

Friday, March 21, 2014

[F553]

**SOLAR SYSTEM WORKINGS:
LINKING METEORITES TO PLANETARY BODIES AND PROCESSES
1:30 p.m. Waterway Ballroom 5**

**Chairs: Rhiannon Mayne
Edward Scott**

- 1:30 p.m. Scott E. R. D. * Bottke W. F. Marchi S. Delaney J. S.
[*How Did Mesosiderites Form and Do They Come from Vesta or a Vesta-Like Body?*](#) [#2260]
Mesosiderites may have formed beneath HEDs on Vesta following early impact of a molten metallic body and were then cooled slowly through 3.8 Ga.
- 1:45 p.m. Ali A. * Jabeen I. Banerjee N. R. Osinski G. R. Tait K. T. et al.
[*Oxygen Isotope Variations in Main Group Pallasites and HEDs*](#) [#2390]
High-precision O-isotope data of MG pallasites resolve them into two subgroups, high- $\Delta^{17}\text{O}$ and low- $\Delta^{17}\text{O}$ pallasites that have not been previously reported.
- 2:00 p.m. Lindsay F. N. * Delaney J. S. Turrin B. D. Herzog G. F. Park J. et al.
[*Component Chronology of Kapoeta: Ar-Ar Systematics*](#) [#1969]
Young $^{40}\text{Ar}/^{39}\text{Ar}$ ages (0.63–1.25 Ga) of seven 3–10- μg feldspars from Kapoeta straddle a reported crater count age (~1 Ga) of Vesta's Rheasilvia Basin.
- 2:15 p.m. Hublet G. * Debaille V. Wimpenny J. Yin Q.-Z.
[*Chronology of Differentiation and Magmatic Activity in 4-Vesta Using \$^{26}\text{Al}\$ - \$^{26}\text{Mg}\$ Model Age*](#) [#2597]
Al-Mg model ages were performed on eucrites and diogenites. The results show that differentiation of Vesta from a chondritic precursor occurred rapidly.
- 2:30 p.m. Mittlefehldt D. W. * Peng Z. X. Mertzman S. A. Mertzman K. R.
[*Petrology and Geochemistry of Unbrecciated Harzburgitic Diogenite MIL 07001: A Window into Vestan Geological Evolution*](#) [#1613]
MIL 07001 is an unusual unbrecciated, olivine-bearing diogenite. Our petrological and compositional studies aim to put it in vestan differentiation context.
- 2:45 p.m. Benedix G. K. * Bland P. A. Friedrich J. M. Mittlefehldt D. W. Sanborn M. E. et al.
[*Bunburra Rockhole: Exploring the Geology of a new Differentiated Basaltic Asteroid*](#) [#1650]
We present new O- and Cr-isotope and bulk chemistry for Bunburra Rockhole. It comes from a different parent than basaltic eucrites.
- 3:00 p.m. Sutton S. R. * Wirick S. Goodrich C. A.
[*Ungrouped Achondrite NWA 7325: Titanium, Vanadium and Chromium XANES of Mafic Silicates Record Highly-Reduced Origin*](#) [#1275]
Titanium, V, and Cr XANES spectra of olivine and pyroxene in ungrouped achondrite NWA 7325 indicate a highly-reduced origin.
- 3:15 p.m. Jabeen I. * Ali A. Banerjee N. R. Osinski G. R. Ralew S. et al.
[*Oxygen Isotope Compositions of Mineral Separates from NWA 7325 Suggest a Planetary \(Mercury?\) Origin*](#) [#2215]
Precise triple O-isotope work on major minerals from NWA 7325 supports the evidence that this meteorite belongs to a larger planetary body, could be Mercury.

- 3:30 p.m. Weber I. Morlok A. * Bischoff A. Hiesinger H. Helbert J.
[Mineralogical and Spectroscopic Studies on NWA 7325 as an Analog Sample for Rocks from Mercury](#) [#1323]
We investigated the petrology of the ungrouped achondrite NWA 7325 as an analog sample for rocks from Mercury with EMPA, SEM, FTIR, and Raman.
- 3:45 p.m. Kita N. T. * Sanborn M. E. Yin Q.-Z. Nakashima D. Goodrich C. A.
[The NWA 7325 Ungrouped Achondrite — Possible Link to Ureilites? Oxygen and Chromium Isotopes and Trace Element Abundances](#) [#1455]
NWA 7325 might be derived from a previously unsampled asteroid, which might have undergone a similar differentiation processes to the ureilite parent body.
- 4:00 p.m. Sanders I. S. * Scott E. R. D.
[Taking the Mystery out of Ureilites: Attributing Correlated Fe/Mg and \$\Delta^{17}\text{O}\$ to Isotopically Heavy Ice in the Parent Body](#) [#1877]
Accretion of high $\Delta^{17}\text{O}$ ice to the cold ureilite parent body may have led to the otherwise enigmatic correlation between $\Delta^{17}\text{O}$ and Fe/Mg in ureilite olivine.
- 4:15 p.m. Corder C. A. * Day J. M. D. Rumble D. III Assayag N. Cartigny P. et al.
[A Carbon-Rich Region in Ureilite Miller Range 091004](#) [#2304]
Recent Antarctic ureilite find Miller Range 091004 contains an incredible carbon-rich region, and has important implications for ureilite petrogenesis.
- 4:30 p.m. Goodrich C. A. * Wilson L.
[Feldspathic Clast Populations in Polymict Ureilites: Determining the Compositions of Melts and the Mode of Melt Extraction on the Ureilite Parent Body](#) [#1342]
New data and modeling for feldspathic clasts in polymict ureilites constrain the compositions of melts and mode of melt extraction on the ureilite parent body.