

Abstract Submitted
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Dynamic Compaction of Nickel Powder Examined by X-Ray Phase-Contrast Imaging A. MANDAL, B. J. JENSEN, Los Alamos National Laboratory, A. IVERSON, National Security Technologies LLC — Understanding the response of granular materials under dynamic loading is important for many scientific applications. Methods traditionally employed (stress gauges, laser interferometry, post-shock analysis of recovered specimens etc.) to gain insight into the compaction response provide only indirect and limited information about the underlying mechanisms. In this work, we have used a propagation-based x-ray phase-contrast imaging technique to examine in-situ and in real-time the dynamic compaction of nickel (Ni) powders with two different grain sizes (30 and 45 micron) shocked to different peak pressures. In addition to compaction wave velocities in Ni, insight gained from a preliminary analysis of the obtained images will be discussed.

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