

Wednesday, March 22, 2017

[W453]

MARTIAN METEORITE MADNESS: MIXING ON A VARIETY OF SCALES**1:30 p.m. Waterway Ballroom 5**

- Chairs:** Arya Udry
Geoffrey Howarth
- 1:30 p.m. Nielsen S. G. * Magna T. Mezger K.
[*The Vanadium Isotopic Composition of Mars and Evidence for Solar System Heterogeneity During Planetary Accretion*](#) [#1225]
Vanadium isotope composition of Mars distinct from Earth and chondrites.
- 1:45 p.m. Tait K. T. * Day J. M. D.
[*Highly Siderophile Element and Os-Sr Isotope Systematics of Shergottites*](#) [#3025]
The shergottite meteorites represent geochemically diverse, broadly basaltic, and magmatically-derived rocks from Mars. New samples were processed and analyzed.
- 2:00 p.m. Armytage R. M. G. * Debaille V. Brandon A. D. Agee C. B.
[*The Neodymium and Hafnium Isotopic Composition of NWA 7034, and Constraints on the Enriched End-Member for Shergottites*](#) [#1065]
Couple Sm-Nd and Lu-Hf isotopic systematics in NWA 7034 suggest that such a crust is not the enriched end-member for shergottites.
- 2:15 p.m. Howarth G. H. * Udry A.
[*Nickel in Olivine and Constraining Mantle Reservoirs for Shergottite Meteorites*](#) [#1375]
Ni enrichment in olivine from enriched versus depleted shergottites provide evidence for constraining mantle reservoirs on Mars.
- 2:30 p.m. Jean M. M. * Taylor L. A.
[*Exploring Martian Mantle Heterogeneity: Multiple SNC Reservoirs Revealed*](#) [#1666]
The objective of the present study is to assess how many mixing components can be recognized, and address ongoing debates within the martian isotope community.
- 2:45 p.m. Udry A. * Day J. M. D. Moynier F.
[*Magma Emplacement and Mantle Source Compositions Inferred from a Comprehensive Suite of Nakhrites and Chassignites*](#) [#2289]
We present a comprehensive bulk-rock chemical and textural study of nakhrites and chassignites to establish their emplacement and parental melt composition.
- 3:00 p.m. Brandon A. D. * Ferdous J. Peslier A. H.
[*Evaluating Crustal Contamination Effects on the Lithophile Trace Element Budget of Shergottites, NWA 856 as a Test Case*](#) [#1039]
The effects of crustal contamination on the incompatible trace element budget of enriched shergottites is evaluated.
- 3:15 p.m. Shearer C. K. * Messenger S. Sharp Z. D. Burger P. V. Nguyen N. et al.
[*Distinct Chlorine Isotopic Reservoirs on Mars. Implications for Character, Extent and Relative Timing of Crustal Interaction with Mantle-Derived Magmas, Evolution of the Martian Atmosphere, and the Building Blocks of an Early Mars*](#) [#1546]
These new Chassigny apatite data reveal distinct martian Cl sources whose signatures link their origins to both the early solar system and the evolving martian atmosphere.

- 3:30 p.m. Irving A. J. * Kuehner S. M. Righter M. Lapen T. J. Gao Y. et al.
[*Petrologic and Isotopic Characterization of Northwest Africa 10961: An Intermediate Ultramafic Poikilitic Shergottite with Prevalent Shock Melting Features*](#) [#2712]
This poikilitic shergottite has close textural and chemical similarities to Allan Hills 77005 and others, but NWA 10961 exhibits more extensive shock melt features.
- 3:45 p.m. Park J. Nyquist L. E. * Herzog G. F. Nagao K. Mikouchi T. et al.
 [*\$^{20}\text{Ne}/^{22}\text{Ne}\$ in the Martian Atmosphere: New Evidence from Martian Meteorites*](#) [#1157]
Martian Ne trapped in the Dho 378 shergottite has $^{20}\text{Ne}/^{22}\text{Ne} = 7.3 \pm 0.2$, lower than the widely accepted value for the martian atmosphere.
- 4:00 p.m. Koike M. * Sumino H. Sano Y. Ozima M.
[*Combined Stepwise Heating and Vacuum Crushing Analyses of Noble Gases in Shergottites*](#) [#1866]
To extract martian atmospheric records from meteorites, we conducted stepwise heating and vacuum crushing noble gases analyses on several shergottites.
- 4:15 p.m. Peslier A. H. Hervig R. Irving T.
[*Hydrogen in Martian Meteorites*](#) [#2081]
Deciphering why water contents in nominally anhydrous minerals of martian meteorites are low compared to terrestrial equivalents.
- 4:30 p.m. Hewins R. H. * Barrat J.-A. Humayun M. Pont S. Zanda B.
[*NWA 8694 and the Chassignite Parent Liquid Problem*](#) [#2533]
Parent liquids for this ferroan chassignite based on trapped liquid and crystals give the correct olivine but late liquid is too alkaline.