

Abstract Submitted
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X-ray phase contrast imaging to study the effects of feedstock chemistry on shockwave behavior in additive manufactured foams BRITTANY BRANCH, KWAN-SOO LEE, SAMANTHA TALLEY, JOSHUA COE, DANA DATTELBAUM, Los Alamos National Laboratory, C2 COLLABORATION — There has been a large effort to develop unique polymer feedstocks containing carbon fiber, metal oxide and other filled inks with unique mechanical properties for the fabrication of polymer material assemblies through high spatial resolution additive manufacturing (AM) techniques. Advancement of these fabrication methods has led to the development of under-dense materials suitable for vibrational dampening applications. Here, we evaluate the dynamic behavior of these materials through x-ray phase contrast imaging coupled to shockwave experiments to understand how material properties at high strain rate are affected by additives that have an overall effect on material strength. The experimental methods and results comparing the mechanical response and the resulting shockwave behavior of a variety of feedstocks will be presented. LA-UR-19-21616

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