Abstract Submitted
for the SHOCK09 Meeting of
The American Physical Society

Heterodyne Velocimetry measurements on solids shock driven by high power lasers PATRICK MERCIER, JACKY BENIER, PIERRE-ANTOINE FRUGIER, ARNAUD SOLLIER, CEA-DAM-DIF, EMILEN LESCOUTE, JEAN-PAUL CUQ-LELANDAIS, CNRS-LCD, ELISE GAY, CNRS-LALP, THIBAUT DE RESSEGUIER, CNRS-LCD, LAURENT BERTHE, CNRS-LALP, MICHEL BOUSTIE, CNRS-LCD, MARIETTE NIVARD, CNRS-LALP, ALAIN CLAVERIE, CNRS-LCD, MARC RABEC LE GLOAHEC, CEA — A new Heterodyne Velocimeter (PDV) is under development at CEA for high explosive experimentations. Recently, we used it onto metallic target shock driven by high power laser. The aim is to test the ability of this means to reveal the propagation and the effects of shocks into materials, at extremely high strain rate and fast variations into the loading evolution. Spallation and fragmentation experiments carried out on aluminum samples, were performed on the LULI lasers at the Ecole Polytechnique, with both VISAR and HV diagnostics. Comparisons reveal a very good consistency of both experimental results. In addition, HV diagnostic evidence several levels of velocity in the experiment of fragmentation. Interpretation of these measurements is supported by transverse shadowgraphy analysis.

Patrick Mercier
CEA-DAM-DIF

Date submitted: 11 May 2009 Electronic form version 1.4