Tuesday, March 19, 2013 **[T255]**
SPECIAL SESSION: GRAIL EXPLORES THE MOON'S INTERIOR
1:30 p.m. Waterway Ballroom 6

Chairs: **Maria Zuber**
Walter Kiefer

1:30 p.m. Zuber M. T. * Smith D. E. Asmar S. W. Konopliv A. S. Lemoine F. G. et al.
Gravity Recovery and Interior Laboratory (GRAIL): Extended Mission and Endgame Status **[#1777]**
The GRAIL extended mission has provided gravity models that are being used to map the upper crust of the Moon in unprecedented detail.

1:45 p.m. Wieczorek M. A. * Nimmo F. Kiefer W. S. Neumann G. A. Miljkovic K. et al.
High-Resolution Estimates of Lunar Crustal Density and Porosity from the GRAIL Extended Mission **[#1914]**
GRAIL gravity data show that the crust of the Moon has been highly fractured by billions of years of impact cratering.

2:00 p.m. Besserer J. * Nimmo F. Wieczorek M. A. Kiefer W. S. Andrews-Hanna J. C. et al.
Theoretical and Observational Constraints on Lunar Mega-Regolith Thickness **[#2463]**
Thermal models predict lunar porosity extending to maximum depths of tens of kilometers. Admittance studies can detect layers of this thickness.

2:15 p.m. Taylor G. J. * Wieczorek M. A. Neumann G. A. Nimmo F. Kiefer W. S. et al.
Revised Thickness of the Lunar Crust from GRAIL Data: Implications for Lunar Bulk Composition **[#1783]**
Analyses of GRAIL data indicate a relatively thin lunar crust, leading to the conclusion that the Moon is not enriched in refractory elements compared to Earth.

2:30 p.m. Kiefer W. S. * McGovern P. J. Andrews-Hanna J. C. Head J. W. III Williams J. G. et al.
GRAIL Gravity Observations of Lunar Volcanic Complexes **[#2030]**
GRAIL gravity observations constrain the volume, thickness, compensation state, and magmatic plumbing of lunar volcanic fields.

2:45 p.m. Sori M. M. * Zuber M. T. Head J. W. III Kiefer W. S.
GRAIL Search for Cryptomaria **[#2755]**
Using maps of the Moon's Bouguer gravity anomaly derived from GRAIL data, we search for lunar deposits of cryptomaria.

3:00 p.m. McGovern P. J. * Kiefer W. S. Kramer G. Y. Zuber M. T. Andrews-Hanna J. C. et al.
Impact-Generated Loading and Lithospheric Stress Gradients at Lunar Impact Basins: Implications for Maria Emplacement Scenarios **[#3055]**
Impact-induced crustal thickening around lunar basins produces uplift that generates lithospheric stresses favorable to magma ascent and mare emplacement.

3:15 p.m. Neumann G. A. * Lemoine F. G. Mazarico E. Smith D. E. Zuber M. T. et al.
The Inventory of Lunar Impact Basins from LOLA and GRAIL **[#2379]**
The inventory of lunar basins revealed by GRAIL does not indicate a more extensive history of lunar impacts as has been previously suggested.

3:30 p.m. Johnson B. C. * Blair D. M. Freed A. M. Melosh H. J. Andrews-Hanna J. C. et al.
The Origin of Lunar Mascon Basins, Part I. Impact and Crater Collapse **[#2043]**
We use GRAIL data with hydrocode and finite-element modeling to explain the origin of lunar mascon basins. This is Part 1/2, covering hydrocode results.

3:45 p.m. Freed A. M. * Blair D. M. Johnson B. C. Melosh H. J. Andrews-Hanna J. C. et al.
The Origin of Lunar Mascon Basins, Part I. Cooling and Isostatic Adjustment **[#2037]**
We use GRAIL data with hydrocode and finite-element modeling to explain the origin of lunar mascon basins. This is Part 2/2, covering FEM results.

4:00 p.m. Miljkovic K. * Wieczorek M. A. Collins G. S. Laneuville M. Neumann G. A. et al.
Asymmetric Distribution of Lunar Impact Basins Caused by Variations in Target Properties **[#1926]**
GRAIL revealed more large impact basins on the lunar nearside than farside. Impact modeling shows that variations in target properties affect the basin size.

4:15 p.m. Williams J. G. Konopliv A. S. Asmar S. W. * Lemoine F. G. Melosh H. J. et al.
Properties of the Lunar Interior: Preliminary Results from the GRAIL Mission **[#3092]**
GRAIL analyses provide lunar gravity field, Love number, and moment of inertia with improved uncertainties.

4:30 p.m. Smith D. E. * Zuber M. T. Neumann G. A. Mazarico E. Head J. W. et al.
GRAIL Gravity Field of the Lunar South Polar Region **[#1749]**
Gravity over the south pole is compared with other data, including Bouguer gravity, crustal thickness and density, surface temperatures, and neutron results.