Abstract Submitted
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A Novel Use of PDV for an Integrated Small-scale Test Platform CARL TRUJILLO, D.T. MARTINEZ, M. BURKETT, J.P. ESCOBEDO, E.K. CERRETA, G.T. GRAY III, Los Alamos National Laboratory — To examine the high strain and high strain rate response of structural metals a dynamic extrusion technique has been developed at Los Alamos National Laboratory. In this study, several structural metals (Copper, Tantalum, and Zirconium) were accelerated up to velocities of 700 m/s and extruded through a high strength steel die. A novel use of PDV (Photonic Doppler Velocimetry) has been employed to track the time and distance of the evolved deformation through the die. This integrated small-scale experiment is used to study and provide in-situ data, assisting in the modeling and understanding the dynamic response of materials. Time and distance data, modeling efforts, and the influence of crystallography and texture will be presented.

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