

Abstract Submitted  
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**Current status of the HED instrument design at the European XFEL for studying plasma physics** M. NAKATSUTSUMI, European XFEL, GmbH, K. APPEL, I. THORPE, G. PRIEBE, European XFEL, A. PELKA, T. COWAN, HZDR, TH. TSCHENTSCHER, European XFEL — The High Energy Density Physics (HED) instrument at the European XFEL will provide a unique platform for experiments combining hard x-ray FEL radiation (3 - 24 keV range) and the capability to generate matter under extreme conditions of pressure, temperature or electric field using high energy optical lasers (100 TW Ti-Sapphire and 100 J/ns diode-pumped laser) or pulsed magnets (30 T). Scientific applications will be studies of matter occurring inside exoplanets, of new extreme-pressure phases and solid-density plasmas, and of structural phase transitions of complex solids in high magnetic fields. Following the delivery of the technical design documents, the HED instrument is presently completed with the goal of first x-ray beam in spring 2017. User operation shall start at the end of 2017. The talk includes a presentation of the current HED instrument design as following from specific experiment requirements, which will be discussed.

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