

Wednesday, March 12, 2008
ACHONDRITES
1:30 p.m. Marina Plaza Ballroom

Chairs: **B. P. Weiss**
J. S. Herrin

- 1:30 p.m. Usui T. * McSween H. Y. Jr. Mittlefehldt D. W. Prettyman T. H.
K/Th in Achondrites and Interpretation of GRaND Data for the Dawn Mission [#2115]
 We propose a method based GRaND-analyzed elements, K and Th, to distinguish between HED and other differentiated achondrites. We also propose a new mixing model using elements that will be most reliably measured by GRaND.
- 1:45 p.m. Touboul M. * Kleine T. Bourdon B.
Hf-W Systematics of Cumulate Eucrites and the Chronology of the Eucrite Parent Body [#2336]
 New Hf-W data for cumulate eucrites reveal that core formation in Vesta occurred ~2.5 Ma after CAI formation, i.e., later than in the iron meteorite parent bodies. The source region of the cumulate eucrites differentiated later than ~60 Ma.
- 2:00 p.m. Shukolyukov A. * Lugmair G. W.
Mn-Cr Chronology of Eucrite CMS 04049 and Angrite NWA 2999 [#2094]
 We studied the Mn-Cr isotope systematics in the unbrecciated eucrite CMS 04049 and in the angrite NWA 2999. The absolute Mn-Cr ages of both meteorites are 4558 Ma. The age of NWA 2999 is similar to the ages of the texturally similar AdoR and LEW 86010.
- 2:15 p.m. Krawczynski M. J. * Elkins-Tanton L. T. Grove T. L.
Petrology of Olivine-Diogenite MIL 03443,9: Constraints on Eucrite Parent Body Bulk Composition and Magmatic Processes [#1229]
 We present a petrologic description of a new olivine-diogenite MIL 03443,9. Using mineralogical data from this meteorite we discriminate between several EPB bulk compositions that we then use to experimentally explore the diogenite-eucrite link.
- 2:30 p.m. Birmingham K. R. * Norman M. D. Christy A. G. Arculus R. J.
A New Variety of Eucrite? Clues to Early Differentiation of Igneous Asteroids [#1225]
 Whole rock major and trace element data for 12 noncumulate eucrites reveal a new variety with LREE-depleted patterns that cannot have formed either by melting of a primitive asteroid or fractional crystallization of a main group parental magma.
- 2:45 p.m. Righter M. * Lapen T. J. Righter K.
Relationships Between HEDs, Mesosiderites, Ungrouped Achondrites: Trace Element Analyses of Mesosiderite RKP A79015 and Ungrouped Achondrite QUE 93148 [#2468]
 New metal and silicate analyses of trace elements in mesosiderites and ungrouped achondrites provide new constraints on possible connections to HED meteorites.
- 3:00 p.m. Scott E. R. D. * Greenwood R. C. Franchi I. A. Barrat J. A. Sanders I. S.
Oxygen Isotopic Constraints on the Number and Origin of Basaltic Achondrite Parent Bodies [#2344]
 Our data show that HED meteorites have a homogeneous oxygen isotopic composition consistent with a magma ocean on Vesta. Ibitira, Asuka 881394, Pasamonte, and NWA 1240 probably come from separate parent asteroids.
- 3:15 p.m. Sanborn M. E. * Wadhwa M. Hervig R. Irving A. J.
Rare Earth Element Geochemistry of Angrite Northwest Africa 2999 [#1395]
 We report ion microprobe analyses of rare earth element abundances in minerals of the unique angrite NWA 2999. Based on these results, implications are presented for the petrogenetic history of this angrite and its relationship to the other (plutonic and quenched) angrites.

- 3:30 p.m. Weiss B. P. * Lima E. A. Zucolotto M. E.
Magnetism on the Angrite Parent Body [#2143]
We report the first paleomagnetic study of angrites. We find that a 10 μ T field existed on the angrite parent body at 4565 Ma and decayed by \sim 3700 Ma. This is the earliest known pristine record of planetary magnetism and may indicate an early dynamo.
- 3:45 p.m. Herrin J. S. * Lee C.-T. A. Mittlefehldt D. W. Downes H.
Genesis of Augite-bearing Ureilites; Evidence from LA-ICP-MS Analyses of Pyroxenes and Olivine [#2503]
Ureilites are restites from partial melting of a chondritic precursor, but some augite-bearing ureilites may be partially cumulate. To test this hypothesis, we examined compositions of silicate minerals in select augite-bearing ureilites with differing mg#.
- 4:00 p.m. Gabriel A. D. * Pack A.
Fe, Co and Ni in Ureilite Metal and Silicates — Constraints for the Origin of Ureilite Metal [#2195]
We present EMPA and LA-ICPMS metal and silicate data from seven different ureilites. By thermodynamic calculations we constrain that the ureilite vein metal is not genetically linked to the ureilite silicates. We discuss possible sources for the vein metal origin.
- 4:15 p.m. Smith C. L. * Downes H. Jones A. P.
Metal and Sulphide Phases in Interstitial Veins in “Dimict” Ureilites — Insights into the History and Petrogenesis of the Ureilite Parent Body [#1669]
Unusual metal and sulfide phases occur in veins in dimict ureilites FRO 90168, 90228 and 93008. We have identified for the first time in an asteroidal meteorite the mineral hapkeite and found another unusual high-Si metal phase.
- 4:30 p.m. Singletary S. J. * Bell D. R. Buseck P. R.
SIMS Analysis of Ureilite Lithium Composition [#2217]
We present SIMS analyses of the lithium isotopic composition of the silicate phases in the El Gouanem ureilite. The data indicate that the phases are the residue of a partial melting event.
- 4:45 p.m. Spinsby J. Friedrich H. Buseck P. R. *
Tomography of the Brenham Pallasite [#2128]
Three-dimensional reconstruction of serial sections of Brenham shows that olivine is fully interconnected and essentially close packed. Fe/Ni metal is interstitial, and troilite and schreibersite are in discontinuous masses that wetted the olivine.