

Abstract Submitted  
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**Capabilities of the Extreme Conditions Beamline at PETRA III, DESY**<sup>1</sup> HANNS-PETER LIERMANN, ZUZANA KONÔPKOVÁ, Photon Sciences, Deutsches Elektronen Synchrotron, WOLFGANG MORGENROTH, Department of Crystallography, University of Frankfurt, ANDRE ROTHKIRCH, EUGEN WITTICH, JAN-TORBEN DELITZ, ANITA EHNE, Photon Sciences, Deutsches Elektronen Synchrotron — At the end of 2010 the Extreme Conditions Beamline (ECB) at PETRA III received first beam and entered the commissioning phase. Since 2012 we are offering beamtime to general users to conduct a variety of different experiments such as powder and single diffraction in the laser/resistive heated and cryogenically cooled Diamond Anvil Cell (DAC). Particularly attractive has been our ability to conduct diffraction experiments at high energies of 60 and 77 keV for pair distribution function (PDF) studies as well as possibility to perform time resolved powder diffraction experiments at 26 and 43 keV with a maximum time resolution of 15 Hz. Within we present some of the current capabilities of the beamline as well as future plans to promote single crystal diffraction at high pressures and temperatures using both monochromatic and pink beam. Finally, we emphasize the present and future time resolved capabilities to conduct powder and single crystal diffraction experiments under dynamic compression and heating conditions in the DAC.

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