

Abstract Submitted
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Temperature measurements at material interfaces with thin-foil gauges MIKE MORLEY, DAVID CHAPMAN, WILLIAM PROUD, Fracture and Shock Physics, SMF Group, Cavendish Laboratory, JJ Thomson Ave., Cambridge, CB3 0HE — Measurements of shock heating are important in determining Equations of State that incorporate entropic effects. The use of thin-foil nickel gauges to measure shock heating in material was proposed by Rosenberg et al. in the 1980s. This research investigates the use of such commercial thin-foil gauges at interfaces between materials of different thermal and shock properties. The technique requires analysis of the resistance changes of the gauge which is a function of both temperature and stress. The response of manganin gauges to shock loading is well understood, and was used to calibrate for the piezoresistive effect in nickel. Results are presented for a variety of well-characterised materials and the applicability of the proposed method discussed.

William Proud
Fracture and Shock Physics, SMF Group, Cavendish Laboratory,
JJ Thomson Ave., Cambridge, CB3 0HE

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