Abstract Submitted
for the SHOCK19 Meeting of
The American Physical Society

Experimental Beamline Endstation Concepts for a Dynamic Mesoscale Materials Science Capability JEN BOHON, ADRIANNA ORTEGA, CRIS W. BARNES, RICHARD L. SHEFFIELD, JOSEPH A. O'TOOLE, Los Alamos National Laboratory — There is a recognized need for a Dynamic Mesoscale Materials Science Capability (DMMSC) to enable characterization, production and control of matter in extreme conditions. This is currently envisioned to take advantage of a high-energy coherent brilliant x-ray light source with a flexible pulse structure in time, with the potential for simultaneous additional probe particles. Programs demanding this capability can have dramatically different requirements for instrumentation and sample environments, creating a unique challenge for experimental systems design. Here, we introduce design concepts, leveraging experience gained from existing facilities, to optimize both beamline efficiency and flexibility using automation and exchangeable platforms. Such concepts will allow users to place different sample environments, instrument diagnostics and probes into the endstation between experimental campaigns, providing the possibility of performing sequences of unique experiments without significantly reducing available beamtime. The DMMSC aims to provide a comprehensive capability for materials discovery; input from the user community on design directions and desired functionality will be essential to maximize the impact of the new facility.

Jen Bohon
Los Alamos National Laboratory

Date submitted: 26 Feb 2019 Electronic form version 1.4