

Abstract Submitted
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Dynamic Shear Strength Measurements in Shock Loaded Molybdenum S.M. STIRK, J.C.F. MILLETT, N.K. BOURNE, G. WHITEMAN, N.T. PARK, AWE, Aldermaston, Reading, RG7 4PR, UK — Dynamic shear strength measurements in shock-loaded molybdenum have been performed in the pressure range 2-20 GPa using plate-impact techniques. Shear strength is monitored using managnin stress gauges mounted such that they are sensitive to the lateral component of stress, combined with knowledge of the shock-induced impact stress in the longitudinal direction. In previous work on the shock response of body centred cubic (BCC) metals, increases in lateral stress with duration behind the shock front have been interpreted as a decrease in shear strength. In tantalum, this interpretation is supported by post-shock microstructural analysis which reveals a minor increase in dislocation density associated with a high Peierl's stress. Our current measurements in molybdenum metal further extend this work in BCC structures.

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