

Abstract Submitted
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Stochastic Shock Observations from Plate Impact of Porous Tantalum¹ NATHAN MOORE, GARY CHANTLER, ANDREW VACKEL, JACK WISE, Sandia National Laboratories, REEJU POKHAREL, DONALD BROWN, Los Alamos National Laboratory — Comparative multi- and single-point velocimetry measurements were made and used to explore spatial variability in the shock response of porous tantalum films prepared by thermal-spray deposition. The material pore structure was elucidated using x-ray tomography at the Advanced Photon Source. Multi-point velocimetry included frequency-based Photonic Doppler Velocimetry (PDV) and quadrature-based Photonic Displacement Interferometry (PDI), each with two different optical configurations allowing up to 13 measurements per sample, with up to three samples per shot. In addition, complementary single-point VISAR data were acquired. Variations in loading history are compared between identically-impacted sapphire and porous tantalum for flyer-plate velocities up to ~ 300 m/s.

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Nathan Moore
Sandia National Laboratories

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