

Abstract Submitted
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Optical Properties of Lithium Fluoride under Extreme Stress and Strain-Rate Conditions P.A. RIGG, Los Alamos National Laboratory, M.D. KNUDSON, Sandia National Laboratories Albuquerque, R.J. SCHARFF, R.S. HIXSON, Los Alamos National Laboratory — Lithium fluoride (LiF) is by far the most widely used window material in shock compression experiments due to many factors. These include material stability, availability in any reasonable size, and well-known shock properties. However, as with many transparent materials, the refractive index of LiF is density dependent. When used as an optical window in velocimetry experiments, this leads to the measurement of a velocity at the shocked sample/window interface that is incorrect. Therefore to calibrate LiF for use in these types of experiments, an independent set of experiments in which the particle velocity is known by means other than the velocimetry measurement must be done first. The results of an experimental study to determine this calibration to 200 GPa will be described and the accuracy of these results in comparison to past work will be discussed.

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