

Abstract Submitted
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An investigation of surface velocimetry of shocked polyethylene using HetV NATHAN ROUTLEY, ED PRICE, JEREMY MILLETT, AWE, Aldermaston, NEIL BOURNE, University of Manchester, ERIC BROWN, GEORGE GRAY, Los Alamos National Laboratory — The velocity history of a shocked free surface has traditionally been carried out using established techniques such as VISAR or Fabry-Perot. In recent years a third type of velocimetry has been developed by LLNL which uses Heterodyne techniques, PDV. This technique generates a Doppler beat frequency between light incident on the surface and light internally reflected within the system. Unlike the other two techniques PDV does not use an interferometer, instead it relies upon having the ability to directly record the high beat frequency. The setting up and fielding of PDV is therefore much simpler. A low power (Class 1 laser) system using this principle, locally known as HetV, has been developed and assembled. A series of experiments has been carried out to investigate the Hugoniot of polyethylene using HetV and embedded stress gauges. The results obtained with HetV have been directly compared with the embedded gauge data from the same experiment.

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