Abstract Submitted
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Measurements of strain-induced refractive index changes in shocked LiF using laser-driven flyer plates[1] DAYNE FRATANDUONO, MARIA BARRIOS, TOM BOEHLY, DAVID MEYERHOFER, DAMIEN HICKS, PETER CELLIERS, JON EGGERT, G. COLLINS — The refraction index of compressed LiF directly affects the accuracy of VISAR experiments that use LiF windows. We report on experiments at the LLNL Janus laser that reproduced previous measurements of strain-induced changes to the refractive index. Here laser-driven ramp-compression is used to accelerate aluminum flyer plates that impact a LiF window. The resultant particle velocity is inferred by measuring the flyer velocity just before impact. VISAR measurements through the LiF window provide an 'apparent' particle velocity that can be used to infer the refractive index of the shock-compressed LiF. This is the first demonstration of the laser-driven flyer-plate technique applied to a measurement. We discuss how this technique will be implemented on the OMEGA laser to increase the pressures that can be achieved.

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