

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**The Matter in Extreme Conditions at LCLS: present and future capabilities** ERIC GALTIER, HAE JA LEE, BOB NAGLER, ANDY MACK-INNON, SHAUGHNESSY BROWN, INHYUK NAM, EDUARDO GRANADOS, ALAN FRY, BRICE ARNOLD, OLIVER HICKMAN, SLAC - Natl Accelerator Lab — Less than five years ago, the Matter in Extreme Conditions at the Linac Coherent Light Source executed its first experiments. This unique endstation, bringing together high intensity optical lasers with the high peak brightness X-ray source of the LCLS, offers new capabilities to study a broad range of scientific topics of the extreme, from high pressure systems to high energy density physics. In this talk, we present recent high pressure studies using nanosecond optical laser systems for dynamic compression. Then, we describe an upgrades plan to extend and strengthen its capabilities in order to explore even further the pressure/temperature phase space.

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Date submitted: 14 Nov 2016

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