

## **Preliminary program**

### **February 13th, Monday**

**12:00 Registration and Reception including snacks**

**12:30-15:00 “Opportunities and challenges for PETRA IV”, Chair: Uta Ruett**

Christian Schroer (DESY Photon Science)  
“Science at PETRA IV: Opportunities and Requirements”

Rainer Wanzenberg (DESY Accelerators)  
“Status of the PETRA IV accelerator study”

Markus Tischer (DESY Photon Science)  
“Flux and Brilliance for High Energy X-rays at PETRA IV”

Discussion

**15:00-15:30 Coffee Break**

**15:30-18:00 “Imaging”, Chair: Felix Beckmann**

Julian Moosmann (HZG, Hamburg)  
“Propagation-based phase-contrast imaging: application and current limitations”

Atsushi Momose (Tohoku University, Japan)  
“A perspective of X-ray phase imaging”

Bert Müller (University of Basel, Switzerland)  
“Imaging opportunities of PETRA IV in materials science and regenerative medicine”

**18:00-18:30 Wrap up and discussion**

**19:00 Dinner**

## **February 14th, Tuesday**

### **9:00-11:30 “Mesoscale characterisation of bulk materials”, Chair: Ulrich Lienert**

Wolfgang Pantleon (DTU, Denmark)

“High resolution reciprocal space mapping for in-situ monitoring of individual subgrains in dislocation structures during cyclic loading”

Henrik Birkedal (University of Aarhus, Denmark)

“Insights into hierarchical materials from Diffraction Scattering Computed Tomography”

Poul Norby (DTU, Denmark)

“In situ diffraction studies of batteries using high energy synchrotron X-ray radiation”

Jon Almer (Argonne National Lab, USA)

“Mesoscale Opportunities at the HEXM beamline of the upgraded APS”

Sergio Scudino (IFW, Dresden)

“Strain analysis of plastically-deformed bulk metallic glasses: challenges and opportunities”

### **11:30-12:30 Lunch**

### **12:30-15:00 “Extreme Condition Research at High Pressures”, Chair: H.-P. Liermann**

Leonid Dubrovinsky (University of Bayreuth, Germany)

“Fundamental Science in Tight Place”

Sebastien Merkel (University of Lille, France)

“Synchrotron-Based Extreme Condition Research Using Large Volume Presses”

Ivan Vartanians (DESY, Hamburg)

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Raphael Hermann (Oak Ridge National Lab, USA)

“Nuclear resonance scattering above 30 keV: success and opportunities”

Peter Liermann (DESY, Hamburg)

“Fast Compression Experiments at Low Emittance Light Sources: Opportunities and Limitations”

### **15:00-15:30 Coffee Break**

## **February 14th, Tuesday continued**

### **15:30-18:00 “Complex materials”, Chair: Martin v. Zimmermann**

Anders Madsen (European XFEL, Hamburg)

“New possibilities at PETRA IV for coherence experiments using high energy X-rays”

Kirsten Jensen (University of Copenhagen, Denmark)

“High energy X-ray scattering for nanostructure analysis: Materials chemistry between molecules and particles”

Jochen Geck (TU Dresden, Germany)

“Exploring interacting electron systems at a 4th generation synchrotron: some perspectives”

Alessandro Ricci (DESY, Hamburg)

“Exploring nanoscale complexity of functional materials with record resolution”

### **18:00-18:30 Wrap up and discussion**

### **19:00 Dinner**

## **February 15th, Wednesday**

### **9:00-11:30 “Surfaces, Interfaces and Nanostructures”, Chair: Ann-Christin Dippel**

Hua Zhou (Argonne National Lab, USA)

“Rapid Mapping Coherent Bragg Rods by High-Energy Surface X-Ray Diffraction for Epitaxial Thin Films and Heterostructures”

Johan Gustafson (University of Lund, Sweden)

“Opportunities for surface scattering at PETRA IV”

Tao Sun (Argonne National Lab, USA)

“High-speed x-ray imaging and diffraction at the APS”

Bert Nickel (LMU, Muenchen, Germany)

“Depth profiling of perovskite nanoparticles in porous Si wafers by high energy x-ray microdiffraction”

### **11:00-11:30 Coffee**

### **11:30-12:30 Summary and final conclusions**

### **12:30-13:30 Lunch**

### **13:30 END OF WORKSHOP**