

Wednesday, May 16, 2012
SURFACE PROCESSES AND GEOLOGY OF SMALL BODIES
4:20 p.m. Snow Hall

Chairs: Olivier Barnouin
Takahiro Hiroi

- 4:20 p.m. Barnouin O. S. * Gaskell R. W. Ernst C. M.
[Revisiting the NEAR-Shoemaker landing site.](#) [#6419]
 We use new high-resolution topography from imaging, and improvements in the Near laser rangefinder data to revisit and re-evaluate current interpretations of the geology observed in the final images collected by the NEAR-Shoemaker spacecraft.
- 4:30 p.m. Hiroi T. * Sasaki S.
[Asteroidal Space Weathering: Compositional Dependency and Influence on Taxonomy](#) [#6109]
 Our recent pulse-laser irradiation experiments on olivine-pyroxene mixtures and carbonaceous chondrites indicate that olivine becomes weathered faster than pyroxene and UV and 3-micron absorption of carbonaceous chondrites weaken by space weathering.
- 4:40 p.m. Polishook D. * Binzel R. P. DeMeo F. Rivkin A.
[Constraining the Timescale of Space Weathering by Spectral Classification of Asteroid Pairs](#) [#6335]
 We put constraints on the timescale of the space weathering process by classifying the primary components of asteroid pairs with known disintegration time.
- 4:50 p.m. Botet R. * Lasue J. Levasseur-Regourd A. C. Hadamcik E.
[Cometary Nuclei Internal Structure from Early Aggregation Simulations](#) [#6015]
 A new model for the aggregation of cometesimals in the primordial solar nebula is proposed. Disruptive and sticking effects of impacts on the aggregates properties lead to particular inner geology, as well as layered surface of the resulting nuclei.
- 5:00 p.m. Sanchez P. * Scheeres D. J.
[Cohesion in "Rubble-Pile" Asteroids](#) [#6070]
 Fine regolith in rubble pile asteroids may act as a sort of "van der Waals concrete" that forms bridges that bind larger boulders and strengthens small asteroids, allowing them to rotate more rapidly. We test these ideas using DEM simulations.
- 5:10 p.m. Hartzell C. M. * Scheeres D. J. Wang X.
[Electrostatic Dust Motion on Asteroids: Current Understanding](#) [#6055]
 The possibility of electrostatic dust motion has implications for the evolution of asteroid surfaces. We will present experimental and theoretical results discussing the susceptibility of dust particles to electrostatic lofting and levitation.
- 5:20 p.m. Rosenbush V. K. * Kiselev N. N. Zaitsev S. V. Afanasiev V. L.
 Kolesnikov S. V. Antoniuk K. A.
[Opposition Optical Phenomena in Solar System Bodies: Observational Results](#) [#6130]
 We primarily focus on the study of optical opposition phenomena in Solar System small bodies and their changing with the distance from the Sun on the base of our recent polarimetric observations and published data.
- 5:30 p.m. Virkki A. * Muinonen K. Penttilä A.
[Circular-Polarization Ratios and Radar Albedos: Interpretation in Terms of Near-Surface Physical Properties of Asteroids](#) [#6064]
 We model electromagnetic scattering from closely-packed aggregates of spheres mimicking the structure of regolith. We show, e.g., interference structure for the circular-polarization ratio as a function of the size parameter and the refractive index.

- 5:40 p.m. Wolters S. D. * Lowry S. C. Duddy S. R. Fitzsimmons A. Green S. F. Hicks M. Rosenberg E. D. Rozitis B. Snodgrass C. Weissman P. R.
[*Physical Characterisation of Fast-Rotating Near-Earth Asteroids*](#) [#6343]
We present VLT+VISIR mid-IR observations of fast-rotating near-Earth asteroids. Diameters and albedos are determined with thermal models. These NEAs may have unusual surface properties, e.g. from regolith transport/stripping due to the YORP effect.
- 5:50 p.m. Ernst C. M. * Mazrouei S. Barnouin O. S. Daly M.
[*Constraints on Reaccretion from Itokawa Boulder Distributions*](#) [#6458]
We analyze the distribution of boulders on Itokawa and use the findings to place constraints on the reaccretion environment of the system before the union of the head and body.
- 6:00 p.m. Čapek D. * Vokrouhlický D.
[*Thermal Erosion of Meteoroids*](#) [#6051]
The thermal stresses in the solar vicinity can cause an erosion of small meteoroids. Preferential erosion of weaker and larger members of a meteoroid shower with low perihelion distance can easily explain the observed material properties of Geminids.