Wednesday, March 21, 2012
IMPACT CRATERS: PEAKS, RINGS, AND BASINS
1:30 p.m. Waterway Ballroom 4

Chairs: **Henning Dypvik**
Ludovic Ferrière

1:30 p.m. Ernst C. M. * Barnouin O. S. Gaskell R. W.
The Morphology of Craters on 433 Eros **[#2393]**
Large craters on Eros show a correlation between their d/D and their radial distances from Shoemaker, supporting the Thomas et al. model for the removal of small craters by seismic shaking and indicating the presence of significant loose regolith.

1:45 p.m. Herrick R. R. *
Martian Craters at the Simple-Complex Transition Diameter **[#2380]**
The simple-complex crater transition on Mars occurs over a large diameter range, so there are craters with similar diameter that have widely varying morphologies. I show that the variations are determined primarily by specific target properties.

2:00 p.m. Milam K. A. * Perkins J. W.
The Obliquity of the Flynn Creek Impact Event **[#2294]**
Structural and elevation data from the target rock exposures of the Flynn Creek impact crater were used to map and assess the obliquity of the causal impact event.

2:15 p.m. Kenkmann T. * Wulf G. Poelchau M. H.
Structural Indicators for Oblique Impact Trajectories found in Martian and Terrestrial Impact Craters **[#1440]**
It is possible to derive the trajectory of oblique impacts even if the ejecta blanket is not preserved. We document that strike and dip of strata as well as fault and fold orientations in the central uplift correlate with the trajectory.

2:30 p.m. Vasconcelos M. A. R. * Crósta A. P. Maziviero M. V. Molina E. C. Reimold W. U.
Geophysical Signatures of the Riachão Impact Structure, Brazil **[#1120]**
The Riachão is a complex impact structure of ~4 km diameter located in Brazil. Its geophysical signatures show a rim with low level of K, Th, and U and an annular basin with short wavelength magnetic anomalies and two positive gravity anomalies.

2:45 p.m. Baker D. M. H. * Head J. W. Prockter L. M. Fassett C. I. Neumann G. A. Smith D. E. Solomon S. C. Zuber M. T. Oberst J. Preusker F. Gwinner K.
New Morphometric Measurements of Peak-Ring Basins on Mercury and the Moon: Results from the Mercury Laser Altimeter and Lunar Orbiter Laser Altimeter **[#1238]**
We use new topography data from MESSENGER and LRO to calculate the depths and peak-ring heights of peak-ring basins on Mercury and the Moon. New trends in these parameters as a function of basin diameter may be related to peak-ring formation.

3:00 p.m. Bray V. J. * Atwood-Stone C. McEwen A. S.
Lunar Crater Peak and Peak-Ring Volumes from the LROC Global Lunar DTM 100 **[#1694]**
Measurements of peak and peak-ring diameter in impact craters have been used to support a wide variety of peak-ring formation models. We present volume and height data that may be important for further assessing the various formation theories.

3:15 p.m. Sori M. M. * Zuber M. T.
Anomalous Shallowing of Lunar Impact Craters in the South Pole-Aitken Basin from Lunar Orbiter Laser Altimeter (LOLA) Observations **[#2707]**
Analysis of topographic data obtained from LOLA reveal that impact structures in the South Pole-Aitken Basin are anomalously shallow. We analyze potential mechanisms to explain this, including viscous relaxation and cryptomaria deposits.

3:30 p.m. Bierhaus M. * Wünnemann K. Elbeshausen D.
Numerical Modeling of Basin-Forming Impacts: Implications for the Heat Budget of Planetary Interiors **[#2174]**
Basin-forming impacts create shock waves travelling through a whole planet. We carried out a suite of three-dimensional models of inclined impacts using the iSALE-3D hydrocode to study the effect of oblique impacts on planetary interiors.

3:45 p.m. Potter R. W. K. * Collins G. S. Kiefer W. S. McGovern P. J. Kring D. A.
Further Modeling of Lunar Multi-Ring Basin Formation: Insights into Thermal Conditions During the Lunar Basin-Forming Epoch **[#1383]**
Numerical models of lunar basin-forming impacts are compared to observations and used to estimate features for a number of lunar basins. From this, tentative suggestions of thermal conditions during the lunar basin-forming epoch are made.

4:00 p.m. Stewart S. T. *
Impact Basin Formation and Structure from 3D Simulations **[#2865]**
3D simulations of basin formation produce large-scale features in excellent agreement with observations of South Pole-Aitken and suggest limited post-impact modification.

4:15 p.m. Wünnemann K. * Marchi S. Nowka D. Michel P.
The Effect of Target Properties on Impact Crater Scaling and the Lunar Crater Chronology **[#1805]**
We present numerical models of impact crater formation on a layered lunar crust to refine existing scaling laws and to improve dating of planetary surfaces by the size-frequency-distribution of the observed crater record.

4:30 p.m. Ivanov B. A. * Kamyshenkov D.
Impact Cratering: Scaling Law and Thermal Softening **[#1407]**
Numerical modeling of impacts into rock-like targets with a dry friction shows that dry friction and its shock softening result in the additional dependence on the impact velocity. Craters on Mars and Mercury may be slightly different in shape.