

Thursday, March 22, 2012

POSTER SESSION II: SMALL BODIES: PROCESSES, TOOLS, AND UPCOMING MISSIONS

6:00 p.m. Town Center Exhibit Area

Molaro J. L. Byrne S.

[*The Effect of Rotation Rate and Semi-Major Axis on the Efficacy of Thermal Stress Weathering*](#) [#1154]

We explore which solar system bodies may be most susceptible to thermal stress weathering by modeling surface temperatures of near-Earth asteroids and examining how rates of temperature change vary with rotation rate, semi-major axis, and obliquity.

Moskovitz N. A.

[*Spectro-Photometry of Dynamically Associated Asteroid Pairs*](#) [#2032]

Pairs of dynamically associated asteroid pairs have recently been identified in the main belt. We will present the results of a spectro-photometric study to address the formation of these unusual objects.

Fu R. R. Hager B. H.

[*Asteroid Shape as a Constraint on Early Melting and Differentiation*](#) [#1956]

We conduct numerical modeling of the early deformation of partially differentiated asteroids due to self gravity. Fully molten bodies relax to hydrostatic shapes in <1 m.y. while the presence of a crust can prevent relaxation for small bodies (<150 km).

Kahn E. G. Barnouin O. S. Ernst C. M.

[*Improved Estimation of the Hayabusa Spacecraft Trajectory and Lidar Tracks*](#) [#1648]

An algorithm is presented for improving the estimate of the Hayabusa spacecraft trajectory and lidar tracks by using a high-resolution shape model of 25143 Itokawa and a point-matching scheme to match the lidar tracks with the asteroid.

Savanevich V. E. Kozhukhov A. M. Bryukhovetskiy A. B. Vlasenko V. P. Dikov E. N.

Ivashchenko Yu. N. Elenin L. V.

[*Program of Automated Asteroids Detection CoLiTec — New Features and Results of Implementation*](#) [#1049]

The report presents the main improvements and results of using of the CoLiTec program in 2011. By 10 December the two observatories discovered more than 700 asteroids and one comet and sent to the MPC more than 150,000 measurements using the program.

Levengood S. P. Shepard M. K.

[*A GUI-Based Open-Source Program for Viewing and Illuminating Asteroid Shape Models*](#) [#1230]

We created an interactive opensource program that can generate brightness maps and phase curves for a given asteroid shape (.SHP) model. Images of the model are rendered using ray tracing via OpenGL.

Lauretta D. S. OSIRIS-REx Team The.

[*An Overview of the OSIRIS-REx Asteroid Sample Return Mission*](#) [#2491]

The science objectives, science implementation, and mission implementation plans for the OSIRIS-REx mission will be presented.

Dickinson C. S. Daly M. Barnouin O. Bierhaus B. Gaudreau D. Tripp J. Ilnicki M. Hildebrand A.

[*An Overview of the OSIRIS REx Laser Altimeter \(OLA\)*](#) [#1447]

The Canadian Space Agency is contributing a scanning lidar system known as the OSIRIS-REx Laser Altimeter, or OLA, to the OSIRIS REx Mission. OLA will deliver high-density three-dimensional point cloud data, enabling reconstruction of an asteroid shape model.

Helbert J. Maturilli A. Grott M. Knollenberg J. Okada T. Kührt E.

[*Measurements at the Planetary Emissivity Laboratory in Support of MARA and the TIR Imager on the JAXA Hayabusa II Mission*](#) [#1955]

At the Planetary Emissivity Laboratory (PEL) at DLR we perform measurements on analog materials to explore the possibility of mineralogical studies with the thermal infrared imager and the radiometer MARA (MAscot RAdiometer) on MASCOT.

Okada T. Fukuhara T. Tanaka S. Taguchi M. Nakamura R. Sekiguchi T. Hasegawa S. Ogawa Y. Kitazato K. Matsunaga T. Imamura T. Wada T. Arai T. Yamamoto Y. Takaki R. Tachikawa S. Helbert J. Mueller T. G.

[Thermal Infrared Imager TIR on Hayabusa 2 to Investigate Physical Properties of C-Class Near-Earth Asteroid 1999JU3](#) [#1498]

Thermal-infrared imager TIR is being prepared to observe a C-class ENA 1999JU3 in Hayabusa 2, not only for scientific investigation of asteroid physical properties but also for landing site selection and safety descent to asteroid surface.

McCord T. B. Combe J.-Ph. Taffin C.

[Composition of a Comet Nucleus: Preparing for Rosetta Observations](#) [#2449]

Knowledge about the specific components of a comet nucleus is limited. We review the current knowledge, explore additional inferred components, and show the detectability using the IR spectrometer, VIRTIS, on the Rosetta mission.

Briani G. Engrand C. Duprat J. Benoit R. Krüger H. Fischer H. Hilchenbach M. Briois C. Thirkell L.

[TOF-SIMS Analyses of an Ultracarbonaceous MicroMeteorite: Preparation of Rosetta-COSIMA Studies in 2014](#) [#2584]

We studied organic matter of an ultracarbonaceous Antarctic micrometeorite (UCAMM) by in situ high mass resolution TOF-SIMS. Results will be used to optimize the scientific return of the COSIMA mass spectrometer onboard the ESA space mission Rosetta