Abstract Submitted
for the SHOCK17 Meeting of
The American Physical Society

Characterization of Detonator Performance as a Function of Porosity via the Hayes Effect via Rogowski Coil TEAGAN NAKAMOTO, Brigham Young Univ - Provo, KRISTINA PARRACK, New Mexico Tech, DALTON SMITH, Brigham Young University, CHRIS TRUJILLO, New Mexico State University, ZAK WILDE, Arizona State University, JOHN GIBSON, New Mexico Tech, RYLIE LODES, Arizona State University, HAYDEN MALCOLM, Los Alamos National Laboratory — Researchers experimented with a novel diagnostic to study the effects of porosity on detonator performance. The new diagnostic takes advantage of the detonation electric effect observed by Hayes (1966). Detonation-produced electrical charges induce a current in the detonator wire that may be detected by use of a Rogowski coil developed and tailored for the purpose. Data collected by the Rogowski coil were then used to characterize detonations. Researchers tested PETN charges of various porosity levels (as characterized by measured particle size and surface area) to study the effect of porosity on detonation characteristics. This novel method was compared with and verified by the well-established technique of using PVDF gauges for detonator response characterization.

Teagan Nakamoto
Brigham Young Univ - Provo

Date submitted: 06 Feb 2017 Electronic form version 1.4