

PPS004-18

Room: 201A

Time: May 25 15:00-15:15

Highvelocity impact flashes by porous impactors I

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Impacts at velocities of several km/s generate luminous flashes. The visible luminous efficiencies (or optical efficiencies) are defined as the ratio of the luminous energy in the visible wavelengths to the impact energy (kinetic energy of projectile). We obtained the visible luminous efficiencies in laboratory experiments in the two stage light gas gun facility in ISAS/JAXA. Spherical nylon projectiles of 7 mm in diameter were shot at tiny targets of about 1 mm in size. The tiny targets are made of solid nylon or porous nylon. The experiments are approximately equivalent to the impacts of these tiny impactors onto semi-infinite plane of nylon. Thus, we can compare the luminous efficiencies, between the impacts of solid and porous impactors, onto semi-infinite plane. The experimental results show that the efficiency for the porous impactors would be much larger than that for the solid impactors.

This research was supported by JSPS KAKENHI (19540443), and the Space Plasma Laboratory, ISAS/JAXA.

Keywords: high velocity impact, impact flash, Lunar impact flash