

Laboratory Simulation for Seismic Segregation of Small Asteroids

Kanna Iijima[1]; Misa Katou[1]; Atsushi Miyashita[1]

[1] Seikei High

<http://www.seikei.ac.jp/obs/>

Surface of the asteroid (25143) Itokawa was divided into rough terrain and smooth one. The former was covered with numerous boulders, and the latter was not done so. Plausible process is the seismic segregation in boulders and regolith induced by impacts. Such segregation would control surface morphology of small asteroids (e.g. Izenberg and Barnouin-Jha, 2006), and would bring similar features of the dichotomy of Itokawa. Here we demonstrate experimental simulations of the seismic segregation on boomerang-shaped slopes likely to Itokawa with vibration excitors. Peridotite sand (3.2g/cm^3) was adopted as regolith simulant. This simulation showed that particles allocation in size controlled surface features. A higher contents of smaller grains and gentle slope tend to bring the similar dichotomy of surface.

N. R. Izenberg and O. S. Barnouin-Jha, (2006), Laboratory Simulations of Surface Effects on Low Gravity Bodies, 37th Annual Lunar and Planetary Science Conference, abstract no.2017