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Baragiola R. A. Dukes C. A.
Surface Science Constraints to Regolith Models **[#2477]**
We will discuss regolith processes: electrostatic charging, dust adhesion and levitation, Na diffusion, and water formation from implanted H. We will emphasize the need to ion bombard lunar simulants previous to laboratory studies of surface properties.

Berezhnoy A. A. Kozlova E. A. Shangaraev A. A. Shevchenko V. V.
Stability and Origin of Lunar Polar Volatiles **[#1185]**
All detected species except H2, CO, and CH_4 are stable against evaporation at the LCROSS impact site. Cometary NH_3, C2H4, CH3OH, and CH_4 can survive during low-speed impacts while other detected species can be formed during impacts of O-rich comets.

Chen S. B.
Geologic Investigation and Mapping of the Sinus Iridum Quadrangle from Clementine, SELENE, and Chang'E-1 **[#1779]**
The objectives of lunar satellite remote sensing are to study lunar surface characteristics, inner structure, and its evolution history.

Du J. S. Chen C. Liang Q. Zhou C.
Lateral Density Variations on the Surface and in the Crust of the Moon **[#1744]**
Firstly, we statistically model the density distributions on the Moon from petrologic mapping and densities of the rock samples. Secondly, the average lateral density variations in the lunar crust is modeled based on the topography and gravity field of the Moon.

Evans R. Lena R. Phillips J. Wöhler C.
Lunar Domes Near Menelaus Crater **[#1485]**
We examine two possible effusive lunar domes bisected by linear rilles near Menelaus Crater in terms of their morphometric and inferred rheologic properties and feeder dike dimensions. The region along the rilles consists of olivine-rich mare basalt.

Fruland R. M. Cooper B. L. Gonzalez C. P. McKay D. S.
New Technology/Old Technology: Comparing Lunar Grain Size Distribution Data and Methods **[#1587]**
Most lunar grain-size data has been generated by mechanical sieving, but new laser diffraction technology now generates reproducible grain-size distributions and reveals new structures not apparent in old sieve data.

Kaydash V. Shkuratov Y.
Phase-Ratio Imagery as a Tool to Study the Lunar Surface Structure: Example of Vallis Schröteri **[#1361]**
We apply the phase-ratio method using data from NAC LROC onboard the NASA LRO spacecraft with the aim to identify naturally altered regolith structure on the wall of Vallis Schröteri, the largest sinuous rille on the Moon.

Kozlova E. A. Lazarev E. N. Shangaraev A. A.
"Cold Traps" and PSR Near South Pole of the Moon **[#2039]**
We investigated the distribution of the temperature and illumination in the South Pole region of the Moon with data obtained by LRO (LOLA) spacecraft.

Lena R. Evans R. Lammel S. Phillips J. Wöhler C.
Effusive Lunar Domes in Capuanus Crater: Morphometry and Mode of Emplacement **[#1443]**
We describe three lunar mare domes on the floor of Capuanus crater in terms of their morphometric and inferred rheologic properties and feeder dike dimensions. Furthermore, we construct a petrographic map of the Capuanus region.

Liang Q. Chen C. Li Y.
3-D Inversion of the Gravity Data on the Moon **[#1729]**
A new 3D inverse method for lunar gravity data was developed to investigate the density structure in crust and mantle of the Moon. The results showed that the lateral heterogeneities of density are mainly located at the depth above 50 km.

Lu Y. Shevchenko V. V.
Dry Debris Flow on the Moon: Chang'E-2 Data **[#1254]**
The presence of very young details and immature soils on the inner wall slopes of the crater Daniell suggests recent intensive slope processes.

Nazarov M. A. Demidova S. I. Brandstaetter F. Ntaflos Th.
Dhofar 301: Evidence for Strong Reduction in Lunar Highland Rocks **[#1228]**
An anorthositic clast containing Fe-free pyroxenes was found in the Dhofar 301 lunar feldspathic meteorite. The clast shows evidence for strong reduction and mobilization of Fe, Cr, and Mn as carbonyl compounds in the lunar environment.

Petrova N. K. Dr. Hanada H. Dr.
Simulating of Stellar Tracks for Observations by the Polar ILOM-Telescope **[#1179]**
The ILOM is an experiment to measure the lunar libration *in situ* on the Moon with a small telescope. The simulating revealed sensitivity to lunar dynamical models and the difference from daily parallels in comparison with ground-based observations.

Radhadevi P. V. Nagasubramanian V. Solanki S. S. Krishna Sumanth T. Saibaba J. Varadan G.
Rigorous Photogrammetric Processing of Chandrayaan-1 Terrain Mapping Camera (TMC) Images for Lunar Topographic Mapping **[#1384]**
This paper describes the method of generating digital elevation models (DEM) and ortho images of the lunar surface from high-resolution TMC stereo images of Chandrayaan-1 through a rigorous photogrammetric processing.

Shevchenko V. V. Pinet P. C. Chevrel S. Daydou Y. Lu Y. Skobeleva T. P.
Kvaratskhelia O. I. Rosemberg C.
The Current Avalanche Deposits in Lunar Crater Reiner: LRO Data **[#1161]**
Avalanching appears to be a major means of the current erosion on steep lunar slopes.

Sinitsyn M. P.
Comet Hypothesis of Hydroxyl and Water Origin on the Moon According to the Results of LRO and LCROSS Spacecraft **[#1236]**
According to new data obtained by LRO and LCROSS space missions, comet origin water deposits, perhaps, are present on the south pole of the Moon. In addition, some recent facts concerning confirmation of the cometary hypothesis of surface hydroxyl and water accumulation are given.

Slyuta E. N. Shilobreeva S. N. Kashkarov L. L. Kalinina G. V. Voropaev S. A.
Amorphization Depth of Anorthite and Quartz in Dependence on H+ and He+ Ion Energy and Irradiation Dose **[#1127]**
When irradiation dose by protons is high enough, all chemical and physical processes of space weathering of anorthite and quartz particles in lunar regolith will occur in the radiation-induced amorphous film, without reaching crystal lattice.

Slyuta E. N. Shilobreeva S. N. Voropaev S. A. Kashkarov L. L. Zinenko V. I. Saraykin V. V.
Preliminary Experimental Data on Irradiation-Induced Fractionation of Isotopes ^{54}Fe and ^{56}Fe **[#1195]**
The observed irradiation-induced fractionation of isotopes Fe is practically equal to the observed kinetic mass fractionation, but is opposite in sign.

Velikodsky Yu. I. Volvach Ya. S. Korokhin V. V. Shkuratov Yu. G. Kaydash V. G. Opanasenko N. V. Muminov M. M. Kahharov B. B.
Phase Curve of Lunar Color Ratio **[#2060]**
A phase curve of color ratio C (603/472 nm) of the Moon has been obtained and compared with data of other authors. A minimum of the phase curves at small phase angles is not regularly observed. This contradicts the coherent backscatter effect.