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Introducing HEDONIST- A Low Explosive Mass Experiment That Attains Very High Pressures CARL JOHNSON, ANTHONY FREDENBURG, SCOTT RAMSEY, BRYCE GEESEY, ERNESTO MARTINEZ, ANNA LLOBET, Los Alamos National Laboratory — The proton radiography facility at LANL offers unique experimental capabilities, particularly the planned Pu@pRad line. Pu@pRad limitations however preclude the usage of large quantities of high explosives. We present the hydrocode analysis of a small-scale system (under 30g TNT equivalent) capable of reaching pressures in excess of 2 Mbar. This system utilizes a novel multipoint initiation system to establish converging detonation waves which deliver a strong shock wave onto a sample cell. HEDONIST has been designed to present a low areal density to the pRad beam thereby providing ample signal-to-noise ratio to discern shock waves in sample cell materials from other shocks present. Fragmentation mitigation, design modifications, and an example sample cell analysis will be discussed.

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