

Abstract Submitted
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Mesoscale and Continuum Calculations of Wave Profiles for Shock-Loaded Granular Ceramics¹ TRACY VOGLER, Sandia National Laboratories, JOHN BORG, Marquette University — A significant challenge in the multi-scale modeling approach is the validation of simulations performed at the various length scales considered. Recently, mesoscale modeling of the compaction of granular ceramics has been performed as part of a multiscale modeling approach. Through small adjustments to the model parameters, good agreement between the Hugoniot response for the experiments and simulations was obtained. Here, we evaluate the performance of the mesoscale model in predicting experimental velocity histories obtained with VISAR. In particular, we explore its ability to capture correctly the process of wave attenuation. For comparison, we will also examine the ability of continuum models such as the P-alpha and P-lambda models to correctly predict the wave profiles. The consideration of attenuating waves provides a means of validation not previously considered for these mesoscale simulations.

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Tracy Vogler
Sandia National Laboratories

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