

Thursday, March 16, 2006
LUNAR BASALTS AND BASINS
8:30 a.m. Crystal Ballroom B

Chairs: C. R. Neal
J. Longhi

- 8:30 a.m. Joy K. H. * Crawford I. A. Russell S. S. Swinyard B. Kellett B. Grande M.
Lunar Regolith Breccias MET 01210, PCA 02007 and DaG 400: Their Importance in Understanding the Lunar Surface and Implications for the Scientific Analysis of D-CIXS Data [#1274]
 A discussion of the petrography and geochemistry of three lunar regolith breccias: MET 01210, PCA 02007 and DaG 400. These complicated samples represent the varied nature of the lunar surface and help to understand and interpret remotely sensed data from planetary instruments like D-CIXS.
- 8:45 a.m. Arai T. * Takeda H. Miyamoto M. Kojima H.
Apollo 14 Oldest Mare Basalt Revisited: Possible Petrogenetic Connection Between Mg Gabbro and VHK Basalt [#2387]
 Mineralogical study of the Apollo 14 oldest mare basalt clasts in the multiple thin section showed the possible petrogenetic connection between Mg gabbro and VHK basalt.
- 9:00 a.m. Neal C. R. * Shih C.-Y. Reese Y. Nyquist L. E. Kramer G. Y.
Derivation of Apollo 14 High-Al Basalts from Distinct Source Regions at Discrete Times: New Constraints [#2003]
 The Apollo 14 high-Al basalts represent the earliest lunar volcanism recorded in the Apollo sample collection. We report an Rb-Sr age from basalt 14321,1353 and integrate the new data with those previously published to investigate the petrogenesis of these basalts.
- 9:15 a.m. Boesenberg J. S. * Delaney J. S.
Elephant Moraine 87521: Two Pyroxenes, Two Chromites, and Two Ilmenites, but Only One Fractionation Series [#1680]
 Detailed correlation of chromite, ulvospinel, and ilmenite compositions with Cr-Ti-Fe-Mg variation in pyroxene suggest fractionation of a single magma and render a two magma hypothesis unnecessary for the EET87521 lunar VLT basalts.
- 9:30 a.m. Grove T. L. * Chatterjee N. Singletary S. J. Delano J. W.
Experiments on the Apollo 15 Red Glass: New Constraints on Melting Depth and TiO₂ Melt Contents of Ilmenite Saturated Residues [#1758]
 Differences in phase relations of the Apollo 15R and 14B glasses are a consequence of slow dissolution of metastable olivine. New experiments lower the multiple saturation pressure to ~1.5 GPa and raise the TiO₂ content of ilmenite-saturated liquids.
- 9:45 a.m. Liang Y. * Hess P. C.
Preferential Assimilation Due to Melt-Rock Reaction in the Lunar Mantle: A Laboratory and Ophiolite Field Perspective [#1943]
 The compositional diversity of low to high Ti picritic magmas is discussed in the context of magma transport and melt-rock reaction in the lunar mantle and crust.
- 10:00 a.m. Hiesinger H. * Head J. W. III Wolf U. Jaumann R. Neukum G.
New Ages for Basalts in Mare Fecunditatis Based on Crater Size-Frequency Measurements [#1151]
 We performed crater counts in order to date mare basalts in the Fecunditatis Basin. We find that all units dated in Mare Fecunditatis are Imbrian in age. There are some differences in crater size-frequency ages compared to ages in the geologic maps.

- 10:15 a.m. Longhi J. * Walker D.
Fickle Nickel: Compositional Systematics of Lunar Rocks Appear to be a Magma Ocean Signature [#2452]
A quantitative model of magma ocean fractional crystallization predicts that Ni-ol/liq partitioning starts out slightly incompatible near the liquidus of the MO that eventually changes to the more familiar compatible behavior as the MO fractionally crystallizes.
- 10:30 a.m. Pidgeon R. T. * Nemchin A. A. Meyer C.
Complex Histories of Two Lunar Zircons as Evidenced by Their Internal Structures and U-Pb Ages [#1548]
We present two examples of lunar zircons that preserve their primary U-Pb age and the age of a later thermal event. This, combined with zircon structure and radiation damage, provides a comprehensive history of lunar events.
- 10:45 a.m. Norman M. D. * Bennett V. C.
Impactor Populations and Lunar Crustal Compositions Inferred from Highly Siderophile Element Compositions of Apollo 16 and 17 Melt Breccias [#1526]
Siderophile element compositions of lunar breccias demonstrate multiple impact events and a source for the impactors in the inner solar system rather than comets. Siderophile elements can be fractionated during emplacement of impact breccias.
- 11:00 a.m. Hood L. L. * Artemieva N. A.
Formation of Magnetic Anomalies Antipodal to Lunar Impact Basins: Improved Numerical and Analytic Analysis [#2137]
More detailed numerical and analytic calculations are reported of the antipodal effects of lunar basin forming impacts, including ejecta distribution, magnetic field amplification, and possible magnetization acquisition mechanisms.
- 11:15 a.m. Garrick-Bethell I. * Weiss B. P.
Blocking Temperature Relations for Iron and the Origins of Lunar Rock Magnetism [#2413]
New time-temperature relations for remagnetization of the mineral kamacite show that much of the magnetization observed in ancient lunar rocks is stable over billions of years and almost certainly originated on the Moon.
- 11:30 a.m. Purucker M. E. * Sabaka T. J. Halekas J. Olsen N. Tsyganenko N. Hood L. L.
The Lunar Magnetic Field Environment: Interpretation of New Maps of the Internal and External Fields [#1933]
Long, arcuate magnetic field features whose origin may lie deep within the Moon's crust have been isolated from Lunar Prospector magnetic field observations from the South Pole-Aitken (SPA) basin region. These features may reflect compositional variations or tectonic responses to the SPA impact.