Thursday, March 4, 2010
POSTER SESSION II: ONCE AND FUTURE MOON: MISSIONS AND INSTRUMENTS
7:00 p.m. Town Center Exhibit Area

Jolliff B. L. Alkalai L. Pieters C. M. Head J. W. III Papanastassiou D. A. Bierhaus E. B.
Sampling the South Pole-Aitken Basin: Objectives and Site Selection Criteria **[#2450]**
Science objectives for South Pole-Aitken Basin sample return drive site selection strategies. Key criteria include obtaining a large number of melt rocks for age dating and maximizing diversity, including depth variations and volcanic materials.

Cohen B. A. Coker R. F.
Pulling Marbles from a Bag: Deducing the Regional Impact History of the SPA Basin from Impact-Melt Rocks **[#2475]**
So much depends upon/impact-melt rocks/gleaned from a scoop sample/inside the SPA basin.

Fagan A. L. Ennis M. E. Pogue J. N. Porter S. Snape J. F. Neal C. R. Kring D. A.
Science-rich Mission Sites Within South Pole-Aitken Basin, Part 1: Antoniadi Crater **[#2467]**
We suggest that Antoniadi Crater is an ideal location to achieve the concepts and goals outlined in the 2007 NRC report, Scientific Context for Exploration of the Moon. We outline the achievable goals at three potential landing sites within Antoniadi Crater.

Snape J. F. Fagan A. L. Ennis M. E. Pogue J. N. Porter S. Neal C. R. Kring D. A.
Science-rich Mission Sites Within South Pole-Aitken Basin, Part 2: Von Kármán Crater **[#1857]**
We have identified Von Kármán Crater, within the South Pole-Aitken Basin, as a target for future manned lunar exploration. The potential for *in situ* scientific studies was evaluated for three specific landing sites in the crater.

Ennis M. E. Fagan A. L. Pogue J. N. Porter S. Snape J. F. Kring D. A.
Lunar Farside Volcanism: Potential Sampling Localities Within South Pole-Aitken Basin **[#2512]**
The National Research Council outlined specific goals for the future of lunar exploration in a 2007 report. A number of localities within South Pole-Aitken Basin are presented where we can begin to address many of the goals pertaining to volcanism.

Korteniemi J. Eldridge D. L. Singer K. Lough T. Werblin L. Kring D.
Volcanic Landing Sites on the Moon: The Compact and Diverse Harbinger Region **[#1339]**
We map out potential landing sites on the Harbinger region (25.71°N, 44.47°W) for future missions. Most open lunar science questions can be addressed there, particularly ones concerning volcanism, internal activity, dating and impact processes.

Weisbin C. R. Clark P. Adumitroaie V. Mrozinski J. Shelton K. Hua H. Smith J. H. Elfes A. Lincoln W. Silberg R.
Formulation, Modeling and Analysis of a Mission to the Moon's Schrodinger Crater **[#1473]**
We formulate ~90 day lunar mission, Shackleton to Schrodinger Crater and back, covering ~1100 km achieving ~80% targeted science value. When value of enhancing science activities is added, mission science rises to nearly twice the targeted value.

Lough T. Korteniemi J. Eldridge D. L. Singer K. Werblin L. Kring D. A.
Mission Options to Explore the Flux and Evolution of Lunar Volcanism Through Space and Time **[#2537]**
We outline criteria to determine mission options and identify four example lunar landing sites that explore the flux and evolution of lunar volcanism with the goal of understanding the thermal and chemical development of the Moon.

Jolliff B. L. Wiseman S. A. Lawrence S. J. Tran T. N. LROC Science Team
Scientific Return from Systematic Imaging of the Constellation Exploration Sites: Compton-Belkovich Example **[#2412]**
NASA's Constellation Program identified 50 sites for detailed imaging by LRO that represent a wide range of features of interest for human/scientific exploration. The Compton-Belkovich "thorium anomaly" site is shown as an example of science context.

Arya A. S. Rajasekhar R. P. Ajai Kiran Kumar A. S. Navalgund R. R.
Identification of Lunar Volcanic Tubes, a Potential Site for Human Settlement Using 3D Chandryaan 1 – TMC Data **[#1484]**
This paper presents three dimensional analysis over a volcanic tube in Oceanus Procellurum using high resolution Chandrayaan-1 TMC data for the identification potential site for human settlement.

Xiong S. Q. Yan B. K. Gan F. P. Wang Z. C.
The Choice of the Lunar Landing Sites and Preliminary Analysis of Several Sites **[#1304]**
Three sites are chosen based on the lunar exploration achievements and problems, and are analyzed using LIDAR and CCD data of Chang'E-1 satellite as well as Clementine UV-VIS data.

Yamada R. Garcia R. Calvet M. Gagnepain-Beyneix J.
Design of an Optimized Seismic Network for Future Lunar Missions **[#1619]**
We will describe how to design an optimized seismic network for future lunar missions. We designed the positions of new seismic stations to satisfy principal scientific objectives. In this presentation, some examples of the network will be indicated.

Neal C. R. Banerdt W. B. Alkalai L.
LUNETTE: Establishing a Lunar Geophysical Network Without Nuclear Power Through a Discovery-Class Mission **[#2710]**
The LUNETTE concept uses new power management technology to offer a non-nuclear alternative. It will provide detailed information on the interior of the Moon through seismic, thermal, electromagnetic, and precision laser ranging measurements.

Currie D. G. Dell'Agnello S. Delle Monache G.
A Lunar Laser Reflector for the 21st Century **[#2269]**
The Apollo Lunar Laser Reflectors after forty years are limiting the range accuracy. The science objectives, the design, the thermal and optical simulation and field testing of the new retroreflector array for lunar ranging will be presented.

Mumm E. Zacny K. Kumar N. Hedlund M. Smrekar S. Morgan P. Nagihara S. Shasho J. Pierides A. Milam B.
Heat Flow Probes for Small Lunar Lander **[#2128]**
We have been developing two innovative heat-flow probe systems: percussive and pneumatic-proboscis. Each system consists of two parts: (1) a method of reaching 3 m depth in lunar regolith, and (2) a method of deploying thermal sensors.

Moreschini P. Rutberg M. Zacny K. Paulsen G.
DIHeDRAL: Downhole Regolith Interrogation with He-assisted Drill and Laser Induced Breakdown Spectroscopy System **[#1722]**
We describe DIHeDRAL, a downhole LIBS system designed to be integrated into a 3-m-class drill, currently under development at Honeybee Robotics. DiHeDRAL allows subsurface access providing information on the composition of lunar soil.

Scheld D. Marshall J. R. Mason L. C. Martin J. P.
In-Situ Geologic Analyzer for Lunar and Martian Surface **[#1539]**
An instrument is presented with a triple system to work as a robotic geologist on remote planetary surfaces. MICA is a miniature instrument that employs X-ray scattering and visual imaging to determine nondestructively the mineralogy of a rock sample *in situ*.

Campbell A. E. Thaisen K. G. Gaskin J. A. Jerman G. A. Taylor L. A.
Miniaturized Scanning Electron Microscope for the Moon: Energy Dispersive X-Ray Spectroscopy Studies **[#2201]**
NASA Marshall Space Flight Center and colleagues have been developing a miniaturized SEM with chemical analysis capability (EDS). Our interest is to understand the limiting instrument capabilities and appropriate science.

Lanza N. L. Deans M. C. Clegg S. M. Humphries S. D. McInroy R. E. Wiens R. C.
Newsom H. E. Ollila A. M.
Evaluating LIBS as a Geochemical Reconnaissance Tool for the K10 Lunar Rover **[#2613]**
Materials were collected from Black Point Lava Flow (BPLF) in Arizona and analyzed with LIBS in the laboratory to evaluate this technique for future use on the K10 lunar rover. These results were compared to bulk analyses carried out in previous studies.

Corsaro R. D. Liou J.-C. Giovane F. Burtchell M. Pisacane V. Lagakos N. Williams E. Stansbery E.
Micrometeoroid and Lunar Secondary Ejecta Flux Measurement: Comparison of Three Acoustic Systems **[#1108]**
We examine the inherent capability of three large-area acoustic sensor systems and their applicability for micrometeoroids and lunar secondary ejecta detection and characterization for future lunar exploration activities.

Segura T. L. Lo A. S. Eller H. Dailey D. Drucker E. Wehner J.
Secondary Payloads Using the LCROSS Architecture **[#2673]**
We describe several secondary planetary mission concepts that could be accommodated by an LCROSS-based ESPA spacecraft.

Laufer R. Hyde T. W. Matthews L. Lachenmann M. Herdrich G. Srama R. Roeser H.-P.
A Baylor University Payload Contribution to the Universitaet Stuttgart Moon Orbiter
LUNAR MISSION BW1 **[#2105]**
The LUNAR MISSION BW1 is an academic small lunar orbiting satellite of the Universitaet Stuttgart, Germany. As part of a collaborative agreement between Baylor University and the Universitaet Stuttgart, an instrument contribution is under consideration.

Li R. He S. Tang P. Skopljak B. Yilmaz A. Jiang J. Banks M. S. Oman C.
Development of a Lunar Astronaut Spatial Orientation and Information System **[#1782]**
This paper presents the progress of the development of a Lunar Astronaut Spatial Orientation and Information System (LASOIS) to continuously provide spatial orientation and navigation information to astronauts for reducing spatial disorientation.

Crawford I. A. Joy K. H. Cousins C. R. Grindrod P. Snape J. Weider S. Z. White O.
Lupisella M. L. Petro N. E.
Enhancing the Probability of Making Serendipitous Discoveries from a Pressurized Lunar Rover **[#1272]**
A scientific benefit of returning humans to the Moon is the increased opportunity for serendipitous discoveries. Here we identify design requirements for a pressurized rover which will increase the probability of making such discoveries.

Kókány A. Pál P. Pintér Cs. Urbán I.
Practical Realization of Robot Technology Constructed to Promote Work on the Moon **[#1143]**
The purpose of our researches is the practical realization of lunar work in view of Moon environment as well as utilization of our innovations and technologies in robot designing.

Cohen B. A. Bassler J. A. Hammond M. S. Harris D. W. Hill L. A. Kirby K. W. Morse B. J.
Mulac B. D. Morse C. L. B.
Robotic Lunar Landers for Science and Exploration **[#2616]**
Soaring toward the Moon, robotic landers will seed cloudbursts of knowledge.

Angelopoulos V. Lillis R. Sibeck D. G. Halekas J. Delory G. T. Khurana K. K. Russell C. T. McFadden J. P. Bonnell J. Larson D.
ARTEMIS, A Two Spacecraft, Planetary and Heliospheric Lunar Mission **[#1425]**
ARTEMIS is re-targeting two of NASA's five THEMIS satellites into coordinated, lunar equatorial orbits. It will make the first systematic, two-point observations of the lunar space and planetary environment starting in April 2011.

Graham P. Snyder G. OpenLuna Science Team
OpenLuna: An "Open Source", Privately Funded, Return to the Moon Mission **[#2721]**
The OpenLuna Foundation seeks to return mankind to the lunar surface through private enterprise, using open-source strategies. We will launch a stepped series of robotic and limited manned missions leading to outpost construction. Your Moon, your mission. Get involved.

Kobayashi M. Ohashi H. Sasaki S. Shibata H. Iwai T. Fujii M. Nogami K. Kimura H. Nakamura M. Hirai T.
Lunar Dust Monitor for the Orbiter of the next Japanese Lunar Mission SELENE2 **[#1964]**
A dust particle detector is proposed to be onboard the orbiter of SELENE-2 mission. We summarize the significance of circumlunar dust and report an overview of our instrument proposed to accompany the SELENE-2 mission.

Munsat T. Sternovsky Z. Robertson S. Grün E. Horanyi M.
Lunar Dust Transport Package **[#2538]**
We present the Lunar Dust Transport Package, a proposed instrument suite to investigate dusty plasma processes on the lunar surface, including spatial and size distributions of levitated/transported dust grains, and surface plasma characterization.

Delory G. T. Elphic R. C. Colaprete A. Mahaffy P. Horanyi M.
The LADEE Mission: The Next Step After the Discovery of Water on the Moon **[#2459]**
We discuss how the LADEE mission will contribute to our knowledge of the origin and evolution of lunar volatiles.