlin, Germany)

Functional interfaces studied by ambient pressure X-ray photoelectron spectroscopy

15:10 Coffee break

15:40 Maya Kiskinova (Sincrotrone Trieste, Italy)

Tracking properties of functional interfaces with soft X-ray spectro-microscopy at present and future storage rings facilities

16:15: Geoff Thornton (UCL, Great Britain)

Spectroscopic imaging of nanoparticles: opportunities and challenges

16:50 Beata Ziaja – Matyka (CFEL, Germany)

Challenges for simulations of materials exposed to PETRA IV pulses

17:30 Discussion/Poster session

19:00 – Dinner at DESY Bistro

**Wednesday, October 11, 2017**

**Session 4: Materials in Reduced Dimensions, Chair: Thomas Keller**

9:00 Virginie Chamard (Institut Fresnel, CNRS, Aix-Marseille University, France)  
3D Bragg ptychography: when microscopy meets crystallography

9:35 Volker Rose (APS, USA)  
Synchrotron X-ray Scanning Tunneling Microscopy: A Novel Approach for the Nanoscale Characterization of Materials with Chemical and Magnetic Contrast

10:10 Coffee break

10:40 Patrick Huber (TU-HH, Germany)  
Spatially Confined Matter as Seen by X-rays: From Ideal Planar Surfaces and Single-Pore Geometries to Real Porous Materials

11:15 Peter Gaal (Uni Hamburg, Germany)  
Structural dynamics of nanoscale materials and thin films

11:50 Discussion and conclusions

12:30 Closing remarks and departure