Abstract Submitted
for the SHOCK15 Meeting of
The American Physical Society

Phase Doppler Anemometry as an Ejecta Diagnostic DAVID BELL, AWE, Aldermaston, DAVID CHAPMAN, Institute of Shock Physics, Imperial College London — When a shock wave is incident on a free surface, micron sized pieces of the material can be ejected from the surface. Phase Doppler Anemometry (PDA) is being developed to simultaneously measure the size and velocity of the individual shock induced ejecta particles. The measurements will provide an insight into ejecta phenomena. The results from experiments performed on the 13 mm bore light gas gun at the Institute of Shock Physics, Imperial College London are presented. Specially grooved tin targets were shocked at pressures of up to 14 GPa, below the melt on release pressure, to generate ejecta particles. The experiments are the first time that PDA has been successfully fielded on dynamic ejecta experiments. The results and the current state of the art of the technique are discussed along with the future improvements required to further improve performance and increase usability.

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Date submitted: 29 Jan 2015 Electronic form version 1.4