

Abstract Submitted  
for the SHOCK09 Meeting of  
The American Physical Society

**Experimental Analysis of High Velocity Impact Phenomena with an Ultra High Speed Camera** PIERRE HEREIL, AURELIEN LACHAUD, JEROME MESPOULET, Thiot-Ingenierie, WAI CHAN, KEITH TAYLOR, Specialised Imaging Limited, THIOT-INGENIERIE COLLABORATION, SPECIALISED IMAGING LIMITED COLLABORATION — High velocity impacts of aluminum sphere against aluminum target have been performed at impact velocity of 4000 m/s with the two stage light gas gun HERMES at THIOT-INGENIERIE laboratory. The specificity of this launcher is the use of a gas breech for the first compression stage, which avoids the use of explosive powder. The visualization of the impact phenomena has been realized with the ultra high speed camera SIM8 developed by SPECIALISED IMAGING LIMITED. This very sophisticated camera can give eight frames with a minimum exposure time of 5 ns and a minimum time between frames of 5 ns. Results for impact on planar and tilted target are presented and analyzed. The high resolution of the monitored frames allows the distinction of very fine details from the cloud debris after the impact. This information is essential for the understanding of the physics associated with the impact phenomena at these velocities.

Pierre Hereil

Date submitted: 31 Mar 2009

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