

**Tuesday, March 20, 2012**  
**NEW MARTIAN METEORITES AND NEW PERSPECTIVES ON OLD FAVORITES**  
**8:30 a.m. Waterway Ballroom 6**

**Chairs: Juliane Gross**  
**Francis McCubbin**

- 8:30 a.m. Irving A. J. \* Kuehner S. M. Tanaka R. Herd C. D. K. Chen G. Lapen T. J.  
[\*The Tissint Depleted Permafic Olivine-Phyric Shergottite: Petrologic, Elemental and Isotopic Characterization of a Recent Fall in Morocco\*](#) [#2510]  
 The first witnessed martian meteorite fall in 49 years is a primitive olivine-phyric shergottite.
- 8:45 a.m. Agee C. B. \* Wilson N. V. McCubbin F. M. Sharp Z. D. Ziegler K.  
[\*Basaltic Breccia NWA 7034: New Ungrouped Planetary Achondrite\*](#) [#2690]  
 NWA 7034 is a basaltic breccia with petrology and geochemistry that resembles SNC meteorites, however its oxygen isotope values are anomalous compared to SNC meteorites. Aqueous alteration or a non-martian origin could account for this discrepancy.
- 9:00 a.m. Roszjar J. \* Bischoff A. Llorca J. Pack A.  
[\*Ksar Ghilane 002 \(KG 002\) — A New Shergottite: Discovery, Mineralogy, Chemistry and Oxygen Isotopes\*](#) [#1780]  
 We report on the discovery, mineralogical, chemical, and isotopic characteristics of a new basaltic shergottite: Ksar Ghilane 002.
- 9:15 a.m. Cartwright J. A. \* Merchel S. Rugel G. Fimiani L. Ludwig P. Llorca J. Ott U.  
[\*The 100th Martian Meteorite Ksar Ghilane 002 \(KG 002\): Noble Gases and Radionuclides Point to a Strong Relationship with Los Angeles\*](#) [#1213]  
 We report noble gas and radionuclide data for new martian meteorite KG 002, including cosmic-ray exposure ages. Our results show that KG 002 has striking similarities with the shergottite Los Angeles, and may hint at a similar ejection event.
- 9:30 a.m. Gross J. \* Filiberto J. Treiman A. H. Herd C. D. K. Melwani Daswani M. Schwenzer S. P.  
[\*Petrography, Mineral Chemistry, and Crystallization History of Olivine-Phyric Shergottite NWA6234: A New Intermediate Melt Composition\*](#) [#2693]  
 The new martian meteorite NWA 6234 is an olivine-phyric shergottite and may have special significance. It appears to represent a magma composition and new group of shergottites that is neither depleted nor enriched in incompatible trace elements.
- 9:45 a.m. Filiberto J. \* Chin E. Day J. M. D. Gross J. Penniston-Dorland S. C.  
 Schwenzer S. P. Treiman A. H.  
[\*Geochemistry of Intermediate Olivine-Phyric Shergottite Northwest Africa 6234\*](#) [#1139]  
 Here we present major- and trace-element geochemistry, Li-isotope composition and abundance, and Re-Os isotope and highly siderophile element abundance data for the ol-phyric shergottite Northwest Africa 6234.
- 10:00 a.m. Udry A. \* McSween H. Y. Jr.  
[\*Paired Nakhrites MIL 090030, 090032, 090136 and 03346: New Insights into the Cumulate Pile\*](#) [#1047]  
 Pairing of the nakhrites MIL 090030, MIL 090032, MIL 090136, and MIL 03346 has been confirmed. However, modal abundances indicate that MIL 03346 is not representative of the parent sample.
- 10:15 a.m. Mikouchi T. \* Makishima J. Kurihara T. Hoffmann V. H. Miyamoto M.  
[\*Relative Burial Depth of Nakhrites Revisited\*](#) [#2363]  
 We calculated cooling rates of olivine in newly discovered nakhrites to reappraise our model for relative burial depth in a single cumulus pile. The obtained cooling rates suggest that all mesostasis-rich samples have similar burial depths (<2 m).

- 10:30 a.m. Goodrich C. A. \* Treiman A. H. Filiberto J. Gross J. Jercinovic M. J.  
[\*K<sub>2</sub>O-Rich Melt from the Martian Mantle?\*](#) [#1276]  
We conclude from a study of melt inclusions that the melt trapped in olivine cores in Nakhla was unusually K<sub>2</sub>O-rich compared to most martian magmas. We discuss possible origins of this melt.
- 10:45 a.m. Taylor L. A. \* Liu Y. Balta J. B. Goodrich C. A. McSween H. Y. Jr.  
[\*New Constraints on the Formation of Shergottite EET 79001 Lithology\*](#) [#2456]  
Since the martian meteorite EET 79001 contains two lithologies, an olivine-phyric portion and a basaltic portion, in an apparent igneous contact, several models have been proposed for the formation of EET 79001.
- 11:00 a.m. Sears D. W. G. \*  
[\*Thermoluminescence Measurements and the Thermal History of Martian Meteorites\*](#) [#1853]  
The TL data indicate high-temperature feldspar is present in all four shergottites measured. This places important constraints on the post-shock thermal history of these meteorites.
- 11:15 a.m. Brandon A. D. \*  
[\*Old Versus Young Shergottites from a Re-Os Isotope Perspective\*](#) [#2454]  
Re-Os isotopes can be used to assess the old versus young age debate for martian shergottites. These data are inconsistent with the younger ages produced via shock. Instead, Re-Os indicates the young ages result from igneous crystallization.
- 11:30 a.m. Moser D. E. \* Chamberlain K. R. Tait K. T. Schmitt A. K. Barker I. R.  
Hyde B. C. Darling J. R.  
[\*Microstructure and U-Pb Dates of Martian Baddeleyite Rimmed by Zircon Indicate a 'Young' Igneous and Metamorphic History for Shergottite NWA 5298\*](#) [#2173]  
Resolution of the shergottite "age paradox" through integrated SIMS and electron nanobeam (e.g., CL, EBSD) analysis of primary igneous baddeleyite and later metamorphic zircon.