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Ejecta from Liquid Gallium During Planar Impact Experiments JASON LOISEAU, Royal Military College of Canada, JUSTIN HUNEAULT, WILLIAM GEORGES, ANDREW J. HIGGINS, McGill University — When a solid or liquid metal surface is subject to shock loading, asperities at the interface grow from Richtmyer–Meshkov instability, leading to ejecta from the free surface. In the present study, we impacted liquid gallium samples contained in sealed, evacuated capsules using explosively-driven steel flyer plates. Gallium free surface velocity and ejecta cloud velocity were recorded using photonic Doppler velocimetry and ejecta flux was measured with Dynasen piezeoelectric pins. For the incident shock strengths considered experimentally, no pull-back or strength-based arrest of the ejecta cloud was observed. This indicated minimal spall strength for melted Gallium. Ejecta areal density versus ejecta cloud velocity was extracted from integration of the pin voltage response assuming inelastic collision. Mass flux versus normalized ejecta that melt on release.

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