

Workshop program

8th Workshop on High Pressure, Planetary and Plasma Physics (8HP4)

October 9-11

Haus an der Kreuzkirche
Dresden

Wednesday, October 9th

12:00	Arrival and registration
13:20	Welcome
13:30-15:00	Icy planets
13:30	Li Zeng – Harvard University <i>Water World Galore</i>
14:00	Martin French – University of Rostock <i>Viscosity and Prandtl Number of Warm Dense Matter as in Ice Giant Planets</i>
14:20	Ludwig Scheibe – University of Rostock <i>Thermal evolution of Uranus and Neptune</i>
14:40	Alba San Jose Mendez – University of Bayreuth <i>H₂O Ice at High-Pressure and -Temperature studied by X Ray Diffraction in a Resistively Heated dynamic Diamond Anvil Cell (RHdDAC)</i>
15:00	Coffee break
15:30-17:00	Carbon and icy mixtures
15:30	Alessandra Ravasio – Ecole Polytechnique <i>Laser-driven compression of water, ammonia, and C:H:N:O mixtures of interest for Icy Giants interiors</i>
16:00	Nicholas Hartley – Helmholtz-Zentrum Dresden-Rossendorf <i>Polystyrene at Extreme Pressures</i>
16:20	Katja Voigt – Helmholtz-Zentrum Dresden-Rossendorf <i>Development of a high-quality X-ray Scattering and X-ray Raman Spectroscopy setup for the characterization of warm dense carbon at the HED instrument of EuXFEL</i>
16:40	Kushal Ramakrishna – Helmholtz-Zentrum Dresden-Rossendorf <i>Ab-initio dielectric response function of diamond and high-pressure phases of carbon</i>
17:00-18:30	Poster session

Thursday, October 10th

09:00-10:20	Hydrogen and Gas Giants
09:00	Eli Galanti – Weizmann Institute of Science <i>The Deep Winds of Jupiter and Saturn As Inferred from Recent Gravity Measurements: Similarities and Differences</i>
09:30	Bartomeu Monserrat – University of Cambridge <i>Light elements under extreme pressure</i>
10:00	Wieland Dietrich – Max-Planck-Institut for Solar System Research Göttingen <i>Linking Zonal Winds and Gravity: The Relative Importance of Dynamic Self-Gravity</i>
10:20	Coffee break
10:50-12:00	Planetary dynamos
10:50	Frank Stefani – Helmholtz-Zentrum Dresden-Rossendorf <i>Planetary Dynamos in the Lab</i>
11:20	Gerd Steinle-Neumann – University of Bayreuth <i>Mass Transport and Structural Properties of Binary Liquid Iron Alloys at High Pressure</i>
11:40	Johannes Wicht - Max-Planck-Institut for Solar System Research Göttingen <i>Explaining Jupiter's Peculiar Magnetic Field</i>
12:00	Lunch break
13:30-14:50	Exoplanets
13:30	Szilard Csizmadia – DLR Berlin <i>Present status and future prospects of exoplanetary Love number measurements from radial velocities and from transit timing variations</i>
13:50	Hugo Hellard – DLR Berlin <i>Investigating exoplanet interiors from transit light curves</i>
14:10	Sebastiano Padovan – DLR Berlin <i>Ways to improve our understanding of exoplanets' interiors</i>
14:30	Anna Julia Poser – University of Rostock <i>The Effect of Clouds as an Additional Opacity Source on the Inferred Metallicity of Giant Exoplanets</i>
14:50	Coffee break
15:30-17:00	Experimental techniques at XFEL facilities
15:30	Norimasa Ozaki – University of Osaka <i>Behaviors of carbon in extreme conditions</i>
16:00	Karen Appel – European XFEL <i>The High-Energy Density instrument at European XFEL: Current status and X-ray performance</i>
16:20	Nastasia Mukharamova – DESY Hamburg <i>Femtosecond laser produced periodic plasma in a colloidal crystal probed by XFEL radiation</i>
16:40	Thomas Kluge – Helmholtz-Zentrum Dresden-Rossendorf <i>Present and future of X-ray scattering techniques for the understanding of ultra-short pulse laser matter interactions</i>
19:00	Conference dinner at Altmarktkeller (self-payer)

Friday, October 11th

09:00-10:30	Extreme pressures
09:00	Thomas Duffy – Princeton University <i>Structure, equation of state, and phase transitions in shock-compressed minerals to TPa pressures</i>
09:30	Florian Trybel – University of Bayreuth <i>B1-B2 Phase Transition in MgO from anharmonic ab-initio lattice dynamics at conditions of super-Earth interiors</i>
09:50	Mandy Bethkenhagen – University of Rostock <i>IPD in dense Be and C/CH</i>
10:10	Tobias Dornheim – Helmholtz-Zentrum Dresden-Rossendorf, CASUS <i>Ab Initio Path Integral Monte Carlo Results for the Dynamic and Static Density Response of Correlated Electrons: From the Electron Liquid to Warm Dense Matter</i>
10:30	Coffee break
11:00-11:40	High-pressure experiments
11:00	Jonathan Belof – Lawrence Livermore National Laboratory <i>Nanosecond freezing of gallium under extreme undercooling rate</i>
11:20	Nils Brouwer, CEA DAM DIF Arjapon <i>Influence of Spin-Orbit Effects in Optical and XANES Spectra of Transition Metals under Extreme Conditions</i>
11:40	Michael Bussmann, Helmholtz-Zentrum Dresden-Rossendorf, CASUS <i>Center for Advanced Systems Understanding in Görlitz</i>
12:00	End of workshop

List of Posters

Bethkenhagen Boehme	DFT+U equation of state for iron oxide Ionization potential depression in Warm Dense Matter studied with Ab initio simulations
Brannikov	X-ray microscopy in High Pressure Research at the ID15B beamline
French	Thermal conductivity of water plasmas from ab initio simulations
Korell	Paramagnetic-to-diamagnetic transition in dense liquid iron
Khandarkhaeva	X-ray diffraction studies of materials laser-heated in double stage diamond anvil cells
Rödel	Investigation of nanodiamond formation in shocked plastics by Small Angle X-ray scattering
Li	Hydrogen in the Earth's core
Nettelmann	Constraining the rotation period of Saturn and Neptune with the Love number K_2
Preising	The Melting Line and the Band Gap of Helium from First Principles Simulations
Schölmerich Schuster	Shock compression of SiO_2 and its analogues at megabar pressures Nanodiamonds from laser-induced shock compression of polystyrene – extraction under way
Smid	Ultrafast melting of Warm Dense Cu studied by x-ray spectroscopy
Steinle-Neumann	P-V-T equation-of-state to the TPa regime for liquid Fe from ab-initio simulations
Trybel	Hydrogen-hydrogen interaction in metal hydrides at megabar pressures
Vorberger	Simulations of warm dense C-H mixtures