

Workshop “Two decades of rapid compression Diamond Anvil Cell research: Present and future developments”

Tentative Schedule

21st - 23rd of July 2025

Monday July 21 st		
13:00 – 13:10	Welcome	O. Seeck (assistant deputy director photon science, DESY)
Session 1: Technical overview of rapid compression techniques at different facilities/laboratories Chair: H. P. Liermann		
13:10 – 13:40	P02.2 LTP project: Combining dDAC with XRD, X-ray Imaging and high temperature techniques	E. O'Bannon (LLNL)
13:40 – 14:10	Recent developments at the dynamic diamond anvil cell platform at European XFEL	R. Husband (DESY)
14:10 – 14:40	High-Pressure Non-Equilibrium Phase Transition Dynamics and Physical Properties: Time-Resolved Probing, Rapid Loading Techniques and Applications.	C. Lin (HPSTAR)
14:40 – 15:10	Dynamic diamond anvil cell for time-resolved study: Application on Water	F. Dembele (CEA)
15:10 – 15:40	Coffee Break	
15:40 – 16:10	Developments in High Pressure Platforms Integrated with Advanced X-ray Techniques at HPCAT	C. Park (APS)
16:10 – 16:40	dDAC Research and Development at Los Alamos National Laboratory	G. Zeff (LANL)
16:40 – 17:10	Dynamic compression in dDAC for molecular crystals	J. Yan (Edinburgh Uni.)
17:10 – 17:40	Discussion	H. P. Liermann (DESY)
17:40 – 18:40	Poster Session and Discussion with Beer and Pretzel	
19:00	Self-Paid Dinner (Pizzeria Rolatino)	
Tuesday July 22 nd		
Session 2: Studying kinetics of phase transitions during rapid compression in elements Chair: St. McWilliams		
9:00 – 9:30	Bi, Pr, Ce rapid compression	E. Obannon (LLNL)
9:30 – 10:00	Rapid Compression of Gallium: A Pandora's Box	E. Ehrenreich Petersen (DESY)
10:00 – 10:30	Coffee Break	
10:30- 11:00	Streamlining x-ray diffraction data process using MILK	A. Berlin (Uni. Utah)
11:00 – 11:30	Using rapid compression DAC for forming amorphous state of materials	G. Yang (Institute of Chemistry, Chinese Academy of Sciences)
11:30 – 12:00	Discussion	St. McWilliams (Uni. Edinburgh)
12:00 – 13:00	Lunch	
Session 3: Rapid compression in earth and planetary science Chair: K. Appel		
13:00 – 13:30	Dynamic Compression in the DAC to Explore Earth's Deep Interior	H. Marquardt (Uni. of Oxford)

13:30 – 14:00	Cyclic loading experiments in the dynamic DAC: Strains and stresses in polycrystalline MgO	J. Buchen (BGI)
14:00 – 14:30	Laser-heated dDAC: Fe and SiO ₂ phase transitions on the millisecond timescales	S. Pandolfi (IMPMC - Sorbonne University)
14:30 – 15:00	Rapid compression of single crystals of quartz in the membrane-driven DAC and implications for the formation of shock-metamorphic effects	C. Otzen (Uni. of Freiburg)
15:00 – 15:30	Coffee Break	
15:30 – 16:00	Insight into impact mineralogy from time-resolved diffraction experiments during fast compression or decompression	L. Ehm (Stony Brook Uni.)
16:00 – 16:30	Compressional rate-dependent stability of ammonia hydrates upon crystallization of water-rich ammonia-water solutions	A. Mondal (ESRF)
16:30 – 17:00	Using rapid compression for measuring the Grüneisen parameter and studying of the equation of state	Lei Su (Shanghai Advanced Research in Physical Sciences)
17:00 – 17:30	Discussion	K. Appel (EuXFEL)
17:30 – 19:00	Poster Session & Discussion	
19:00 – 21:00	Workshop Dinner (BBQ)	
Wednesday July 23rd		
Session 4: Studying kinetics of phase transitions in molecular solids		
Chair: N. Giordano		
9:30 – 10:00	Structure Evolution and Kinetics of Phase Transitions in Dense Molecular Solids under Rapid Compression	S.-C. Yoo (Washington State Uni.)
10:00 – 10:30	Study of multiple crystallization pathways via metastable phases in ice VI phase by using dynamic diamond anvil cell	G. Lee (KRISS)
10:30- 11:00	Coffee Break	
11:00 – 11:30	H ₂ -CH ₄ van der Waals compounds under rapid compression	M. P. Alvarez (Edinburgh Uni.)
11:30 – 12:00	Closeout discussion: Which directions is the field or rapid compression developing?	N. Giordano (DESY)
	Farewell	

Poster Presentations

Still to come