

Thursday, March 13, 2008
POSTER SESSION II: APOLLO SAMPLES AND LUNAR INTERIOR
6:30 p.m. Fitness Center

Neal C. R. Shervais J. W.

Alkali Anorthosite 14305,303: Evidence of Magma Mixing Using Trace Element Data from Zoned Plagioclase [#1217]

Trace element data from a zoned plagioclase are consistent with magma mixing and may suggest a genetic relationship between the alkali and Mg-suites.

Oshrin J. Neal C. R.

Crystal Size Distributions and Trace Element Profiles of Plagioclase Crystals in Apollo 14 High-Alumina Basalts [#1085]

This study measures and compares the crystal size distributions and core-to-rim trace element profiles of plagioclase crystals in samples from each Apollo 14 high-alumina basalt group (A, B, and C), as well as sample 14072 and impact melts.

O'Sullivan K. M. Neal C. R.

Insights to the Petrogenesis of Apollo 12 Basalts from Crystal Size Distributions and Mineral Geochemistry [#1537]

Petrogenesis of Apollo 12 basalts 12031 and 12038 are described with crystal size distributions and major and minor element data using electron microprobe and laser ablation ICP-MS.

Lawrence S. J. Taylor G. J. Norman M. D.

The Evolved Mineral Fragment Population in Apollo 17 Mafic Impact Melt Breccias [#1521]

A population of evolved mineral fragments in Serenitatis impact melts is discussed.

Taylor D. J. McKeegan K. D. Harrison T. M. Young E. D.

LA-MC-ICPMS Lu-Hf Isotopes in Lunar Zircons: Reliability of Peak Stripping Protocol [#2354]

An LA-MC-ICPMS study of synthetic zircons doped with a known amount of Yb, consistent with the high concentrations of heavy REE found in lunar zircons, was undertaken to demonstrate the reliability of the peak stripping protocol used to obtain $^{176}\text{Hf}/^{177}\text{Hf}$ ratios.

Wentworth S. J. Thomas-Keprta K. L. Clemett S. J. McKay D. S.

Surface Coatings on Apollo 15 Volcanic Glass Beads [#2529]

We are studying the surfaces of individual volcanic glass beads using state-of-the-art field emission SEM and TEM techniques, which have improved significantly since the glasses were first examined.

Maurette M.

"Maturation" of Oxygen Depth Profiles in Lunar Metal Grains [#1789]

Oxygen depth profiles measured in lunar metal grains, and attributed to the implantation of solar ions, could result from the grain "maturation" in the lunar regolith, which covers their external surface with zap-pits and tiny particles.

Lofgren G. E. Allton J. H.

Special Unopened Lunar Samples: Is it Time to Examine Them? [#2199]

Several regolith samples returned from the Moon, some still contained in vacuum, remain unopened. Perhaps now is the time to consider opening some of these samples for engineering or science study.

Sears D. W. G.

Glimmerings from the Past: Thermoluminescence Studies of Samples of the Moon [#1801]

Luminescence techniques (thermoluminescence and cathodoluminescence) can provide information on thermal and radiation history and petrography of lunar samples, sometimes in a quantitative fashion not possible by other means.

Thacker C. Liang Y. Hess P. C.

Major and Minor Element Partitioning in Armalcolite- and Ilmenite-bearing Harzburgite and Dunite: A Data Base for Modeling Partial Melting and Melt-Rock Reaction in a Heterogeneous Lunar Mantle [#1707]

We report compositions of coexisting minerals and melts in armalcolite- and ilmenite-bearing harzburgite and dunite from our experimental charges, focusing on major and minor element partitioning between high Ti oxides and silicate minerals and melt.

van Kan M. Sanloup C. Tronche E. J. Perrillat JP. Mezouar M. Agee C. B. van Westrenen W.

Development of an In-Situ X-Ray Absorption Technique to Measure Lunar Magma Densities at High Pressure [#1020]

Here we present the first results of an *in situ* technique used to determine density variations in a primitive lunar magma (Apollo 14 black glass) at pressure and temperature conditions relevant to lunar evolution.

Tronche E. J. Chen B. Gao L. van Kan M. Li J. Leinenweber K. Sanehira T.

Wang Y. van Westrenen W.

Equation of State of Ilmenite at Lunar Pressures and Temperatures [#1551]

In order to help to constrain thermo-chemical convection models in the early Moon, *in situ* ilmenite diffraction patterns have been collected in order to constrain its equation of state at pressures and temperatures relevant to the lunar interior.

Krawczynski M. J. Grove T. L.

Experimental Investigations of fO_2 Control on Apollo 17 Orange Glass Phase Equilibria [#1231]

High-pressure experiments have been conducted on a synthetic Apollo 17 orange glass varying fO_2 in order to determine its effect on the phase equilibria. The orange glass multiple saturation pressure is the deepest of all high-Ti glasses yet studied.