

# Structural and in situ materials science at beamline P02.1 @ PETRA III

Programme

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## Thursday, September 12, 2013

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12:00 Registration

13:00 Welcome

*A.-C. Dippel, DESY, Hamburg, Germany*

13:05 Photon Science at DESY

*H. Franz, DESY, Hamburg, Germany*

### 13:30 - 14:15 Lecture

13:30 Intensity - Resolution - Energy,

triggers for advanced analysis of phase transitions from XRPD data

*R. Dinnebier, Max Planck Institute for Solid State Research, Stuttgart, Germany*

### 14:15 - 14:45 Frontiers of high energy powder diffraction I

14:15 Photon-counting pixel detectors with "high-Z" sensors for high-energy experiments

*D. Pennicard, DESY, Hamburg, Germany*

14:45 Coffee break

### 15:15 - 16:45 Synchrotron powder diffraction beamlines

15:15 High resolution powder diffraction at ESRF

*A. Fitch, ESRF, Grenoble, France*

15:45 The X-ray powder diffraction wiggler project beamline at NSLS-II

*E. Doryhee, NSLS-II, Brookhaven National Lab, Upton, New York, USA*

16:15 The high resolution powder diffraction beamline P02.1 at PETRA III

*A.-C. Dippel, DESY, Hamburg, Germany*

16:45 Coffee break

### 17:00 - 18:00 Energy materials in situ and in operando

17:00 *In operando* studies on battery materials - capabilities of the beamline P02.1 and recent results

*M. Herklotz, Technical University Dresden, Germany*

17:30 Gas-solid reactions and novel hydrogen storage materials investigated by in-situ SR-PXD

*T. Jensen, Aarhus University, iNANO & CMC, Denmark*

18:00 Tours of P02.1 and PETRA III

19:00 Dinner

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**Friday, September 13, 2013**

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**09:30 - 10:20 Frontiers of high energy powder diffraction II**

09:30 Exploring P02.1 beam quality for PXRD

*J. Als-Nielsen, Copenhagen University, Denmark*

09:55 Experimental determination of core electron deformation in diamond

*N. Bindzus, Aarhus University & iNANO, Denmark*

10:20 Coffee break

**10:30 - 12:00 Dynamics of chemical reactions**

10:30 *In-situ* X-ray scattering studies of nanoparticle formation and growth

*B. Brummerstedt-Iversen, Aarhus University, iNANO & CMC, Denmark*

11:00 *In situ* investigation on the crystallization of metal phosphonocarboxylates

*N. Hermer, Christian-Albrechts-Universitaet Kiel, Germany*

11:20 Evolution of Crystalline Order during Nucleation of ZnO Nanoparticles via in-situ PDF

*M. Zobel, University Erlangen, Germany*

11:40 Ultrafast in-situ SAXS/WAXS investigation of nucleation and growth of CdS quantum dots

*A. Schiener, University of Erlangen-Nuernberg, Germany*

12:00 Lunch & poster session

**14:00 - 15:20 Structure of materials under real conditions in real time**

14:00 Tempering performance of the world's first bulk nanocrystalline steel

*C. Hulme-Smith, University of Cambridge, UK*

14:20 Influence of oxygen on the  $\omega$  phase and  $\alpha''$  martensitic transformation in aged gum metal

*J. Zhang, Max Planck Institute for Iron Research, Düsseldorf, Germany*

14:40 In-situ XRD study of ion irradiated Fe-Cu-Nb-Si-B based metallic alloys

*S. Michalik, Academy of Sciences of the Czech Republic, Prague*

15:00 Following Crystallisation of Metal Organic Framework Materials in situ Using Time-Resolved High Energy X-ray Diffraction

*R. Walton, University of Warwick, UK*

15:20 Discussion

16:00 End of workshop