

Thursday, July 30, 2015
ACHONDRITES: EARLY PLANETARY PROCESSES AND EVOLUTION
8:30 a.m. Sibley Auditorium

Chairs: Hilary Downes
Takashi Mikouchi

- 8:30 a.m. Pringle E. A. * Savage P. S. Badro J. Barrat J.-A. Moynier F.
[*Silicon Isotopes in Achondrites and Planetary Accretion and Differentiation*](#) [#5120]
 We present new high-precision Si isotope data for an extended suite of achondrites to assess the processes affecting the Si isotope system during the accretion and early geochemical modification of planetesimals.
- 8:45 a.m. Mikouchi T. * Sugiyama K. Yasuhara A. Mihira T.
[*Transmission Electron Microscopy of Silico-Apatite in D'Orbigny*](#) [#5287]
 We studied Ca silico-phosphates in the D'Orbigny quenched angrite by FIB-TEM and found that they are apatite in the crystal structure.
- 9:00 a.m. Lindsay F. N. * Delaney J. S. Turrin B. D. Park J. Herzog G. F. Swisher C. C. III
[*⁴⁰Ar/³⁹Ar Ages of Kapoeta Glasses*](#) [#5304]
 Ar plateau ages from a crosscutting glass vein in the howardite Kapoeta AMNH4788 range from 3.1 to 4.2 Ga. The glasses are unreliable for use in dating discrete impact events.
- 9:15 a.m. Goodrich C. A. * Fioretti A. M. O'Brien D. P. Zolensky M. Jenniskens P. Shaddad M. H.
[*Comparing the Foreign Clast Populations of Almahata Sitta and Typical Polymict Ureilites, with Implications*](#) [#5018]
 E chondrites are the most abundant non-ureilite component of Almahata Sitta, based on currently studied samples. We search for E-meteorite material in typical polymict ureilites for comparison.
- 9:30 a.m. Downes H. * Rai N. Smith C. L. Herrin J. S. Ross A. J.
[*Fe-Silicide Phases in Polymict Ureilites: Siderophile Trace Element Fractionation*](#) [#5064]
 We analysed siderophile elements in suessite in polymict ureilites by LA-ICPMS. It is depleted in incompatible siderophiles and patterns resemble those of Si-bearing metals in monomict ureilites. Suessite formed from pre-existing ureilitic metal.
- 9:45 a.m. Turrin B. D. * Lindsay F. N. Delaney J. S. Park J. Herzog G. F. Swisher C. C.
[*A 4548 Ma ⁴⁰Ar/³⁹Ar Age of a Feldspathic Clast in Almahata Sitta: Implication for the Ureilite Parent Body Age and the Assembly Age of Asteroid 2008 TC3*](#) [#5328]
 We present ⁴⁰Ar/³⁹Ar ages on albite and high-K glass inclusions found in pyroxenes from the Almahata Sitta (AhS) clast MS-MU-011. Our ages constrain the time of differentiation on the Ureilite Parent body and constrain the assembly age of AhS.
- 10:00 a.m. Rai N. * Downes H. Smith C. L.
[*Modelling of Oxygen Isotopes and Major Element Chemistry of Ureilites*](#) [#5105]
 We used a combination of all chondritic meteorite types (CH, CI, CK, CM, CO, CR, CB, EH, EL, H, L, LL, R), Fe-rich and Fe-poor chondrules, using oxygen isotope signatures and a range of elemental ratios to model the building blocks of the ureilite parent body.
- 10:15 a.m. Hahn T. M. Jr. * Lunning N. G. McSween H. Y. Jr. Taylor L. A.
[*Granitoid Clast in Howardite: Diversity Among Evolved Vestan Lithology*](#) [#5085]
 We describe a granitoid clast in a howardite that may represent an evolved lithology that occurs locally on Vesta. We examine the two competing hypotheses for producing evolved melts on Vesta.

- 10:30 a.m. Lunning N. G. * Hahn T. M. Beck A. W. McSween H. Y. Jr.
[Plagioclase Depletion by Comminution in the Vestan Regolith](#) [#5067]
Quantitative modal analysis of regolithic howardites reveals that, compared to proportions found in unbrecciated eucrites, plagioclase is depleted relative to cumulate and basaltic eucrite composition pyroxene in these howardites.
- 10:45 a.m. Warren P. H. * Isa J. Baecker B. Kohl I. E. Young E. D.
[Northwest Africa 8659: A Stannern-Trend Eucrite Rich in Late/Secondary Olivine](#) [#5374]
NWA 8659 is unusual in several respects. Its bulk composition is more Stannern-Trend (1.2 wt% TiO₂) than Stannern itself. It is exceptionally rich in various textural types of late/secondary olivine. Its thermal metamorphism is type "2" (very mild).
- 11:00 a.m. McFadden L. A. * McCord T. B. Scully J. E. C. Dawn Science Team A. N. D.
[Vesta Before Arrival at Ceres: Regional Surface Composition](#) [#5143]
After Dawn left Vesta for Ceres, the science team analyzed all data from Vesta publishing a systematic study of the surface mineralogy of Vesta using spectroscopy, imaging, topography, geology, elemental and gravity data. Results are presented.
- 11:15 a.m. Ward D. * Bischoff A. Roszjar J. Whitehouse M. J.
[REE Content of Meteoritic Ca-Phosphates](#) [#5056]
The REE content of 300 Ca-phosphates (apatites and merrillites) from nine meteorite classes was analyzed by LA-ICP-MS and SIMS. They account for the majority of the REE budget with enrichments of up to two orders of magnitude compared to the bulk rocks.