Abstract Submitted
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Strength Measurements of Shock-Loaded Ta via Heterodyne Velocimetry[1] J. R. PATTERSON, LLNL, J. S. STÖLKEN, J. H. NGUYEN, B. W. REED, H. HSIEH, M. KUMAR — While knowledge of the constitutive properties of materials at elevated temperatures and pressures is necessary to understand material behavior under these conditions, experimental measurements are generally sparse. In an effort to explore such material behavior, we have performed several dynamic compression experiments on Ta at the 35 mm-bore single-stage gas-gun facility at LLNL. *In-situ* particle velocities on shock-loading and release were measured by heterodyne(or photonic doppler) velocimetry. We will present the results of a comparative study among different methods of time-frequency analysis, which is required to extract accurate particle velocities in rapidly varying regions. In addition, we have performed hydrocode simulations employing the MTS model to fit our experimental data. We will discuss these results in the context of extracting the flow stress at pressure.

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