

**Thursday, March 20, 2003**  
**BASALTIC ACHONDRITES: GO WITH THE FLOW**  
**8:30 a.m. Marina Plaza Ballroom**

**Chairs: H. Haack**  
**L. E. Nyquist**

- Irving A. J. \* Kuehner S. M. Rumble D. III Hupe A. C. Hupe G. M.  
*Olivine Diogenite NWA 1459: Plumbing the Depths of 4 Vesta* [#1502]  
 NWA 1459 is a new ultramafic achondrite from Morocco that represents the fourth known olivine diogenite, and may be either a cumulate or a sample of the shallow Vestan mantle.
- Haack H. \* Bizzarro M. Baker J. A. Rosing M.  
*Early Thermal Evolution and Sizes of the HED and Mesosiderite Parent Bodies: New Constraints from Lu-Hf Chronology* [#1317]  
 New Lu-Hf chronological data underlines the close similarity between the HED and mesosiderite parent bodies. Both parent bodies had diameters of several hundred kilometers and their igneous evolution continued for about 150 My. The HED parent body is apparently Vesta — but where is the MPB?
- Yamaguchi A. \* Setoyanagi T. Ebihara M.  
*An Anomalous Euclite, Dhofar 007, and a Possible Genetic Relationship with Mesosiderites* [#1377]  
 We performed a petrologic and geochemical study of an anomalous euclite, Dhofar 007. The thermal history and high abundance of siderophile elements of Dhofar 007 indicate a genetic relationship with mafic clasts in mesosiderites.
- Bogard D. D. \* Garrison D. H.  
*<sup>39</sup>Ar-<sup>40</sup>Ar Ages of Euclites and the Thermal History of Asteroid 4-Vesta* [#1068]  
 New <sup>39</sup>Ar-<sup>40</sup>Ar ages of several cumulate and unbrecciated euclites cluster at ~4.48 Gyr, unlike some previously reported Pb-Pb and Sm-Nd ages. This time may date a very large cratering event on Vesta, which interrupted internal metamorphism.
- Wadhwa M. \* Foley C. N. Janney P. Beecher N. A.  
*Magnesium Isotopic Composition of the Juvinas Euclite: Implications for Concordance of the Al-Mg and Mn-Cr Chronometers and Timing of Basaltic Volcanism on Asteroids* [#2055]  
 New high precision Mg isotopic data are presented for mineral separates from the noncumulate euclite Juvinas. Based upon these results, implications are discussed for the crystallization age of Juvinas.
- Buchanan P. C. \* Zolensky M. E.  
*Carbonaceous Chondrite Fragments in the Polymict Euclite Yamato 791834* [#1299]  
 This study describes two carbonaceous chondrite fragments in an HED polymict breccia. These clasts are important because they represent materials that were in orbital proximity to the HED parent body (4 Vesta).
- McCoy T. J. \* Wilson L. Benedix G. K. Ketcham R. A. Wadhwa M. Davis A. M.  
*Vesicular Euclites: Where and How Did They Form and Why are They So Rare?* [#1187]  
 We have conducted CT scanning, BSE imaging and computational modeling of the vesicular euclite Ibitira. Our work suggests that Ibitira as a dike of ~20 cm width at depth. CO<sub>2</sub> was the dominant volatile and occurred at concentrations of ~50–200 ppm.
- Kurat G. \* Varela M. E. Zinner E. Maruoka T. Brandstätter F.  
*Major, Minor and Trace Elements in Some Glasses from the NWA 1664 Howardite* [#1733]  
 NWA 1664 glass objects share features with glasses from other achondrites and with glass inclusions in olivines and glass matrices of chondrules from carbonaceous chondrites. These objects must have a common source with chondritic refractory elemental abundances.

Tonui E. K. \* Ngo H. H. Papanastassiou D. A.

*Rb-Sr and Sm-Nd Study of the D'Orbigny Angrite* [#1812]

Rb-Sr and Sm-Nd in the D'Orbigny angrite show a recently disturbed Sm-Nd system, but primitive initial  $^{87}\text{Sr}/^{86}\text{Sr}$ , which appears characteristic of the angrite parent body.

Fittipaldo M. M. \* Jones R. H. Shearer C. K.

*Trace Element Distribution Between Olivine and Kirschsteinite in Angra Dos Reis* [#1229]

Kirschsteinite occurs interstitially to olivine grains in olivine aggregates in the Angra dos Reis angrite. Trace element abundances in these two phases in Angra dos Reis are similar to trace element abundances in these phases in LEW86010.

Nyquist L. E. \* Shih C. Y. Wiesmann H. Mikouchi T.

*Fossil  $^{26}\text{Al}$  and  $^{53}\text{Mn}$  in D'Orbigny and Sahara 99555 and the Timescale for Angrite Magmatism* [#1388]

Excess  $^{26}\text{Mg}$  from decay of  $0.72\text{ Ma }^{26}\text{Al}$  and excess  $^{53}\text{Cr}$  from decay of  $3.7\text{ Ma }^{53}\text{Mn}$  has been found in the D'Orbigny and Sahara 99555 angrites in minerals having high Al/Mg and Mn/Cr ratios, respectively. These angrites have well-preserved igneous textures, and apparently predate angrite LEW86010.

Boesenberg J. S. \*

*An Oxygen Isotope Mixing Model for the Northwest Africa 011 Basaltic Achondrite* [#1239]

Four bulk compositions are modeled for the eucrite-like NWA 011 parent body based on oxygen isotope mixing of chondritic meteorites. Comparisons to the EPB are made. Petrologic constraints are placed on the NWA 011 parent body.

Korotchantseva E. V. \* Ivanova M. A. Lorenz C. A. Bouikine A. I. Trierloff M. Nazarov M. A.

Promprated P. Anand M. Taylor L. A.

*Major and Trace Element Chemistry and Ar-Ar Age of the NWA 011 Achondrite* [#1575]

We present new evidence that NWA 011 is different from HED meteorites. We suggest that its source was relatively oxidized and contained some sulfide phases.  $^{40}\text{Ar}/^{39}\text{Ar}$  dating indicates a thermal event at  $0.8\text{ Ga}$  and a crystallization age of  $>3.2\text{ Ga}$ .