

Title:

## **MHz diffraction and spectroscopy in the DAC at the HED instrument**

Friday 21.01.22

Organizers:

R. Husband, Z. Konôpková, K. Appel, V. Cerantola, C. Strohm

Abstract:

Over the past two years, the user community has pioneered MHz time-resolved diffraction and spectroscopy experiments in diamond anvil cells at the HED instrument of EU.XFEL. This workshop combines reports on progress in recent X-ray heating, pulsed laser heating, and dynamic compression experiments, with a discussion of overarching topics, and an outlook on future opportunities.

Program:

**13h00-13h10** Welcome S. Pascarelli (10 min)

**13h10-14h55** Overarching themes (2x35 min + 1x20 min. = 90 min.) Chair V. Cerantola:

**13h10-13h45** "DAC at XFEL - hot matters" G. Morard (20+15 min.)

**13h45-14h20** "Mixtures under planetary interior conditions - demixing phenomena" R. Redmer and A. Bergermann (20+15 min.)

**14h20-14h55** "Static pre-compression in laser shock experiments" A. Ravasio (15+5 min)

**14h55 - 15h25: Coffee break - open discussion / breakout rooms (30 min.)**

**15h25 - 16h45 Progress reports: (4x20 min = 80 min) Chair Z. Konôpková:**

**15h25-15h45:** X-ray emission spectroscopy in the DAC at HED. J. Kaa (15+5 min.)

**15h45-16h05:** Kinetics of structural phase transition in the dynamic-diamond anvil cell. Z. Jenei (15+5 min.)

**16h05-16h25:** MHz diffraction and single shot heating experiments in the DAC, using pulsed IR laser or X-rays. C. Prescher (15+5 min.)

**16h25-16h45:** X-ray Heating of low-Z Materials at High Static Pressures R. Husband (15+5 min.)

**16h45-17h15** Closeout. Chair K. Appel (30 min)