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**Shock Response of Bi/W Composites** KYLE SULLIVAN, DAMIAN SWIFT, MATTHEW BARHAM, JAMES STOLKEN, MUKUL KUMAR, Lawrence Livermore National Laboratory, LAWRENCE LIVERMORE NATIONAL LABORATORY TEAM — This work investigates the shock response of composite pellets, whose constituents have a widely disparate shock melting response; a low melting phase, Bi, and a high melting phase, W. Samples were mixed using low-energy ball milling, followed by uni-axial pressing with and without heating to yield a range of compositions, densities, and microstructures. Laser-driven shocks were generated in the samples, and the shocked samples were collected for post-mortem analysis. On the laser drive side, we observe craters up to several hundred micrometers deep, which presumably form as Bi is shock-melted, and material is unloaded as tensile stresses develop from the release wave interactions. We find that the depth of the crater (i.e. the melting depth) is primarily governed by the composition and sample porosity. On the spall surface, we observe various behaviors, ranging from no damage to large spall regions, depending on the composition of the sample. This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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