

# 3<sup>rd</sup> Joint Workshop on High Pressure, Planetary and Plasma Physics

## Conference Program

Großer Hörsaal (2<sup>nd</sup> floor)  
Institute of Physics  
Universitätsplatz 3  
18055 Rostock

For more information, see <http://indico.desy.de/event/hp4>

Wednesday, Sep 24		
12:00	Registration and light lunch	
13:45	Opening	
<i>Session I: Facilities &amp; future missions</i>		
14:00	I1 Eggert	Some results / status of dynamic-compression experiments using high-energy lasers, at Omega, NIF, LCLS, and DCS
14:30	T1 Appel	Perspectives for studying planetary matter using intense X-ray pulses at the high energy density science instrument at the European XFEL
14:50	T2 Neff	Experimental facilities for plasma physics experiments at FAIR
15:10	T3 Liermann	Current Capabilities and Future Plans for Time-Resolved X-ray diffraction at Extreme Conditions at the ECB and PETRA III.
15:30	Coffee break	
<i>Session II: Ab initio molecular dynamics simulations &amp; planetary interiors</i>		
16:00	I2 Hamel	Recent progress on the equation of state of carbon and silicon dioxide at extreme conditions
16:30	T4 Steinle-Neumann	Crystallizing the Hermean Core - Thermodynamics of Fe Melting
16:50	T5 Wicht	Explaining Mercury's peculiar magnetic field
17:10	T6 French	Thermodynamically constrained correction to ab initio equations of state
17:30	Poster Session	HIBEF - SAC and TAC meeting

Thursday, Sep 25		
<i>Session III: Helmholtz International Beamline for Extreme Fields at the European XFEL</i>		
09:00	T7 McBride	Reaching Planetary-Core Conditions with Dynamic and Double-Stage Diamond Anvil Cells at the Helmholtz International Beamline for Extreme Fields (HIBEF)
09:20	T8 Higginbotham	Dynamic compression experiments using the DiPOLE laser system at the European XFEL
09:40	T9 Pelka	Probing of Complex Interaction Dynamics of Ultra-Intense Lasers with Solid Matter using XFELs
10:00	T10 Stempffer	Pulsed magnetic fields at the HED instrument
10:20	Coffee break	
<i>Session IV: Plasma diagnostics</i>		
11:00	I3 Recoules	Ab initio calculation of X-ray absorption spectra for iron up to 430 GPa
11:30	T11 Kraus	Probing the complex ionic structure of warm dense carbon
11:50	T12 Zastrau	Spatially-resolved X-ray scattering off shock-compressed carbon at the LCLS
12:10	T13 Rüter	Investigation of the ion dynamics in warm dense aluminum by ab initio simulations
12:30	Light Lunch	
<i>Session V: Interior structure of rocky planets</i>		
14:00	I4 Sanchez-Valle	High pressure experiments on icy moon materials and planetary geophysics
14:30	T14 Dorn	An Inversion Technique for Constraining the Interior Structure of Rocky Exoplanets
14:50	T15 Wagner	Modelling the interior structure, composition, and mass-radius relationships of solid exoplanets
15:10	T16 Breuer	Dynamics and plate tectonics on rocky exoplanets
15:30	Coffee break	
<i>Session VI: Diamond anvil cells</i>		
16:00	I5 McMahon	High Pressure, Planetary and Plasma Physics: What Can You Do With a DAC?
16:30	T17 Bethkenhagen	Superionic water-ammonia mixtures
16:50	T18 Ovsyannikov	Unusual properties of 'simple' oxides prepared at HP-HT conditions
17:10	T19 Müller	Recent Advancement in High Pressure Falling Sphere Viscosimetry in DIA-type Large Volume Presses
19:30	Dinner and evening program at the restaurant "Trotzenburg"	

Friday, Sep 26		
<i>Session VII: Hot dense matter</i>		
09:00	I6 Döppner	Generating and Studying Matter at Extreme Pressures on the National Ignition Facility
09:30	T20 Becker	Interior structure of Brown Dwarfs and their material properties
09:50	T21 Mintsev	Estimations of shear viscosity of nonideal plasma
10:10	T22 Hou	The average atom model combined with the hypernetted chain approximation applied to warm dense matter
10:30	Coffee break	
<i>Session VIII: High-pressure phase transitions</i>		
11:00	I7 Knudson	Dynamic compression experiments on liquid deuterium above the melt boundary to investigate the insulator-to-metal transition
11:30	I8 Brygoo	Observation of H/He demixing under deep Jovian planetary conditions
12:00	T23 Püstow	H-He demixing and the interior and evolution of Saturn
12:20	T24 Spohn	Future space missions of potential interest to the HP4 community
12:50	Closing remarks and light lunch	