

Abstract Submitted
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Dynamic strength measurement using magnetically applied pressure shear (MAPS)¹ C.S. ALEXANDER, J.R. ASAY, T.A. HAILL, Sandia National Laboratories — A newly developed experimental technique to measure dynamic material strength at high pressures on magneto-hydrodynamic (MHD) drive pulsed power platforms is demonstrated on aluminum. The application of an external magnetic field normal to the plane of the MHD drive current directly induces a shear stress wave in addition to the usual longitudinal stress wave. Strength is probed by passing this shear wave through the sample material where the transmissible shear stress is limited to the sample strength. The magnitude of the transmitted shear wave is measured via a transverse VISAR system from which the sample strength is determined. Details of the experimental approach will be presented along with results of initial experiments on 99.5% pure aluminum which demonstrate the utility of the technique.

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