Abstract Submitted
for the SHOCK09 Meeting of
The American Physical Society

Experimental Study of Eject on Lead Surface under Varied Loading Rate and Amplitude YONGTAO CHEN, XINZHU LI, HAIBO HU — The eject phenomena of pure lead flyer under detonation loading of varied loading rate and amplitude were studied with the help of high speed photography, VISAR, the Asay foil and a special optical probe. The mass of eject material from the lead surface may change several times with the change of loading amplitude from 3GPa to5GPa and the change of corresponding loading rate. A layer of massive material flow, total mass of which can reach tens of times by compare to the traditional eject mass, was recorded after the traditional eject particles and tightly before the flyer surface when the loading amplitude exceeded some given threshold. Formation of such kind of dispersed material flow is surely related to the shock wave or release melting (partial melting) of lead, in which cavitation and fragmentation may take place very quickly under the tension state of release wave. The loading amplitude and loading rate were controlled by varying the gap or the thickness of a porous material between the rear surface of combined flyers and the front surface of high explosive in the range of sub-millimeter size.

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Date submitted: 20 Feb 2009 Electronic form version 1.4