

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Ultrafast compression of graphite observed with sub-100 fs time resolution diffraction at LCLS MICHAEL ARMSTRONG, Lawrence Livermore Natl Lab, ALEXANDER GONCHAROV, Carnegie Institution of Washington, JONATHAN CROWHURST, JOSEPH ZAUG, HARRY RADOUSKY, PAULIUS GRIVICKAS, SORIN BASTEA, NIR GOLDMAN, ELISSAIOS STAVROU, Lawrence Livermore Natl Lab, ARIANNA GLEASON, Los Alamos Natl Lab, ROBERT NAGLER, HAE JA LEE, SLAC, NICHOLAS HOLTGREWE, Carnegie Institution of Washington, PETER WALTER, SLAC, VITALI PAKAPRENKA, APS, INHUK NAM, EDUARDO GRANADOS, SLAC, CLEMENS PRESCHER, Carnegie Institution of Washington, BATIKAN KOROGLU, Lawrence Livermore Natl Lab — We will present sub-100 fs time resolution pulsed x-ray diffraction measurements of rapidly compressed highly oriented pyrolytic graphite along its basal plane at the Materials under Extreme Conditions (MEC) sector of the Linac Coherent Light Source (LCLS). These experiments explore the possibility of rapid (100 ps scale) material transformations occurring in materials under very highly anisotropic compression conditions. Under such conditions, non-equilibrium mechanisms may play a role in the transformation process. We will present experimental results and simulations which explore this possibility. Prepared by LLNL under Contract DE-AC52-07NA27344.

Michael Armstrong
Lawrence Livermore Natl Lab

Date submitted: 11 Nov 2016

Electronic form version 1.4