Light scattering properties of regolith surfaces

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The Japanese mission for asteroid sample return (MUSES-C) launched in 2002 will carry a CCD camera to return images of the target asteroid. Most atmosphereless bodies in the solar system are covered with regolith layers. In order to investigate the scattering properties of the surface with regolith particles such as asteroid surface, we have performed the laboratory experiment of light scattering by rough surfaces using a He-Ne laser and a photomultiplier. The sample surface has a layered structure of small particles on rough surface.

Here we will present the results of our photometric measurements by varying the phase angle and discuss how scattering properties depend on the thickness of regolith layer, the size of regolith particle, and the roughness of the surface.

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