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Measurements of Sound Speeds in Shocked Materials C.A. MCCOY, M.C. GREGOR, T.R. BOEHLY, D.D. MEYERHOFER, Laboratory for Laser Energetics, U. of Rochester, D.E. FRATANDUONO, P.M. CELLIERS, LLNL — A new method to measure the sound velocity in shocked materials is described. The non-steady wave correction allows one to relate the shock profile in a sample to that in a reference material with a known equation of state. A comparison of arrival times of characteristic shock features in a sample to those in the reference material provides a relative measure of the sound velocity in the shocked sample. Data are presented for these sound-speed measurements in LiF and fused silica along with an absolute measurement of the sound velocity in shocked quartz—the standard to which these samples are referenced. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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