

3rd Joint Workshop on High Pressure, Planetary and Plasma Physics

Conference Program

Wednesday, Sep 24		
12:00	Registration and light lunch	
13:45	Opening	
<i>Session I: Facilities & 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 Spohn	Future space missions of potential interest to the HP4 community
15:40	Coffee break	
<i>Session II: Ab initio molecular dynamics simulations & Planetary interiors</i>		
16:10	I2 Hamel	Recent progress on the equation of state of carbon and silicon dioxide at extreme conditions
16:40	T4 Steinle-Neumann	Crystallizing the Hermean Core - Thermodynamics of Fe Melting
17:00	T5 Wicht	Explaining Mercury's peculiar magnetic field
17:20	T6 French	Thermodynamically constrained correction to ab initio equations of state
17:40	Poster Session	
	Nr.	Name
		Title of contribution
	P1	Bossmann
		Magnetic field morphology of the ice giants linked to their internal structure
	P2	Bredow
		Classical-map hypernetted chain calculations for multi-component plasmas
	P3	Carl
		Crystal structure transformations in SiO ₂ under dynamic compression and decompression
	P4	Evans
		Dynamic-DAC and time-resolved studies of phase transition dynamics
	P5	Harmand
		Melting of iron near to Earth's inner core conditions probed with ultrafast XANES in laser shock experiments at LCLS
	P6	Helfrich
		Investigation of warm dense carbon near the solid-liquid phase transition
	P7	Kellermann
		Mass-radius relations and interior structure of rocky planets
	P8	Konopkova
		Towards time-resolved studies using synchrotron x-ray diffraction
	P9	Ovsyannikov
		HP-HT synthesis and properties of new unusual perovskite, CaCo ₃ V ₄ O ₁₂
	P10	Plagemann
		Static and dynamic structure factors for warm dense matter
	P11	Reinholz
		Plasma diagnostics using K-line emission profiles of argon
	P12	Wagle
		Electrical resistivity and compressibility of metals near the melting point and implications for the Earth's core
	P13	Wagner
		Plate Tectonics on Earth-like Exoplanets
19:00	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 Stempfner	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 Sohl	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 Liermann	Current Capabilities and Future Plans for Time-Resolved X-ray diffraction at Extreme Conditions at the ECB and PETRA III.
16:50	T18 Müller	Recent Advancement in High Pressure Falling Sphere Viscosimetry in DIA-type Large Volume Presses
17:10	T19 Ovsyannikov	Unusual properties of 'simple' oxides prepared at HP-HT conditions
19:30	Dinner and evening program at the restaurant "Trotzenburg"	

Friday, Sep 26		
<i>Session VII: Hot dense matter</i>		
09:00	16 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	17 Knudson	Dynamic compression experiments on liquid deuterium above the melt boundary to investigate the insulator-to-metal transition
11:30	18 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 Bethkenhagen	Superionic water-ammonia mixtures
12:40	Closing remarks and light lunch	

The Workshop will be held in (see venue):

Room 218
 Universitätshauptgebäude (Main Building)
 Universitätsplatz 1
 18051 Rostock

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