Thursday, March 13, 2008
POSTER SESSION II: LUNAR GEOPHYSICS
6:30 p.m. Fitness Center

Lee K. T. Wilson T. L.
GCR-induced Photon Luminescence of the Moon **[#1150]**
A GCR-induced photon luminescence is demonstrated to exist on the Moon. Its spectrum is derived and shown to exist in the upper X-ray and lower γ-ray portion of the electromagnetic spectrum — detectable during total lunar night (no sunlight, Earthshine).

Moskalenko I. V. Porter T. A.
The Gamma-Ray Albedo of the Moon **[#2300]**
We use the GEANT4 to calculate the γ-ray albedo of the Moon due to interactions of cosmic rays with lunar rock. We show that the albedo spectrum is steep with a cutoff at ~4 GeV and exhibits a narrow pion-decay line at 67.5 MeV, perhaps unique in astrophysics.

Rumpf M. E. Fagents S. A. Crawford I. A. Joy K. H.
Predicting Volatile Preservation in the Lunar Regolith Through Heat Transfer Modeling **[#2259]**
The lunar surface makes an excellent potential laboratory for studying the influx of ancient solar and extra-solar particles. Here we study the survivability of such volatile deposits after exposure to conductive heating by an overlying lava flow.

Carley R. A. Purucker M. E. Halekas J. S. Whaler K. A.
Quantitative Comparison of Lunar Prospector Magnetometer and Electron Reflectometer Data **[#1959]**
Lunar Prospector (LP) Electron Reflectometer surface magnetic field estimates are directly compared with recently processed low altitude LP Magnetometer data, reproduced at the surface using a preliminary global model of the internal magnetic field of the Moon.

Starukhina L. V.
Ice on the Moon and Mercury: Reanalysis of the Origin and Survival Conditions **[#1141]**
Ice burial under regolith and return of most of the evaporated water molecules back to cold traps cannot increase survival temperature of lunar or mercurian ice above 150 K, i.e., ice survival on sunlight areas is impossible even deep under regolith.

Williams J. G. Boggs D. H. Ratcliff J. T.
Lunar Tides, Fluid Core and Core/Mantle Boundary **[#1484]**
New data improves lunar science results. A fluid core and tidal dissipation are inferred from dissipation effects on rotation. Detection of core-mantle boundary flattening and fluid core moment give additional evidence for a fluid core.

Richmond N. C. Hood L. L. Harnett E. M.
Isolated Lunar Magnetic Anomalies: Interaction with the Solar Wind **[#2005]**
We present Lunar Prospector magnetometer data showing observational evidence of a mini-magnetosphere at a lunar magnetic anomaly near the crater Airy, and discuss the association between the anomaly source properties and surface albedo.

Chi P. J. Russell C. T. Walker R. J. Williams D. R.
Restoration of Apollo Magnetic Field Data **[#1758]**
In this paper we outline a plan to restore the data from the Apollo surface and subsatellite magnetic field experiments and make them available to the lunar exploration community through a dedicated online server, the PDS and the LEED.

Saito Y. Tanaka S. T. Horai K. Hagermann A.
The Long Term Temperature Variation in the Lunar Subsurface **[#1663]**
The variation of the insolation duration caused by topography may influence the Apollo measurements. It indicates that we should assess the effect specific to the measurement region including the future mission.

Ryan R. E. Underwood L. W. McKellip R. Brannon D. P. Russell K. J.
Exploiting Lunar Natural and Augmented Thermal Environments for Exploration and Research **[#2346]**
Near lunar poles there are permanently shadowed craters; temperatures never exceed 100 K. There are double-shaded craters with even colder regions and with augmentation even lower temperatures can be achieved, enabling lunar exploration devices.

Seweryn K. Wawrzaszek R. Grygorczuk J. Dabrowski B. Banaszkiewicz M. Neal C. R.
Huang S. Koemle N.
Modelling of Passive and Active L-GIP Thermal Measurements in the Lunar Regolith **[#1957]**
Atop the Moon's crust is a highly comminuted surface layer of lunar regolith. In the paper we deal with the problem of the influence of the gap thermal resistance and regolith structure changed during the mole penetration on the passive and active thermal measurements.

Ritzer J. A. Hauck S. A. II Johnson C. L.
Spherical Splines: Beyond Spherical Harmonics for Non-Uniform Geophysical Datasets on the Moon and Mercury **[#2338]**
Geophysical data returned from spacecraft missions may by highly spatially non-uniform in resolution. Locally-supported spherical splines are investigated as an alternative to commonly used, globally-supported spherical harmonic data representations.

Kawamura T. Saito Y. Tanaka S. Ono S. Horai K. Hagermann A.
The Lunar Surface Gravimeter as a Lunar Seismograph **[#2054]**
The Lunar Surface Gravimeter on Apollo 17 failed to detect gravitational waves but it functioned as a seismograph. We will show that the LSG was detecting seismic signals and discuss the quality of the data.

Lognonne P. Mimoun D. Bulow R. Gagnepain-Beyneix J. Giardini D. Pike T. Nebut T. Tillier S.
Gabsi T. Neal C. R. Banerdt W. B. Tanaka S. Shiraishi H. Johnson C. L.
New Technologies for New Seismic Discoveries on the Moon **[#2099]**
We show that new technologies and approach in seismology will allow to make a giant steps in our understanding of the Moon interior, if seismology is implemented on the future Moon mission, 40 years (or more) after the Apollo seismic experiments.

Mohit P. S. Lawrence K. P. Uno H. Johnson C. L.
Chronology of Lunar Magnetism Revisited **[#2494]**
We revisit the lunar magnetic field datasets in the light of new results questioning the 3.9–3.6 Ga "magnetic epoch."