Wednesday, March 9, 2011
COMPOSITION AND STRUCTURE OF THE LUNAR CRUST
FROM SAMPLES AND SPECTROSCOPY
8:30 a.m. Waterway Ballroom 6

Chairs: **Bradley Jolliff**
Peter Isaacson

8:30 a.m. Kamata S. * Sugita S. Abe Y. Ishihara Y. Harada Y. Namiki N. Iwata T. Hanada H. Araki H.
Radiogenic Heat Source Concentration in the Lunar Farside Crust Estimated from Viscoelastic Deformation of Impact Basins **[#1648]**
Viscoelastic modeling of impact basins and Kaguya's selenodetic data yield an estimate for the mean Th concentration in the lunar farside crust (<0.5 ppm), much lower than SPA, suggesting great horizontal heterogeneity of lower farside crust.

8:45 a.m. Isaacson P. J. * Nettles J. Besse S. Boardman J. Cheek L. Clark R. Dhingra D. Donaldson Hanna K. Head J. Klima R. Kramer G. Mall U. Moriarty D. Mustard J. Petro N. Pieters C. Sunshine J. Taylor L. Tompkins S. Whitten J.
A Mineralogical Survey of Lunar Crater Central Peaks with Moon Mineralogy Mapper Data: First Results **[#2556]**
Central peak craters allow the composition of the lunar crust to be evaluated surficially and with depth. We present an overview and initial results of a study to evaluate lunar crustal composition through central peak craters with M^3 data.

9:00 a.m. Ohtake M. * Mastunaga T. Takeda H. Yokota Y. Yamamoto S. Morota T. Ogawa Y. Hiroi T. Nakamura R. Haruyama J.
Vertical Compositional Trend Within the Lunar Highland Crust **[#1169]**
We investigated spatial and vertical compositional (modal abundance) trends of these high plagioclase abundance anorthosite rocks over the entire lunar surface within the upper crust.

9:15 a.m. Korotev R. L. * Jolliff B. L. Carpenter P. K.
Miller Range Feldspathic Lunar Meteorites **[#1999]**
We report on the composition and petrography of four lunar meteorite stones found during the 2009–2010 ANSMET field season in the Miller Range of Antarctica and compare the new meteorites to the other feldspathic lunar meteorites from Antarctica.

9:30 a.m. Klima R. L. * Pieters C. M. Isaacson P. J. Head J. W. Petro N. E. Staid M. Sunshine J. M. Taylor L. A.
Spectroscopic Evidence of Mg-Rich Low-Ca Pyroxenes on the Nearside of the Moon **[#2152]**
Mapping and spectral analysis of M^3 data has revealed high-Mg low-Ca pyroxenes in the Montes Alpes on the northern border of the Imbrium Basin. These noritic deposits are good candidates for excavated KREEP-related, lower crustal Mg-suite pyroxenes.

9:45 a.m. Donaldson Hanna K. L. * Wyatt M. B. Pieters C. M. Cheek L. C. Isaacson P. J. Paige D. A. Greenhagen B. T.
Diviner and Moon Mineralogy Mapper Integrated Observations of Plagioclase-Rich Regions on the Moon **[#2504]**
We present Diviner and M^3 observations of previously identified plagioclase-rich regions on the Moon in an effort to identify different rock types and examine their local and global distributions.

10:00 a.m. Pieters C. M. * Isaacson P. J. Taylor L. A. Head J. W. Dhingra D. Klima R. Petro N. Moriarty D. Green R. Boardman J.
Compositional Structure of the Lower Lunar Crust: Initial Constraints from Basin Mineralogy **[#2173]**
The mineralogical composition of lunar crustal stratigraphy observed with M^3 data is diverse and includes (top to bottom): megaregolith of noritic anorthosite breccias, massive (ferroan) anorthosite, Mg-rich lithologies, Fe-rich lithologies.

10:15 a.m. Dhingra D. * Pieters C. M. Boardman J. W. Head J. W. Isaacson P. J. Taylor L. A. M^3 Team
Theophilus Crater: Compositional Diversity and Geological Context of Mg-Spinel Bearing Central Peaks **[#2388]**
This paper reports the detection of Mg-spinel at Theophilus Crater and explores the geological context by analyzing the association of spinel with other lithologies. It is an important step toward determining the origin of this new rock type on the Moon.

10:30 a.m. Lal D. * Chauhan P. Shah R. D. Bhattacharya S. Ajai Kiran Kumar A. S.
Identification of Spinel Group of Minerals on Central Peak of Crater Theophilus **[#1339]**
This paper presents the result of compositional study of the central peak of crater Theophilus using the Chandryaan-1 Moon Mineralogy Mapper (M^3) and SELENE Multiband Imager (MI) data for the detection of the spinel group of minerals.

10:45 a.m. Gross J. * Treiman A. H. Le L.
Unique Spinel-Rich Lithology in Lunar Meteorite ALHA81005: Origin and Possible Connection to M^3 Observations of the Farside Highlands. **[#2620]**
Lunar highlands breccia ALHA81005 contains a clast with 30% Mg,Al spinel, which is the most spinel-rich lunar sample reported from the Moon. It may be related to spinel-rich outcrops on the lunar farside, detected by M^3.

11:00 a.m. Shafer J. T. * Brandon A. D. Lapen T. J. Peslier A. H. Irving A. J.
Trace Element Geochemistry of a Lunar Granulite: Evidence from Northwest Africa 3163 **[#1508]**
Northwest Africa (NWA) 3163 is a granulitic breccia most likely from the lunar farside. NWA has among the lowest incompatible-trace-element concentrations of any known lunar sample and may be a fragment of nearly pristine lower crust.

11:15 a.m. Arai T. * Ohtake M. Yamamoto A. Sugihara T. Hiroi T. Nakamura R. Namiki N. Wada K. Yamamoto S. Matsunaga T. Haruyama J.
Possible Crustal Boundary Exposed at Lunar Copernicus Crater **[#2139]**
Mineral distribution and geology of lunar Copernicus Crater studied with VIS-NIR reflectance spectra of Kaguya Multiband Imager (MI) indicate that a crustal boundary may be exposed at the Copernicus Crater.

11:30 a.m. Bugiolacchi R. * Mall U. Bhatt M.
A Near-Infrared Reflectance Survey Across Lunar Crater Aristoteles **[#1067]**
Near-infrared SIR-2 data of the central section of lunar crater Aristoteles show a varied distribution of spectrally dominant mineral phases and glasses hinting at a geologically complex target site.