Wednesday, March 12, 2008
THE SCIENCE BEHIND LUNAR MISSIONS
10:00 a.m. Crystal Ballroom A

Chairs: **K. H. Joy**
D. B. J. Bussey

10:00 a.m. Foing B. H. * Koschny D. Grieger B. Josset J.-L. Beauvivre S. Grande M. Huovelin J. Keller H. U. Mall U. Nathues A. Malkki A. Noci G. Sodnik Z. Kellett B. 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. TM. Almeida M. Frew D. Volp J. Heather D. J. McMannamon P. Camino O. Racca G. SMART-1 Science Technology Team
SMART-1 Lunar Highlights **[#1987]**
We report on SMART-1 lunar highlights results relevant for science and exploration. We address impact and volcanic processes. We analyse images of lunar north and south poles, for the characterisation of sites for future landers, rovers, and human bases.

10:15 a.m. Crawford I. A. * Ball A. J. Wilson L. Smith A. Gao Y. UK Penetrator Consortium
MoonLITE: The Scientific Case **[#1069]**
This paper describes the scientific case for MoonLITE — a proposed UK-led lunar penetrator mission that is currently the focus of a joint UK-NASA study.

10:30 a.m. Smith A. * Crawford I. A. Ball A. J. Barber S. J. Church P. Gao Y. Gowen R. A. Griffiths A. Hagermann A. Pike W. T. Phipps A. Sheridan S. Sims M. R. Talboys D. L. Wells N.
MoonLITE — Technological Feasibility of the Penetrator Concept **[#1238]**
MoonLITE is a proposed lunar mission that will undergo a Phase A in 2008 with a planned launch date ~2012. The feasibility of the penetrator element of the mission is discussed including development methodology and key payload elements.

10:45 a.m. Jaumann R. * Spohn T. Hiesinger H. Jessberger E. K. Neukum G. Oberst J. Helbert J. Christensen U. Keller H. U. Hartogh P. Glassmeier K.-H. Auster H.-U. Moreira A. Werner M. Pätzold M. Palme H. Wimmer-Schweingruber R. Mandea M. Flechtner F. Lesur V. Häusler B. Srama R. Kempf S. Hördt A. Eichentopf K. Hauber E. Hoffmann H. Köhler U. Kührt E. Michaelis H. Pauer M. Denk T. van Gasselt S.
German Lunar Exploration Orbiter (LEO): Providing a Globally Covered, Highly Resolved, Integrated, Geological, Geochemical, and Geophysical Data Base of the Moon **[#1253]**
LEO is planned to be launched in 2012 and shall orbit the Moon for about four years at low altitude (<50 km) in order to map the Moon geomorphologically, geochemically, and geophysically with resolutions down to less than 1 m globally.

11:00 a.m. Sears D. W. G. * Roe L. Gawley R. Jones M. A.
Touch-and-Go Impregnable Pad (TGIP) for Lunar Exploration **[#1165]**
A simple, robust, sample collector for use on robotic and human missions to the Moon is described.

11:15 a.m. Bartlett P. W. * Wettergreen D. Whittaker W. L.
The Scarab Rover as Designed for Lunar Science and Resource Exploration **[#2120]**
Scarab is a demonstration of a lunar rover design to explore polar cold traps for water ice as a potential resource and for lunar science. Scarab was designed and built in 2007 and is currently in lab and field testing and further development.

11:30 a.m. Wilcox B. H. *
ATHLETE: A Mobility and Manipulation System for Mobile Lunar Habitats **[#1419]**
ATHLETE is a mobility and manipulation system considered by recent Lunar Architecture Teams. This presentation will discuss the possible use of ATHLETE-based mobile habitats for global-scale scientific exploration of the moon.

11:45 a.m. Crawford I. A. * Houdou B. Kempf S. Koschny D. Lognonné P. Pradier A. Ricci C. Vaujour P. D.
Moon-NEXT: A Proposed ESA Lunar Lander Mission Selected for Phase-A Study **[#1103]**
This paper describes the scientific rationale for ESA's Moon-NEXT mission, which has recently been selected for a Phase-A study.