

Tuesday, March 20, 2012

POSTER SESSION I: PERSPECTIVES ON LUNAR GEOCHEMISTRY FROM SAMPLES

6:00 p.m. Town Center Exhibit Area

Fimiani L. Cook D. L. Faestermann T. Gomez Guzman J. M. Hain K. Herzog G. F. Korschinek G. Ligon B. Ludwig P. Park J. Reedy R. C. Rugel G.

[Sources of Live  \$^{60}\text{Fe}\$ ,  \$^{10}\text{Be}\$ , and  \$^{26}\text{Al}\$  in Lunar Core 12025, Core 15008, Skim Sample 69921, Scoop Sample 69941, and Under-Boulder Sample 69961](#) [#1279]

Relatively high concentrations of live  $^{60}\text{Fe}$  ( $T_{1/2} = 2.62 \pm 0.04$  Ma) in lunar surface samples confirm earlier work and suggest the arrival of supernova (SN) debris on the Moon about 2 Ma ago.

Joy K. H. Nagashima K. Huss G. R. Zolensky M. E. Kring D. A.

[Mineral Chemistry and Oxygen Isotope Analysis of a Chondritic Projectile in Lunar Meteorite Pecora Escarpment 02007](#) [#1021]

We report oxygen isotope data from a chondritic meteorite particle in lunar meteorite PCA 02007. The fragment provides direct evidence of asteroid projectile debris being delivered to the lunar surface.

Korotev R. L. Irving A. J. Bunch T. E.

[Keeping Up With the Lunar Meteorites — 2012](#) [#1152]

We discuss several new lunar meteorites.

Kuehner S. M. Irving A. J. Korotev R. L.

[Petrology and Composition of Lunar Meteorite Northwest Africa 7022: An Unusually Sodic Anorthositic Gabbroic Impact Melt Breccia with Compositional Similarities to Miller Range 090036](#) [#1524]

We characterize a new type of relatively sodic impact melt breccia from the Moon.

Demidova S. I. Nazarov M. A. Ivanova M. A. Lorenz K. A. Kononkova N. N.

[New Lunar Meteorite from the Sahara Desert: North West Africa 6888](#) [#1726]

The new lunar meteorite NWA 6888 is a mingled breccia containing highland rocks and VLT mare basalts with no KREEP. We report the first data on petrography and mineralogy of the rock. NWA 6888 appears to be one of the most altered NWA meteorites.

Kent J. J. Brandon A. D. Lapen T. J. Peslier A. H. Irving A. J. Coleff D. M.

[In Situ Chemical Characterization of Mineral Phases in Lunar Granulite Meteorite Northwest Africa 5744](#) [#2559]

NWA 5744 is compared to other magnesian lunar granulites by the chemistry of situ phases and aided by a CT density volume. NWA 5744 may be linked to FAN composition materials, and magnesian granulites as a whole probably have diverse origins.

Shirai N. Ebihara M. Sekimoto S. Yamaguchi A. Nyquist L. Shih C.-Y. Park J. Nagao K.

[Geochemistry of Lunar Highland Meteorites MIL 090034, 090036 and 090070](#) [#2003]

Bulk chemical compositions of newly found lunar meteorites (MIL 090034, 090036 and 090070) were determined by using INAA. Based on chemical compositions, we compared three MIL lunar meteorites with the other lunar highland meteorites.

Kuehner S. M. Irving A. J. Korotev R. L.

[Petrology and Composition of Lunar Mare Ferroan Gabbro Breccia Northwest Africa 7007: New Insights into the Complex Petrogenesis of Northwest Africa 773 and Siblings](#) [#1519]

This lunar meteorite is comprised mainly of a gabbro lithology previously not well-characterized in related specimens of the "NWA 773 clan."

Gorman J. Gross J.

[Spinel-Rich Lithologies on the Moon: An Experimental Study of Possible Precursor Melt Compositions](#) [#1125]

Here we present data of liquidus/crystallization experiments at low pressure to provide constraints on the origin and formation history of Mg-Al spinel-rich and spinel-bearing lunar highland samples.

Elardo S. M. Shearer C. K. Jr. Fagan A. L. Neal C. R. Burger P. V. Borg L. E.

[\*Diversity in Low-Ti Mare Magmatism and Mantle Sources: A Perspective from Lunar Meteorites NWA 4734, NWA 032, and LAP 02205\*](#) [#2648]

Lunar meteorites NWA 4734, NWA 032, and LAP 02205 have the potential to expand our knowledge of the compositional diversity among low-Ti basaltic magmas and source regions on the Moon.

Fagan A. L. Neal C. R.

[\*Apollo 11-Type Basalts from Apollo 16: A New Type of High-Ti Basalt?\*](#) [#1429]

Rare basalt clasts from Apollo 16 are similar in composition to Apollo 11 high-Ti basalts, but display distinct differences as well indicating the possibility of a new type of lunar high-Ti basalt.

Donohue P. H. Neal C. R.

[\*Crystal Stratigraphy of Olivine Cumulate 71597: Tracing the Crystallization History of a High-Ti Basalt Lava Flow\*](#) [#2077]

We performed a petrographic and in situ trace-element characterization study of major phases of high-titanium basalt 71597, and present a detailed crystallization history for one of the few mare basalt samples with evidence for a cumulate origin.

Morisset C.-E. Jackson S. Williamson M.-C. Hipkin H. J.

[\*Trace Element Concentrations of Ilmenite in Samples Selected from the Six Apollo Landed Missions\*](#) [#2018]

We report the trace-element concentrations of ilmenite contained in 12 selected samples from the 6 Apollo landing sites using a Laser-Ablation–Inductively Coupled Plasma–Mass Spectrometer (LA-ICP-MS).

Macke R. J. Kiefer W. S. Britt D. T. Irving A. J. Consolmagno G. J.

[\*Density and Porosity of Apollo Lunar Basalts and Breccias\*](#) [#1299]

We report results of density and porosity measurements on 22 Apollo lunar samples. These include specimens from all six missions, and represent diverse types including low-Ti and high-Ti basalts, impact-melt breccias, regolith breccias, and others.

Barker D. C. Snow J. E.

[\*Phenocryst Growth and Compositional Inhomogeneity of Apollo 17 Glass Spherules\*](#) [#2926]

Phenocryst growth in Apollo 17 lunar glasses has been examined using Field Emission Scanning Electron Microprobe (FESEM) and Electron Probe Micro Analysis (EMPA) instruments.

Cronberger K. Neal C. R.

[\*The Textural Pristinity of KREEP Basalts: The Role of Impact Melting and Volcanic Eruptions\*](#) [#2203]

A new method using quantitative petrology is being used on samples of a KREEPy basaltic composition to determine their textural pristinity.

Simmons S T. Lapen T J.

[\*Trace Element Geochemistry of Apollo Sample 78236: Possible Connections with Other Mg-Suite Norites\*](#) [#2622]

New high precision ICP-MS trace element analysis of Apollo 17 Mg-suite sample 78236 indicates that it is geochemically identical to some norite clasts in other Apollo 17 samples potentially allowing geochemical distinctions among Mg-suite norites.

Seddio S. M. Korotev R. L. Jolliff B. L.

[\*Two Apollo 12 Granitic Rock Fragments: Evidence for the Proximal Coexistence of High-Th Impact Melt Breccia and Granite\*](#) [#1006]

We characterize a lunar granite fragment and a granitic breccia. The breccia's granitic component is that of the granite fragment if it equilibrated with a more mafic lithology. We infer a source region with granite and high-Th impact melt breccia.