

Program of the 3<sup>rd</sup> Berichtskolloquium of the SPP 1236  
*“Structures and characteristics of crystals at extremely high  
pressures and temperatures”*

Akademie Gesundes Leben, Oberursel, Hessen

**Wednesday, 10<sup>th</sup> March**

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

13:30 - 14:00 **Björn Winkler**: Introduction and planning

**14:00 - 15:15 Session: Methods**

14:00 - 14:25 **Johannes Bauer**: In situ temperature determination at high p/T by fluorescence lifetime measurements

14:25 - 14:50 **Leonid Dubrovinsky**: Single crystal diffraction in a laser heated diamond anvil cell

14:50 - 15:15 **Ronald Miletich**: Single-crystal X-ray high-pressure crystallography in excess of 1000°C using new laser and internal heating devices

**15:15 - 15:45 Coffee break**

**15:45 - 17:00 Session: Oxides**

15:45 - 16:10 **Boriana Mihailova**: Structure refinement of the high-pressure phase of Pb-based relaxor ferroelectrics

16:10 - 16:35 **Alexander Gurlo**: Indium oxide (In<sub>2</sub>O<sub>3</sub>) under high pressure: rational design of new polymorphs and characterisation of their physico-chemical properties

16:35 - 17:00 **Thomas Locherer**: New metastable polymorphs of Bi<sub>2</sub>O<sub>3</sub> with gradually reduced lone pair activity

**17:00 - 17:45 Poster session I**

**17:45 - 18:30 Cluster meeting I**

**18:30 - 19:30 Dinner**

**Thursday, 11<sup>th</sup> March**

**7:30 - 8:45 Breakfast**

**8:45 - 10:35 Session: PETRA III**

8:45 - 9:30 Invited talk: **Edgar Weckert (HASYLAB, DESY, Hamburg)**: Future developments for extreme conditions research at PETRA III

9:30 - 10:10 Invited talk: **Peter Liermann (HASYLAB, DESY, Hamburg)**: Status of the Extreme Conditions Beamline (ECB) at PETRA III, DESY

10:10 - 10:35 **Hans Mueller**: Elastic and inelastic properties measurements in Large Volume Presses

## 10:35 - 11:10 Group photo and Coffee break

## 11:10 - 12:30 Session: Oxides and Nitrides

11:10 - 11:35 **Jasmin Biehler**: High(p,T) properties of wide band gap semiconductors from second harmonic generation measurements

11:35 - 12:05 **Marcus Schwarz**: Spinel in the system Si-O-N

12:00 - 12:30 **Cordula Braun**: Syntheses, properties and investigations of novel high-pressure phases of nitrido-, oxonitridosilicates and related binary nitrides

## 12:30 - 13:30 Lunch

## 14:00 - 15:45 Session: Nitrides, Carbides and Borides

14:00 - 14:30 **Ulrich Schwarz, Michael Wessel**: Synthese of ternary varieties of *epsilon*-Fe<sub>3</sub>N: Experiment and theory

14:30 - 14:55 **Alexandra Friedrich**: High-(p,T) syntheses and characterisation of binary transition metal carbides and nitrides of the period 6 elements: Tantalum and rhenium nitrides

14:55 - 15:20 **Miria Andrade**: On the search for new phases in the Si-C-N system

15:20 - 15:45 **Natalia Dubrovinskaia**: Pressure-induced isostructural phase transformation in B<sub>28</sub>

## 15:45 - 16:15 Coffee break

## 16:15 - 17:05 Session: Gases

16:15 - 16:40 **Ivan Troyan**: Ionic and superionic ammonia

16:40 - 17:05 **Svyatoslav Shcheka**: Noble gases in silicate perovskite: Solubility, dissolution mechanism and influence on the equation of state

## 17:05 - 17:45 Poster Session II

## 17:45 - 18:30 Cluster Meeting II

## 18:30 - 19:30 Dinner

# Friday, 12<sup>th</sup> March

## 7:30 - 8:45 Breakfast

## 8:45 - 10:30 Session: Minerals

8:45 - 9:10 **Monika Koch-Müller, Maria Mrosko**: The 410- and 520-km discontinuities in the Earth's mantle: Experiments and thermodynamic modelling

9:10 - 9:40 **Hauke Marquardt**: Experimental challenges in high-pressure/high-temperature Brillouin scattering of polycrystalline materials

9:40 - 10:05 **Anke Watenphul**: The nitrogen cycle between Earth's surface and mantle

10:05 - 10:30 **Hasan Sadat Nabi**: Ferrimagnetism in Ti and Cr doped Fe<sub>2</sub>O<sub>3</sub>: Insights from correlated band theory

## 10:30 - 11:00 Coffee break

11:00 - 11:25 **Catherine McCammon**: Nuclear inelastic scattering of lower mantle minerals at high P,T

11:25 - 11:50 **Nico de Koker**: Thermal conductivity of MgO periclase at deep mantle pressures and temperatures

11:50 - 12:30 Invited talk: **Ute Kolb**, University of Mainz: Ab initio structure solution of nano crystalline materials by automated Electron Diffraction Tomography (ADT)

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

**13:30 Departure**