Abstract Submitted
for the SHOCK19 Meeting of
The American Physical Society

**Demonstration of Multi-GeV Electron Radiography** FRANK MERRILL, JOHN GOETT, JOHN GIBBS, SETH IMHOFF, FESSEHA MARIAM, CHRISTOPHER MORRIS, LEVI NEUKIRCH, JOHN PERRY, DANIEL POULSON, RASPBERRY SIMPSON, PETR VOLEGOV, PETER WALSTROM, CARL WILDE, Los Alamos National Laboratory, CARSTEN HAST, KEITH JOBE, TONEE SMITH, Stanford National Accelerator Laboratory, ULI WIENANDS, Argonne National Laboratory, AMY CLARKE, Colorado School of Mines — Charged particle radiography with 800 MeV protons has been used for decades at LANL and developed around the world to study dynamic material properties. Recently, charged particle radiography has been demonstrated with the use of high-energy electrons. Because of the difference in the mass of the electron compared to the mass of the proton the radiographic processes are substantially different and well suited to the study of fast dynamic processes in relatively thin systems. This presentation will show the layout required for such measurements along with data collected from this recent demonstration performed with 14 GeV electrons generated at the SLAC National Accelerator Laboratory. The radiographic performance for flash measurements will be presented along with the limitations of this measurement technique.

Frank Merrill
Los Alamos National Laboratory

Date submitted: 28 May 2019 Electronic form version 1.4