

SATELLITE WORKSHOP - Photon Science



Status and research high-lights of the ECB (P02.2) at PETRA III

24.01.2021

Description of workshop

The Extreme Conditions Beamline (ECB) P02.2 at PETRA III is a micro to sub-micron X-ray diffraction beamline dedicated to high-pressure and simultaneous high/low temperatures research in the Diamond Anvil Cell (DAC). In 2021 we continued the upgrade of laser heating system at the ECB in order to meet the ever-increasing needs of the community. Furthermore, we implemented Partially-Coherent Propagation-Based Phase Contrast Imaging in the dynamic driven DAC. Within this satellite workshop we will present the current status of the ECB and recent science highlights that make use of the new capabilities. Finally, we will give an outlook of new developments planned for 2022 and the plans for ExTRem at PETRA IV.

Organizer: H. P. Liermann

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PROGRAMME

Session 1: Science High-Lights			
			Chair: H. P. Liermann
13:00	Weak Cubic CaSiO ₃ Perovskite in Earth's Mantle (20 + 5)	H. Marquardt	Oxford Uni.
13:25	Effect of AlAlO ₃ and MgAlO _{2.5} incorporation on the equation of state of MgSiO ₃ bridgmanite (15 + 5)	C. Criniti	BGI
13:45	Structural diversity of magnetite and products of its decomposition at extreme conditions (20 + 5)	S. Khandarkhaeva	BGI
14:10	Single-crystal Phase Stability of Lawsonite at High Pressure and Temperature (20 + 5)	X. Li	GFZ/DESY
14:30-14:50	Coffee break (20 Min.)		
14:50	High-pressure synthesis of novel nitride materials: present and future. (20 + 5)	M. Bykov	Uni. Cologne
15:15	Towards tuning Mg ₃ Bi _{2-x} Sb ₂ TE performance by high pressure: a close look at the end-members (20 + 5)	W. Dong	HPES
15:40	Amorphous gasket technology in the DAC (20 + 5)	K. Glazyrin	DESY
16:05	Organic Semiconducting NaT ₂ : An Oligothiophene at High Pressure (20 + 5)	N. Giordano	DESY
16:30-16:45	Coffee break (15 Min.)		
Session 2: Technical High-Lights			
			Chair: K. Glazyrin
16:45	Update on the technical status of the ECB (20 + 5)	H. P. Liermann	DESY
17:10	Update on the LTP project: developing the resistive heated dDAC and combining Phase Contrast Imaging with diffraction at high temperatures (20 + 5)	D. T. Sneed	LLNL
17:35	Update on the LH setup at P02.2 (20 + 5)	T. Fedotenko	DESY
18:00	Update on ExTRem at the PETRA IV project (15 + 5)	H. P. Liermann	DESY
18:20	End of the workshop		