

Abstract Submitted
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Reaction Initiation of Metal Spheres Upon Ballistic Impact with an ANVIL¹ DIHIA IDRICI, McGill University, MICHAEL J. SOO, NSWC Indian Head, SAM GOROSHIN, ANDREW J. HIGGINS, DAVID L. FROST, McGill University — When a spherical metallic projectile impacts an anvil at high speed, fragmentation of the projectile and ignition of the fragments may occur. In the present experimental study, small metallic spheres are accelerated up to speeds of 1.2 km/s in a helium-driven gas gun and impact a steel anvil. The ignition thresholds are determined for aluminum, titanium, and zirconium projectiles using optical diagnostics. High-speed photography is utilized to observe the fragmentation process and emission spectroscopy is used to infer the temperature of the fragments.

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David Frost
McGill University

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