

Thursday, March 24, 2016

[R630]

**POSTER SESSION II: LUNAR PETROLOGY, GEOCHEMISTRY,
AND CHRONOLOGY: LITTLE SLICES OF TRUTH AND BEYOND**

6:00 p.m. Town Center Exhibit Area

- Korotev R. L. Irving A. J. *POSTER LOCATION #401*
[Not Quite Keeping Up with the Lunar Meteorites — 2016](#) [#1358]
 Moon falls far and wide? / None are found in USA / Most in Africa.
- Cato M. J. Fagan A. L. Gross J. *POSTER LOCATION #402*
[Crystal Size Distribution of Low-Ti Lunar Basalt-Northwest Africa 8632](#) [#2751]
 We report Crystal Size Distribution (CSD) data for olivine and pyroxene in low-Ti Mare basalt NWA-8632.
- Nagurney A. B. Treiman A. H. Spudis P. D. *POSTER LOCATION #403*
[Petrology, Bulk Composition, and Provenance of Meteorite Northwest Africa 5000](#) [#1103]
 Here, we present data on the bulk composition, mineral proportions, and potential provenance for meteorite NWA 5000.
- Robinson K. L. Smith C. L. Kearsley A. T. Bevan A. W. R. Anand M. *POSTER LOCATION #404*
[The Lynch 002 Lunar Meteorite Revisited](#) [#1470]
 The regolith breccia Lynch 002 remains largely uncharacterized. We present new mineralogical data for this meteorite, which may contain an exotic lithic clast.
- Curran N. C. Joy K. H. Pernet-Fisher J. F. Burgess R. *POSTER LOCATION #405*
[A New Basaltic-Bearing Lunar Meteorite Miller Range 13317](#) [#1516]
 MIL 13317 is a new lunar mingled fragmental breccia that is dominated by mare basalt assemblages. Here we present petrology and mineral chemistry data for MIL.
- Kuehner S. M. Wittmann A. Korotev R. L. Carpenter P. Macke R. J. et al. *POSTER LOCATION #406*
[Petrologic, Chemical and Physical Characterization of Unique Lunar Vitric Regolith Breccia Northwest Africa 10404](#) [#2246]
 We describe a unique lunar feldspathic meteorite containing partly devitrified glass clasts. Could this be evidence for impacts into ice-bearing regolith?
- Shaulis B. J. Kring D. A. Lapen T. J. Righter M. *POSTER LOCATION #407*
[Petrology and Distribution of U-Pb Ages in Lunar Meteorite Breccia Miller Range \(MIL\) 13317](#) [#2027]
 We present the petrology and U-Pb ages of baddeleyite and Ca-phosphate in new lunar meteorite MIL 13317.
- Shaulis B. J. Kring D. A. Lapen T. J. Treiman A. H. *POSTER LOCATION #408*
[In Situ U-Pb Age Analysis of Apollo 17 Impact Melt Breccias](#) [#2033]
 U-Pb ages of Apollo 17 impact melt breccias.
- Cohen B. A. Frasl B. Jolliff B. L. Korotev R. L. Zeigler R. A. *POSTER LOCATION #409*
[⁴⁰Ar-³⁹Ar Age of an Impact-Melt Lithology in Dhofar 961](#) [#2007]
 Crystallized violence / Marks declining bombardment / On the Moon's farside.
- Martin D. J. P. Joy K. H. Pernet-Fisher J. F. Wogelius R. Morlok A. et al. *POSTER LOCATION #410*
[Using Quantitative Micro-FTIR Spectroscopy to Characterise the Shock History of Feldspathic Lunar Meteorites Miller Range 090034, 090070 and 090075](#) [#1547]
 The shock history of feldspathic phases in lunar meteorites has been investigated using mid-IR spectra, maps, and band ratios.

Nyquist L. E. Shirai N. Yamaguchi A. Shih C.-Y. Park J. et al. **POSTER LOCATION #411**
[Feldspathic Meteorites Miller Range 090034 and 090070: Late Additions to the Lunar Crust](#) [#1521]

Geochemical and Sm-Nd isotopic characteristics of these feldspathic lunar meteorites are consistent with those of a late-stage cumulate from the LMO.

Fagan A. L. Joy K. H. Nagashima K. Huss G. R. Kring D. A. **POSTER LOCATION #412**
[Olivine and Plagioclase Oxygen Isotope Signature of Non-Lunar Material in Apollo Regolith Breccias with Closure Ages ~1.79 to 1.80 Ga](#) [#2789]

We report oxygen isotope data for olivine and plagioclase in asteroidal relic clasts within Apollo regolith breccias 10021,35; 10060,33; and 15287,7.

Cronberger K. Neal C. R. **POSTER LOCATION #413**
[Mapping 72275,136: Spatial Relationships Within a Breccia Containing KREEP Basalts of Distinctive Compositions](#) [#1794]

Element maps of 72275,136 are presented and interpreted.

Cronberger K. Neal C. R. Roberts S. E. **POSTER LOCATION #414**
[Very High Potassium \(VHK\) Basalt Petrogenesis at Fra Mauro \(Apollo 14\)](#) [#1211]

Some pyroxenes in 14181,8 are overgrown by high and low Fo olivine. Low Fo olivine formation was enabled by K-rich liquid, accompanied by low silica activity.

Merle R. E. Nemchin A. A. Whitehouse M. J. Grange M. L. Pidgeon R. T. et al. **POSTER LOCATION #415**
[Origin and Transportation History of Lunar Breccia 14311](#) [#1862]

Breccia 14311 was formed by an impact at 3938 Ma and was transported to the Apollo 14 location by a ~600-Ma-old impact.

Fernandes V. A. S. M. Storey M. Zhu M. -H. **POSTER LOCATION #416**
[Report on Initial Characterization of New Apollo 17 Basaltic Regolith Fragments](#) [#1020]

Evolution of the mantle under the Serenitatis basin: preliminary mineralogic and chemical composition data for 4 out of 12 new Apollo 17 basaltic fragments.

Thiessen F. Nemchin A. A. Whitehouse M. J. Snape J. F. Bellucci J. J. **POSTER LOCATION #417**
[Apollo 12 Breccia 12013: Comparison and Interpretation of U-Pb SIMS Ages of Ca-Phosphates and Zircon](#) [#1830]

Zircon U-Pb ages of Apollo 12 breccia 12013 indicate differential Pb loss in a single impact event, which is defined by Ca-phosphate data as 3924 ± 3 Ma.

Gleißner P. Becker H. **POSTER LOCATION #418**
[Highly Siderophile Element Fractionations in Apollo 16 Impact Melt Rocks: Effect of Small-Scale Processes](#) [#2218]

Differences in HSE ratios observed in multiple aliquots of lunar impact melt rocks are due to solid-liquid metal partitioning in the presence of light elements.

Gleißner P. Becker H. **POSTER LOCATION #419**
[Highly Siderophile Element Fractionations in Apollo 16 Impact Melt Rocks: Large-Scale Fractionation Processes](#) [#2232]

HSE in Apollo 16 impact melt display no evidence for igneous differentiation but of accretion of differentiated core metal along with chondrite-like material.

Barker D. C. Snow J. E. **POSTER LOCATION #420**
[Apollo 15 Green Glass Phenocryst Growth and Compositional Inhomogeneity](#) [#2333]

Primordial fire / Selenes green jewels, crystal growth / Time frozen glasses.

Mercer C. M. Hodges K. V. van Soest M. C. **POSTER LOCATION #421**

[Exploring Non-Uniform ⁴⁰Ar* Loss in Apollo 16 Impact Melt Breccias Using a Laser Microprobe](#) [#2503]

We analyzed Apollo 16 IMBs that experienced partial Ar loss with a laser microprobe, and obtained spot fusion dates consistent with incremental heating results.

Kelly N. M. Mojzsis S. J. Metcalf J. R. Flowers R. M. **POSTER LOCATION #422**

[Lunar Impact Histories Inferred from Zircon \(U-Th\)/He Thermochronometry](#) [#2244]

We present zircon (U-Th)/He thermochronometry data from lunar sample 14311 that preserve pre-Imbrium ZHe dates, shedding light on the origin of Apollo breccias.

Simonetti A. Neal C. R. **POSTER LOCATION #423**

[In Situ Sr Isotope Analyses of Plagioclase: An Effective Tool in Undersanding Lunar Magmatic Evolution](#) [#1743]

A method for spatially resolving Sr isotopic compositions within plagioclase is described. Replication of TIMs 12038 plagioclase Sr data is presented.

McIntosh E. C. Rapp J. F. Draper D. S. **POSTER LOCATION #424**

[Rare Earth Element Partitioning in Lunar Minerals: An Experimental Study](#) [#2357]

Results from high-pressure and temperature experiments investigating REE partitioning between olivine and melt in a composition relevant to lunar magmatism.

Pernet-Fisher J. F. Joy K. H. Martin D. J. P. **POSTER LOCATION #425**

[Plagioclase in Regolith Breccias: Critical Tool for Deciphering the Shock History of the Lunar Highlands](#) [#1499]

We report the shock history of clasts within Apollo 16 and lunar-meteorite regolith breccias to characterize the impact history of the lunar highlands.

Kohl I. E. Warren P. H. Young E. D. **POSTER LOCATION #426**

[State-of-the-Art Laser Fluorination for Oxygen Isotope Ratio Analysis of Extraterrestrial Materials](#) [#2775]

We identify, define, and solve problems associated with triple-oxygen isotope ratio measurements via laser fluorination; all in the context of new lunar data.

Calzada-Diaz A. Joy K. H. Crawford I. A. **POSTER LOCATION #427**

[Investigation of Lunar Meteorites Potentially Sourced from Cryptomare Regions](#) [#2075]

Investigation of potential source of mingled lunar meteorites using elemental composition and the Lunar Prospector Gamma Ray spectrometer.

Neal C. R. Klima R. L. Plescia J. B. **POSTER LOCATION #428**

[Dating the SPA Impact Event: What Samples Are Needed and Where Are They?](#) [#2282]

Sampling SPA impact melt is explored by focusing on basin rim deposits.