



SATELLITE WORKSHOP - Photon Science

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

Monday, 22 January 2024

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 2023 we continued the upgrade of laser heating system while finalizing a lot of smaller projects at the General-Purpose experiment to optimize the operation of the beamline. We also continued with Partially-Coherent Propagation-Based Phase Contrast Imaging and extended it to the LH system. Within this satellite workshop we will present the current status of the ECB and recent science highlights that make use of the beamlines capabilities. Finally, we will give an outlook of new developments planned for 2024 and give an update on the plans for ExTReM at PETRA IV.

Organisers: H. P. Liermann

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PROGRAMME

		Chair: H. P. Liermann
13:00	Introduction	H. P. Liermann
13:05	<i>A hydrogen-enriched layer in the topmost outer core sourced from deeply subducted water (35 min)</i>	Y. Lee (Yonsei Uni., S. Korea)
13:40	<i>On the identification of hyperhydrated sodium chloride hydrates, stable at icy moon conditions (30 min)</i>	Journaux, B. (Uni. of Washington)
14:10	<i>Exploring the Influence of CaCl₂-Induced Chemical Compression on High-Pressure Phase Transitions in H₂O (30 min)</i>	X. Li (Jilin University)
14:40	<i>Seismic waves in the dynamic DAC: stress and strain in polycrystalline materials (30 min)</i>	J. Buchen (BGI)
15:10	Coffee Break (20 min)	
		Chair: N. Giordano
15:30	<i>Status of the LTP on dDAC and LH imaging using PCI (35 min)</i>	E. OBannon (LLNL)
16:05	<i>Probing crystal structure of hydrogen at extreme conditions using advanced synchrotron techniques (30 min)</i>	C. Ji (HPSTAR, China)
16:35	<i>Synthesis of novel pyrocarbonates under CO₂ atmosphere at extreme conditions (30 min)</i>	D. Spahr (Uni. Frankfurt)
17:05	<i>High-pressure reactions between the pnictogens: the rediscovery of BiN (30 min)</i>	K. Glazyrin (DESY)
17:35	<i>Technical status of the ECB at PETRA III and planning for ExTReM at PETRA IV (30 Min)</i>	H. P. Liermann (DESY)
18:05	Closure	