

Abstract Submitted  
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**Using the Thermoelectric Effect to Measure Hugoniot of Metals**

ILAN BE'ERY, ZVI ROZENBERG — Accurate determination of shock velocity is a key to measurements of the Hugoniot curve. When a strong shock passes through a bi-metal junction, it heats the junction and generates a thermoelectric voltage which depends on the final temperature, and the relative Seaback coefficients of the metals. The thermoelectric measurement has the advantage that it does not require free surface or an insulating layer between the metals. If the metals junction is not shocked simultaneously, the rise time of the thermoelectric signal is proportional to the transverse time of the shock. Therefore the thermoelectric method is relatively insensitive to tilt and bow of the shock. The measurement of shock arrival using the thermoelectric effect was reported in the literature, but the conditions for clean and reliable measurements were never explored. Through many experiments using high velocity impactors and HE shocks, we demonstrate that the thermoelectric method has some complications, but can produce shock velocity data with accuracy better than 2%.

Ilan Be'ery

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