

Abstract Submitted  
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**Creation of Solid Density Warm Dense Matter with LCLS** JUSTIN WARK, SAM VINKO, ORLANDO CIRICOSTA, ANDREW HIGGINBOTHAM, CHRIS MURPHY, U. of Oxford, UK, PHILIP HEIMANN, BYOUNG-ICK CHO, LBNL, KYLE ENGELHORN, LBNL, ROGER FALCONE, LBNL, BOB NAGLER, HAEJA LEE, JACEK KRZYWINSKI, BILL SCHLOTTER, JOSH TURNER, MARC MESSERSMIDT, LCLS, SVEN TOLEIKIS, DESY, Germany, ULF ZA-  
STRAU, U. of Jena, Germany, TOMAS BURIAN, LUDEK VYSIN, LIBOR JUHA, IOP, Prague, YUAN PING, RICHARD LEE, LLNL, ANNA LEVY, LULI, France, COLIN BROWN, Imperial College, UK, JEROME GAUDIN, XFEL, Germany — LCLS is the first true hard x-ray laser in the world, delivering x-rays with photon energies from 1 to 10 keV, with several mJ per pulse, with durations of a few 100 to less than 10 fsec at a repetition rate of 120 Hz. It is a billion times brighter than any synchrotron source in existence. We show initial experiments demonstrating the creation of warm solid-density matter with temperatures up to 200 eV in relatively large volumes, created by focussing the output of LCLS to intensities of order  $10^{18} \text{Wcm}^{-2}$  onto solid targets. Fluorescence from the targets allows charge states and temperatures to be deduced, and compared with code calculations.

Justin Wark  
U. of Oxford, UK

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