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**Mechanical behavior and strength distribution in a spalled material** SHRADDHA VACHHANI, CARL TRUJILLO, ELLEN CERRETA, GEORGE GRAY III, Los Alamos National Lab — Damage evolution during dynamic testing is known to be via the nucleation and coalescence of voids. Once damaged, relatively little is known about the strength of the material, although the properties are expected to depend on amount of damage. For example, the strength of the materials close to the spall plane of a plate impact specimen is expected to have very different response as compared to material far from the spall plane. In this work, we examined the bulk compressive and tensile response of the different regions of a dynamically damaged sample. High purity copper is used as a model material. The copper sample was dynamically damaged using a plate impact experiment in a 100mm gas gun to impart moderate damage. Post-mortem analysis of the recovered sample using optical microscopy and electron back-scatter diffraction (EBSD) was used to correlate the observed, post-damage, mechanical behavior with the local structure.

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