

Wednesday, March 19, 2003
ACHONDRITES TO ZCHONDRITES
1:30 p.m. Marina Plaza Ballroom

Chairs: R. H. Jones
B. A. Cohen

Cohen B. A. * Goodrich C. A.

Feldspathic Clasts in Polymict Ureilites [#1518]

A comprehensive survey of feldspathic clasts in polymict ureilites DaG 164/165, DaG 319/665, and EET83309 reveals an igneous trend representing partial melting on the ureilite parent body. Other feldspathic clasts may not be related to this trend.

Kita N. T. * Ikeda Y. Shimoda H. Morishita Y. Togashi S.

Timing of Basaltic Volcanism in Ureilite Parent Body Inferred from the ^{26}Al Ages of Plagioclase-bearing Clasts in DaG-319 Polymict Ureilite [#1557]

The initial $^{26}\text{Al}/^{27}\text{Al}$ ratios of 4×10^{-7} (~5 M.y. after CAIs) were obtained from plagioclase-bearing clasts in DaG-319 polymict ureilite, indicating a short time period of less than a million years for the differentiation of the parent body.

Lee D-C. * Halliday A. N. Singletary S. J. Grove T. L.

^{182}Hf - ^{182}W Chronometry for an Early Differentiation in the Parent Body of Ureilites [#1179]

A suite of ureilites have been studied with Hf-W isotope system and all show sub-chondritic W isotope and Hf/W ratios, suggesting that ureilite parent body differentiated early.

Singletary S. J. * Grove T. L.

Experimental Investigations of Ureilite Petrogenesis: Relationships Between mg# and Smelting Extent [#1192]

We present new experimental results that indicate low mg# ureilites that contain pigeonite as the sole pyroxene have undergone greater extents of partial melting.

Nehru C. E. * Weisberg M. K. Boesenberg J. S. Kilgore M.

Tafassasset: A Metal-rich Primitive Achondrite with Affinities to Brachinites [#1370]

Tafassasset is a new brachinite-like meteorite. Its texture and mineralogy are similar to Brachina but it has a high metal abundance. Its oxygen isotopes differ from Brachina and the main group brachinites and plot near the LEW 88763 brachinite.

Liu Y. * Nyquist L. Wiesmann H. Shih C. Schwandt C. Takeda H.

Internal Rb-Sr Age and Initial $^{87}\text{Sr}/^{86}\text{Sr}$ of a Silicate Inclusion from the Campo Del Cielo Iron Meteorite [#1983]

Internal Rb-Sr age of 4.54 ± 0.08 Ga with initial $^{87}\text{Sr}/^{86}\text{Sr}$ of 0.69926 ± 0.00027 was determined for a silicate inclusion in Campo del Cielo IAB iron. This result is consistent with the ages of Rb-Sr, Sm-Nd and Ar-Ar obtained from the plagioclase-diopside-rich materials in Caddo IAB iron.

Maruoka T. * Kurat G. Zinner E. Varela M. E. Ametrano S. J.

Carbon Isotopic Heterogeneity of Graphite in the San Juan Mass of the Campo Del Cielo IAB Iron Meteorite [#1663]

We have measured the carbon isotopic composition of graphite in the San Juan mass of Campo del Cielo (IAB) to constrain the origin of IAB iron meteorites.

Becker H. * Walker R. J.

Molybdenum Isotopic Composition of Iron Meteorites, Chondrites and Refractory Inclusions [#1170]

New Mo isotopic data for iron meteorites, chondrites and refractory inclusions show no conclusive evidence for large-scale and systematic Mo isotopic heterogeneities in the inner solar system at the 1-3 epsilon level.

Humayun M. * Campbell A. J.

Microanalysis of Niobium in Iron Meteorites [#1480]

LA-ICP-MS analysis of individual phases in iron meteorites indicates that Nb is present in troilite, but absent from metal, phosphide and carbide. This has implications for Nb in the Earth's core, and for ^{92}Nb - ^{92}Zr chronometry of troilite.

Chabot N. L. * Jones J. H.

The Parameterization of Solid Metal-Liquid Metal Partitioning of Siderophile Elements [#1004]

The composition of a metallic liquid can significantly affect partitioning behavior. We present a parameterization method for expressing the partitioning behavior of siderophile, metal-loving, elements as a function of the metallic composition.

Petaev M. I. * Jacobsen S. B.

Differentiation of Metal-rich Meteoritic Parent Bodies [#1747]

We describe our FeNiSP code for modeling crystallization of Fe-Ni-S-P melts and use it to interpret trace element patterns of iron meteorites and metal of the Divnoe primitive achondrite.

Yang J. * Goldstein J. I.

An Improved Model to Determine the Cooling Rates of Mesosiderites and Iron Meteorites [#1156]

An improved model using latest phase diagram and interdiffusion coefficients to determine the cooling rates of meteorites showed that this model can match the experimental data better than previous models for both mesosiderites and iron meteorites.

Jones R. H. * Wasson J. T. Larson T. Sharp Z. D.

Milton: A New, Unique Pallasite [#1683]

The Milton pallasite was found in Missouri in 2000. The chemistry of the olivine and metal phases, plus the oxygen isotope ratios of the olivines, differ significantly from other pallasites, making Milton unique.