

Abstract Submitted
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Hydrocode Analysis of Lateral Stress Gauges in Shocked Tantalum ERNEST HARRIS, RON WINTER, AWE — Experiments published by other workers on the resistance change of manganin stress gauges embedded in a lateral orientation in Tantalum targets have been analysed using an Adaptive Mesh Refinement Hydrocode. It was found that for four experiments the shape of the time profile of the computed lateral stress in the mounting layer closely matched the shape of the experimental lateral stress profiles. However, the calculated lateral stresses at the gauge location in the mounting layer are significantly less than the stresses that would have been produced in the target if no gauge had been present. The perturbation caused by the gauge increased as the strength of the applied shock increased. When the perturbations are taken into account values of flow stress that are significantly smaller than those reported in the original research paper are derived. The work demonstrates that the lateral gauge technique can give valuable information on strength provided high resolution simulation is used to compensate for the perturbations caused by the gauges.

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