Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

**Electrical and thermal properties of warm dense water created by isochoric heating of a submicron water sheet at FLASH.**[1] JONGJIN KIM, SLAC National Accelerator Laboratory, PHILIPP SPERLING, University of Rostock, ZHIJIANG CHEN, SLAC National Accelerator Laboratory, SVEN TOLEIKIS, DESY, CHANDRA CURRY, MIANZHEN MO, SLAC National Accelerator Laboratory, RONALD REDMER, University of Rostock, DEPONTE DANIEL, SIEGFRIED GLENZER, SLAC National Accelerator Laboratory — The advent of XUV and x-ray free electron lasers has allowed for the development of crystallographic scattering experiments of aqueous species with high brilliance. The hydrodynamic expansion of water heated by an FEL was only recently demonstrated, but processes at shorter time scales have not been studied experimentally. Our research group uses time-resolved optical transmission and reflection measurements to determine fundamental electron transport properties of warm dense matter. This technique has been combined with a recently developed water sheet target. Isochoric heating by FLASH and optical probing requires a flat and windowless water target, with a thickness below a few microns. We describe the development and characterization of a water sheet jet target with thickness down to 200 nm, along with preliminary results with isochoric heating with FLASH operating near the water window.

[1]DOE FES under FWP 100182

Jongjin Kim
SLAC National Accelerator Laboratory

Date submitted: 19 Sep 2016 Electronic form version 1.4