Thursday, March 22, 2012
LUNAR CHRONOLOGY BY ANY MEANS NECESSARY
8:30 a.m. Waterway Ballroom 4

Chairs: **Herbert Frey**
Nicolle Zellner

8:30 a.m. Hiesinger H. * van der Bogert C. H. Pasckert J. H. Schmedemann N. Robinson M. S. Jolliff B. Petro N.
New Crater Size-Frequency Distribution Measurements of the South Pole-AitkenBasin **[#2863]**
We performed new crater size-frequency distribution (CSFD) measurements for the South Pole-Aitken basin (SPA) and several superposed craters and basins. Our crater counts indicate an absolute model age of 4.26 Ga for SPA.

8:45 a.m. van der Bogert C. H. * Hiesinger H. Banks M. E. Watters T. R. Robinson M. S.
Derivation of Absolute Model Ages for Lunar Lobate Scarps **[#1847]**
Crater size-frequency distribution measurements indicate that the Mandel'shtam and Lee-Lincoln scarps were active as recently as ~91 Ma and ~75 Ma, respectively. These results confirm that lobate scarps are some of the youngest features on the Moon.

9:00 a.m. Ambrose W. A. *
Ejecta Distribution and Relative Ages of the Imbrium, Serenitatis, and Crisium Basins **[#1048]**
Ejecta features (asymmetric secondary craters, scours, and crater chains), imaged from LOLA data, indicate that terrain east of Mare Serenitatis is dominated by Imbrium ejecta, suggesting a Pre-Nectarian age for the Serenitatis Basin.

9:15 a.m. Frey H. V. *
Preliminary Crater Retention Ages for an Expanded Inventory of Large Lunar Basins **[#1852]**
The distribution of N(50) crater retention ages for an expanded inventory of 95 candidate large lunar basins shows two distinct and separable peaks, even when weaker candidate basins are eliminated.

9:30 a.m. Kreslavsky M. A. * Werner S. C. Head J. W. III Fassett C. I.
New Observational Evidence of Nonuniform Cratering of the Moon **[#1193]**
Ananlysis of spatial distributions of rayed craters and craters with steep walls confirms the predicted apex/antapex asymmetry in cratering rate; however, the spatial distribution also shows statistically significant patchiness of unknown origin.

9:45 a.m. Souders A. K. * Sylvester P. J. Osinski G. R.
Effect of Impact-Related Processes on the Lead Isotope Systematics of Anorthosites: A Lunar Analogue Study at Mistastin Lake Crater, Labrador **[#1909]**
The elemental and Pb isotope systematics of magmatic plagioclase, shocked plagioclase, and maskelynite from terrestrial anorthosites of Mistastin Lake Crater are evaluated to assess the potential effects of impact-related processes on lunar samples.

10:00 a.m. Zhang A. C. * Taylor L. A. Wang R. C. Li Q. L. Li X. H. Patchen A. D. Liu Y.
SIMS Pb/Pb Ages of Baddeleyite and Zirconolite in Apollo 17 Norite 78235: Implications for Shock Histories of Extraterrestrial Rocks **[#1036]**
Our dating results on baddeleyite and zirconolite in the unbrecciated lunar rock Apollo 17 norite 78235 indicate that impact events in natural system could reset Pb/Pb ages of baddeleyite.

10:15 a.m. Shaulis B. J. * Righter M. Lapen T. J. Korotev R. L. Irving A. J. Kuehner S. M.
Baddeleyite Chronology of Northwest Africa 6950: A 3.1 Ga Lunar Olivine Gabbro Paired with NWA 2977 and the Cumulate Mare Gabbro Lithology in NWA 773 **[#2236]**
NWA 6950 is closely related to the NWA 773 clan of meteorites, a group of paired and/or petrographically related stones. New U-Pb and Pb-Pb ages of baddeleyite in NWA 6950 confirm petrogenetic linkages with olivine gabbro in NWA 2977 and NWA 773.

10:30 a.m. Nyquist L. E. * Shih C.-Y. Reese Y. D.
Redetermination of the Sm-Nd Age and Initial Epsilon-Nd of Lunar Troctolite 76535: Implications for Lunar Crustal Development **[#2416]**
The Sm-Nd age of 4335 ± 71 Ma and $\varepsilon^{143}Nd$ = +0.23 ± 0.44 for lunar troctolite 76535 are consistent with early lunar formation accompanied by early differentiation of urKREEP if the initial lunar $\varepsilon^{143}Nd$ was similar to that in cumulate eucrites.

10:45 a.m. Hui H. * Neal C. R. Shih C.-Y. Nyquist L. E.
Derivation of Apollo 14 High-Al Basalts at Discrete Times: Rb-Sr Isotopic Constraints **[#2662]**
Four eruption episodes were identified for A-14 high-Al basalts. Rb-Sr isotopic data and ITE ratios show that their parental melt compositions of are correlated through mixing of evolved components with a relatively primitive magma ocean cumulate.

11:00 a.m. Shih C. -Y. * Nyquist L. E. Reese Y.
Rb-Sr and Sm-Nd Isotopic Studies of Lunar Green and Orange Glasses **[#1606]**
Rb-Sr and Sm-Nd isotopic results of green and orange glassy samples are presented. Green and orange glass, and mare basalt source mineralogies, are discussed in the context of the lunar magma ocean dynamics.

11:15 a.m. Zellner N. E. B. * Norman M. D.
Compositions and Ages of Apollo 15 Lunar Impact and Volcanic Glasses: First Results **[#1711]**
We present the first results of compositional studies of impact glasses from the Apollo 15 landing site, as well as compositional information about the well-studied Apollo 15 volcanic glasses. Ages for select glasses will also be presented.

11:30 a.m. Norman M. D. * Zellner N. E. B. Adena K.
A New Approach to Dating Lunar Spherules Using U-Th-Pb Chemical Ages **[#1370]**
Chemical ages based on U-Th-Pb concentrations provide a promising approach to dating volcanic and impact glasses. Young (≥500 Ma) impacts appear to dominate the regolith population but the role of gardening requires further clarification.