Monday, March 19, 2012
HOT STUFF: INTERPLANETARY STUDIES OF IMPACT MELT
8:30 a.m. Waterway Ballroom 5

Chairs: **Veronica Bray**
Justin Hagerty

8:30 a.m. Osinski G. R. * Singleton A. C. Ozaruk A. Hansen J. R.
New Investigations of the Gow Lake Impact Structure, Saskatchewan, Canada: Impact Melt Rocks, Astronaut Training, and More **[#2367]**
New investigations of the Gow Lake impact structure has revealed an almost complete sequence of impactites from the crater floor upward through a series of melt-free and melt-bearing rocks. This research involved an astronaut training component.

8:45 a.m. Pittarello L. * Koeberl C.
New Insight into Impact Glasses from the El'gygytgyn Structure, Northern Siberia, Russia **[#1475]**
The El'gygytgyn impact structure provides the unique opportunity on Earth to study a meteorite impact in acidic volcanic rocks. Petrographic studies on the impact glasses improve our knowledge of the impact process and constrain the glass formation.

9:00 a.m. Singleton A. C. * Osinski G. R. Grieve R. A. F. Shaver C.
Characterization of Glasses in Impact Breccia Dykes at the Mistastin Lake Impact Structure, Labrador **[#2588]**
On Horseshoe Island in Mistastin Lake there exist dikes of impact melt bearing breccia containing melt clasts. The composition of these clasts varies from the melt sheet indicating that there is a missing component contributing to the melt clasts.

9:15 a.m. Tornabene L. L. * Osinski G. R. McEwen A. S. Boyce J. M. Bray V. J.
Caudill C. M. Grant J. A. Hamilton C. W. Mattson S.
Mouginis-Mark P. J. HiRISE Operations and Science Team
Wide-Spread Occurrence of Crater-Related Pitted Materials on Mars: Implications for the Role of Target Volatiles with Respect to the Impact Process **[#2418]**
The nearly global distribution of martian crater-related pitted materials, possibly representing a impact melt-rich deposit that is volatile-rich or interacted with volatile-rich materials, will be discussed.

9:30 a.m. Ostrach L. R. * Robinson M. S. Denevi B. W.
Distribution of Impact Melt on Mercury and the Moon **[#1113]**
We identified interior impact melt deposits within hundreds of craters on Mercury and the Moon. Our results show that for craters ≥40 km diameter, mercurian craters contain larger areal extents of interior ponded impact melt than lunar craters.

9:45 a.m. Stopar J. D. * Hawke B. R. Robinson M. S. Denevi B. W. Giguere T. A.
Distribution, Occurrence, and Degradation of Impact Melt Associated with Small Lunar Craters **[#1645]**
We characterize impact melt deposits at simple craters observed by LROC, especially craters D < 1 km. We also assess criteria for melt identification at small diameters, factors responsible for melt distribution, and changes in melt with degradation.

10:00 a.m. Neish C. D. * Glines N. Carter L. M. Bray V. J. Hawke B. R.
Bussey D. B. J. Mini-RF Science Team
New Lunar Impact Melt Flows as Revealed by Mini-RF on LRO **[#2388]**
Lunar impact melts / Buried under regolith / First seen by radar.

10:15 a.m. Shankar B. * Osinski G. R. Antonenko I. Tornabene L. L.
Multispectral Analyses of the Olcott Crater with Recent High Resolution Datasets **[#1357]**
Characterizing the morphology and compositional details of impact materials associated with the Olcott crater on the lunar farside. We use data from Chandrayaan-1, Lunar Reconnaissance Orbiter, and Clementine for this study.

10:30 a.m. Dhingra D. * Pieters C. M.
Spectroscopy of Impact Melts — Results from Lunar Crater Tycho **[#1836]**
Compositional diversity among impact melts is illustrated using M^3 spectral data analysis of impact melts at crater Tycho. The observed spectral variation could be due to differences in crystallinity, clast fraction, or inefficient mixing of melt.

10:45 a.m. Keszthelyi L. P. *
Rate of Solidification of Silicate Melts on the Earth, Moon, Mars, and Beyond **[#2547]**
The sensitivity of the crust growth rate is investigated using a numerical model. The growth rate is extremely insensitive to environmental and intrinsic parameters of the melt, making crust thickness a robust geochronometer.

11:00 a.m. Darling J. R. * Moser D. E.
Impact Induced Crustal Differentiation: New Insights from the Sudbury Structure **[#2164]**
Hafnium isotope analysis reveals a common impact melting origin for igneous units within the Sudbury impact structure. The differentiated impact melt sheet allows for new insights into the effects of impact melting on planetary crusts.

11:15 a.m. Kring D. A. * Abramov O. Marchi S.
Impact Melt Production During the Basin-Forming Epoch **[#1615]**
For the first time, an analytical impact melt calculation, suitable for the most probable impact angle of 45°, is integrated with an observed ancient crater population to determine the melt volumes produced as a function of crater diameters.

11:30 a.m. Davison T. M. * Ciesla F. J. Collins G. S.
The Effect of Impact Obliquity on Porous Planetesimal Collisions **[#1235]**
We investigate the effect of impact obliquity on heating in collisions between porous planetesimals, and find that both the impact angle and the target curvature have a significant effect on the mass of material shock heated during a collision event.