

Friday, March 23, 2018
MARTIAN GEOCHEMISTRY, PETROLOGY, AND CHRONOLOGY I
 8:30 a.m. Waterway Ballroom 4

[F702]

Chairs: Kathie Thomas-Keprta
 Nicholas Castle

- 8:30 a.m. Kiefer W. S. * Sandu C.
[Is Mars Enriched in Alkali Elements?: Constraints from Argon 40 Outgassing](#) [#1668]
 The atmospheric argon 40 abundance on Mars can be explained if the bulk composition has 600 ppm K. Mars, therefore, may be enriched in alkali elements.
- 8:45 a.m. Cassata W. S. *
[Mass Fractionation of Atmospheric Xenon on Mars and Implications for Martian Paleoclimate](#) [#1719]
 Atmospheric mass fractionation of xenon on Mars differs significantly from on Earth. This may have important implications for martian paleoclimate.
- 9:00 a.m. Schwenzer S. P. * Ott U. Hicks L. J. Bridges J. C. Filiberto J. et al.
[Fractionated Martian Atmosphere — The Case of the Nakhrites, Revisited with Experiments](#) [#1561]
 Elementally fractionated martian atmosphere is investigated reviewing nakhrite martian meteorite data published over the last 30 years, and through experiments.
- 9:15 a.m. Krantz J. A. * Cannon K. M. Parman S. W.
[Sequestering Noble Gases in Early Hydrated Crusts on Mars](#) [#2321]
 A model has been developed to explore the sequestration of significant amounts of Xe in early hydrated crusts formed during a steam atmosphere phase on Mars.
- 9:30 a.m. Herd C. D. K. * Tornabene L. L. Bowling T. J. Walton E. L. Sharp T. G. et al.
[Linking Martian Meteorites to their Source Craters: New Insights](#) [#2266]
 We combine a variety of constraints to narrow the list of potential source craters for the martian meteorites to a relatively small and manageable number.
- 9:45 a.m. Cohen B. E. * Mark D. F. Lee M. R. Cassata W. S. Griffin S. et al.
[The Nakhrites Sample Multiple Igneous Units: Evidence from ⁴⁰Ar/³⁹Ar Chronology and Geochemistry](#) [#1892]
⁴⁰Ar/³⁹Ar ages of six nakhrites yield ages spanning 93 ± 11 Ma, and show these meteorites sample at least four discrete eruptive events.
- 10:00 a.m. Kruijer T. S. * Borg L. E. Sio C. K. Wimpenny J.
[Chromium Isotope Systematics of Martian Meteorites: Implications for the Differentiation History of Mars](#) [#2517]
 Martian meteorites show no resolvable ⁵³Cr variations, implying that silicate differentiation on Mars only commenced after ~15 Ma post solar system formation.
- 10:15 a.m. Day J. M. D. * Tait K. T. Udry A. Moynier F. Liu Y. et al.
[Rejuvenated Magmatism on Mars](#) [#1014]
 Nakhrites and chassignites are rejuvenated magmas from depleted metasomatized mantle, shergottites are from shield magmatism.
- 10:30 a.m. Moriwaki R. * Usui T. Tobita M. Yokoyama T.
[Geochemically Heterogeneous Martian Mantle Inferred from the Lead Isotope Systematics in the Two Depleted Shergottites Yamato 980459 and Dal al Gani 476](#) [#1891]
 Our study sheds light on the distinct Pb isotopic compositions and μ-values among the depleted shergottite source reservoirs in the martian mantle.

- 10:45 a.m. Jones J. H. * Simon J. I.
[*A Martian Mantle Derived by Dissection of the Depleted Shergottites*](#) [#1387]
Intersection of isotopic and geochemical trends suggest a common depleted mantle composition for the young shergottites.
- 11:00 a.m. Payre V. * Sautter V. Cousin A. Fabre C. Wiens R. C. et al.
[*Has the Early Mars Experienced Several Evolved Sources?*](#) [#2071]
The comparison of the composition of Gale felsic igneous rocks with the felsic clasts from the martian brecciated meteorite suggests several evolved reservoirs.
- 11:15 a.m. Susko D. * Karunatillake S. Hood D. R.
[*Petrologic Modeling of Magmatic Evolution in the Elysium Volcanic Province on Mars*](#) [#2685]
This work uses pMELTS to model mantle conditions and how partial melting of the martian mantle could evolve surface compositions in the Elysium Province.
- 11:30 a.m. Duncan M. S. * Schmerr N. C. Weller M. B. Bertka C. M. Fei Y.
[*The Solidus of Mars: Melting the Insides of Our Next Door Neighbor*](#) [#2774]
Melting inside Mars / Controls thermal history / Forms meteorites?
- 11:45 a.m. Castle N. * Herd C. D. K.
[*Implications of Oxidation on Martian Basalt Petrogenesis: Overprinting and Exsolution*](#) [#1586]
Mars olivine forms / Oxidation changes chem / Spinel exsolves out.