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Double Shock Experiments on the Sandia Z Machine HEATH HANSHAW, MARCUS KNUDSON, MICHAEL DESJARLAIS, RAY LEMKE, Sandia National Laboratories — The double shock layered high-velocity flyer plate is one new capability being developed on Sandia's Z machine. With this technique, dynamic material data at high energy densities can be obtained at points in phase space which lie neither on principal Hugoniot nor on quasi-isentropic ramp curves. For example, the hypothesized HCP to BCC phase transition in beryllium can be measured, as can the high pressure melt curve. Another example is a postulated refreeze of tantalum. We discuss the double shock experiments being performed on Z, including accessible conditions, design and experimental methods, and analysis of results.

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