

Abstract Submitted
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The effect of sample roughness and planarity on gauge response times WILLIAM PROUD, Physics and Chemistry of Solids Group, Cavendish Laboratory, Madingley Road, Cambridge, CB3 0HE, UK, JEAN WANG, DANIEL CROSS, PHYSICS AND CHEMISTRY OF SOLIDS GROUP, CAVENDISH LABORATORY, MADINGLEY ROAD, CAMBRIDGE, CB3 0HE, UK TEAM — This study presents experimental data on the significance of a sample's planarity and roughness on gauge response under shock-loading. Experiments were carried using a plate impact facility on Copper or PMMA, samples. The impact surface of the target is varied and the stress profile is recorded with piezoresistive manganin gauges. For PMMA, Velocity Interferometer System for Any Reflector (VISAR) and high-speed photography are also used. Results show that the transit times and final stresses reached for both materials are consistent with expected values calculated from Hugoniot crossing. Samples angled at one degree give an increased rise time consistent with the additional distance traversed by the shock in reaching the gauge. The significance of surface roughness is explicitly measured.

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