

Abstract Submitted
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Contrasting the effects of cold rolling on the shock response of typical face centred cubic and body centred cubic metals JEREMY MILLETT, AWE plc, DANIEL HIGGINS, University of Birmingham, GLENN WHITEMAN, AWE plc, IAN JONES, University of Birmingham, NEIL BOURNE, University of Manchester — The response of metals to shock loading is affected by a number of factors, including the unit cell and properties that effect the motion and generation of dislocations such as stacking fault energy and the Peierls stress. In an effort to increase the understanding in this area, we have chosen to investigate the response of two near ideal materials; copper as an fcc and tantalum as a bcc. We have also investigated each material in both an annealed and cold worked to 50% reduction in thickness in an attempt to understand how differences in dislocation density effect response. Measurements have been made using standard diagnostics, including stress gauges and Photonic Doppler Velocimetry as well as analysis of the shocked microstructural and mechanical response through one-dimensional recovery.

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