Tuesday, March 11, 2008
POSTER SESSION I: LUNAR SCIENCE: MISSIONS AND PLANNING
6:30 p.m. Fitness Center

Colaprete A. Briggs G. Ennico K. Heldmann J. L. Sollitt L. S. Asphaug E. Korycansky D. G. Schultz P. H. Christensen A. Galal K.
An Overview of the Lunar Crater Observation and Sensing Satellite (LCROSS) Mission — A Mission to Investigate Lunar Polar Hydrogen **[#1838]**
The primary objective of the Lunar Crater Observation and Sensing Satellite (LCROSS) is to confirm the presence of water ice at the Moon's south pole. This paper will overview the rational and goals for the mission, impact expectations, and the mission design.

Ennico K. Colaprete A. Wooden D. Heldmann J. L. Kojima G. Shirley M.
LCROSS Science Payload Ground Development, Test and Calibration Results **[#1474]**
The LCROSS (Lunar Crater Observation and Sensing Satellite) mission will fly nine unique instruments to the Moon. Their industry and laboratory development, flight unit testing, and calibration are summarized in this paper.

Heldmann J. L. Colaprete A. Wooden D. Asphaug E. Schultz P. H. Plesko C. S. Ong L. Korycansky D. G. Galal K. Briggs G.
Lunar Crater Observation and Sensing Satellite (LCROSS) Mission: Opportunities for Observations of the Impact Plumes from Ground-based and Space-based Telescopes **[#1482]**
The LCROSS (Lunar Crater Observation and Sensing Satellite) mission will impact in the lunar south pole region to produce an impact plume observable by both ground and space-based assets. Astronomers are thus encouraged to observe this impact plume.

Bart G. D. Colaprete A.
LCROSS Impact Site Characterization **[#2225]**
This presentation discusses the characterization of the LCROSS impact site. LCROSS, the Lunar CRater Observation and Sensing Satellite, will impact the Moon in a permanently shadowed region and investigate the plume for the presence of water ice.

Korycansky D. G. Plesko C. S. Asphaug E.
LCROSS Impact Predictions **[#1963]**
We present predictions for the observations to be made by the LCROSS lunar impact mission to be launched later this year.

Koschny D. Foing B. H. Frew D. Grieger B. Almeida M. Sarkarati M. Volp J. Josset J.-L. Beauvivre S. Grande M. Huovelin J. Nathues A. Malkki A. Noci G. Kellett B. Heather D. J. Zender J. McMannamon P. Schwehm G. Camino O. Blake R. SMART-1 Team
SMART-1 Lunar Science Planning **[#2282]**
The SMART-1 spacecraft reached on 15 March 2005 a lunar orbit 400–3000 km for a nominal science period of six months, with a one year science extension until impact on 3 September 2006. We report on the SMART-1 science planning methods, tools, and lessons learned.

Grieger B. Foing B. H. Koschny D. Josset J. L. Beauvivre S. Frew D. Almeida M. Sarkarati M. Volp J. Pinet P. Chevrel S. Cerroni P. De Sanctis M. C. Barucci M. A. Erard S. Despan D. Muinonen K. Shevchenko V. Shkuratov Y. Ellouzi M. Peters S. Cook A. C. SMART-1 Team
Coverage and Pointing Accuracy of SMART-1/AMIE Images **[#2221]**
During 18 months of science operations from 400–3000 km lunar orbit, the AMIE camera onboard the SMART-1 spacecraft acquired about 32,000 images. We report on the coverage at various resolutions (until 50 m/pixel) and the pointing accuracy.

Weider S. Z. Gow J. Joy K. H. Crawford I. A. Smith D. R. Holland A. Swinyard B. M.
X-Ray Fluorescence Particle Size and Scattering Angle Considerations — Preparatory Experiments for the Calibration and Interpretation of C1XS Data **[#1098]**
We investigate the effects of particle size and phase angle variations on the XRF of rock samples in order to test and develop the C1XS XRF modelling code, which will be used to convert C1XS data from X-ray fluxes to elemental ratios and abundances.

Grande M. Maddison B. Sreekumar P. Huovelin J. Kellett B. Howe C. J. Crawford I. A. Holland A.
The C1XS X-Ray Spectrometer on Chandrayaan-1 **[#1620]**
C1XS (Chandrayaan-1 X-ray Spectrometer) will launch on the Indian lunar mission in spring 2008. It exploits heritage from D-CIXS (Grande et al., 2003, 2007) on SMART-1, and will measure Mg, Al, Si, Ca, and Fe abundances with resolution ~25 km.

Narendranath S. Sreekumar P. Kellet B. J. Wallner M. Howe C. J. Maddison B. Erd C. Grande M.
Instrument Response of the Chandrayaan-1 X-Ray Spectrometer (C1XS) **[#1136]**
C1XS on the Chandrayaan-1 lunar mission is an X-ray fluorescence experiment. Here we summarize the ongoing calibration measurements required to derive the instrument response.

Joy K. H. Crawford I. A. Kellett B. Grande M. C1XS Science Team
The Scientific Case for the Chandrayaan-1 X-Ray Spectrometer **[#1070]**
This paper describes the scientific case for the Chandrayaan-1 X-Ray Spectrometer, which is due for launch in 2008.

Petro N. E. Pieters C. M. Boardman J. Green R. O. Head J. W. III Isaacson P. J. Nettles J. W. Malaret E. Staid M. Sunshine J. Tompkins S.
Targeting for the Moon Mineralogy Mapper (M^3) Instrument on the Chandrayaan-1 Mission **[#1696]**
M^3 will measure the spectral reflectance of the Moon in two modes, a coarse resolution mode for global coverage and a higher resolution mode for defined areas of science interest. We describe the prioritization of areas for high-resolution coverage.

Kramer G. Y. McCord T. B. Harder J. W. Thuillier G.
The Extraterrestrial Spectrum for Planetary Mapping: A Look at Options for Chandrayaan-1's Moon Mineralogy Mapper **[#2236]**
Precise determination of the solar spectral irradiance (SSI) is of primary importance for converting radiance data to reflectance for geological interpretations. We argue for using SSI measurements obtained by orbiting spacecraft.

Green R. O. Pieters C. M. Mouroulis P. Sellar G. Eastwood M. Geier S. Shea J. M3 Team
Calibration, Shipment and Initial Spacecraft Integration of the Moon Mineralogy Mapper (M^3) Imaging Spectrometer for the Chandrayaan-1 Mission **[#1803]**
Calibration, shipment and initial spacecraft integration of the Moon Mineralogy Mapper (M^3) Imaging Spectrometer for the Chandrayaan-1 mission.

McAlpin D. B. Nuñez J. I. Griffin A. R. Porter S. B. Robinson M. S.
The Case for a Lunar Sample Return Mission: Lichtenberg Crater **[#1443]**
We propose a robotic mission to Lichtenberg Crater to collect and return samples of two compositionally distinct lunar mare and the underlying feldspathic crust. This material will clarify our understanding of the evolution of the lunar crust.

Martirosyan K. S. Luss D.
Nanoenergetic Fabrication of Dense Ceramics for Lunar Exploration Program **[#1689]**
We propose here to use nanoenergetic systems (example of titanium and boron nano particles) to fabricate matrix dense ceramic composites through *in situ* resource utilization for Lunar Exploration Program application.