

Abstract Submitted  
for the SHOCK13 Meeting of  
The American Physical Society

**Study on metal ejection under laser shock loading** XIN JIANTING,  
GU YUQIU, Chinese Academy of Engineering Physics — Dynamic response of metal to shock loading plays an important role in the fields of civil engineering, aeronautics etc. The loading method of intense laser driven shock wave has many advantages to study the ejection process. The present work is devoted to laser-shock experiments in metal ejection, and get access to fragments recovery and post-test evaluation of the fragment-size distribution. The experiments were carried out on the SGIII laser facility, the samples are tin foil of  $106\mu\text{m}$  and  $260\mu\text{m}$ . Two high power pulsed laser beams of  $0.532\mu\text{m}$  wavelength are focused onto the target, the laser beams were homogenized by cpp, and the irradiated spot is quasi circular with 2mm diameter. The dynamic fragmentation were recovered by CH foam with  $200\text{mg}/\text{cm}^3$  density. One dimensional simulations were performed with HYADES code, and the pressures near the free surface of the targets driven by laser in experiments are 13Gpa, 27Gpa, 42Gpa and 50Gpa respectively. We observed the fragments in the CH foam tube by X-ray radiographs and CT image reconstruction. The total number and characteristic size of fragments have been detected..

Xin Jianting  
Chinese Academy of Engineering Physics

Date submitted: 14 Feb 2013

Electronic form version 1.4