

Thursday, March 10, 2011
POSTER SESSION II: ORGANICS AND VOLATILES
IN CHONDRITIC METEORITES AND THE SOLAR WIND
6:00 p.m. Town Center Exhibit Area

Hoffman E. J. Veblen L. A. Abreu N. M. Howard K. T.

[Reaction Products of Synthetic Mg-Silicates Hydrated in a Humid Chamber](#) [#2526]

As characterized by TEM and PSD-XRD the products resemble hydrated protosilicates in primitive meteorites. The optimal hydration temperature is about 291 K, a new constraint for models of early solar system formation.

Rietmeijer F. J. M. Pun A. Nuth J. A.

[Making Amorphous Ferromagnesian Silica and Metastable Magnesioferrite and Fayalite](#) [#1027]

Formation of amorphous and crystalline astronomical ferromagnesian silicates and Mg,Fe-oxide.

Chizmadia L. J. Santiago-Soto W. Lebron-Rivera S. A.

[Exploring the Relationship Between Fe:Si and Smoke:Water Ratios During Aqueous Alteration of Amorphous Fe-Silicate Smokes](#) [#2156]

The minimum pH values of 3.9 were achieved by the smokes with the highest Fe:Si ratio. The 40 mg:2mL ratios usually provide the lowest pH values for each given composition. The temperature profiles for hydration of Fe-silicate smokes are complex.

Noguchi R. Tsuchiyama A. Noguchi T. Libourel G.

[Hydrothermal Alteration Experiments of Amorphous Silicates: Dependence of Water/Rock Ratio](#) [#1789]

To understand the effect of water/rock ratio on aqueous alteration in carbonaceous chondrites, hydrothermal experiments of amorphous silicates with the CI composition were made. Saponite formation requires higher W/R ratio than serpentine formation.

Nagahara H. Ozawa K.

[Phyllosilicate Formation and Its Role on the Formation of Organic Materials in the Early Solar Nebula](#) [#2838]

Thermodynamic and experimental study shows that phyllosilicates are formed from amorphous silicate at higher temperatures than previously estimated, which may play a role on the evolution of organic materials before accretion of a planetesimal.

Goodyear M. D. Gilmour I. Pearson V. K.

[Development of Visualisation Methodology for Organic Materials Contained Within Carbonaceous Chondrites.](#) [#1253]

The development of methodology for the derivatisation of the organic components of carbonaceous chondrites is described. This methodology will be used to determine the location of organic materials, *in situ*, and at high resolution.

Garvie L. A. J.

[Something Fluoresces in Carbonaceous Chondrites — What is It and is It Important?](#) [#1316]

Carbonaceous chondrites contain abundant fluorescent particles. TEM and SEM studies show that these particles are carbonaceous nanoglobules.

Vollmer C. Leitner J. Busemann H. Spring N. Hoppe P.

[The Association of ¹⁵N-anomalous Matter with Stardust in Chondrites Acfer 094 and NWA 852](#) [#1720]

We report on the observation of associated stardust and nitrogen anomalies in the carbonaceous chondrites Acfer 094 and NWA 852 by NanoSIMS. These associations might help to understand contrasting formation mechanisms of nitrogen anomalies in meteorites and IDPs.

Fries M. Bhartia R. Steele A.

[Carbonaceous Chondrite Groups Discerned Using Raman Spectral Parameters](#) [#1860]

A series of carbonaceous chondrites is differentiated by type using Raman spectra of their carbon alone.

Bose M. Floss C. Stadermann F. J.

[Carbonaceous N-Anomalous Grains in the CO3.0 Meteorite ALHA77307](#) [#1444]

We report N and C anomalies that have been identified *in situ* in the primitive meteorite ALHA77307. Characterization of the anomalies using the Auger nanoprobe shows that the carrier phase is primarily carbonaceous in nature.

Wang Y. Kebukawa Y. Cody G. D. Alexander C. M. O'D.

[Deuterium Speciation in Chondritic Organic Solids: A Relic of Cold Molecular Processes](#) [#2380]

Direct detection of deuterium speciation in chondritic organic solids via NMR reveals aliphatic C is the D carrier. D enrichment is shown to be a relic of very high initial D that is reduced through D-H exchange with D-poor parent-body fluids.

Kebukawa Y. Cody G. D. Alexander C. M. O'D. Nittler L. R. Herd C. D. K. Kilcoyne A. L. D.

[Extensive Organic Molecular Evolution in Different Tagish Lake Meteorite Fragments](#) [#2455]

Extensive molecular evolution in organic solids from different Tagish Lake fragments is revealed through complementary spectroscopic techniques. Insight into Tagish Lake parent-body processing is revealed and is consistent with localized heating.

Busemann H. Baur H. Vogel N. Wieler R.

[Primordially Trapped Heavy Noble Gases in Rumuruti Chondrites?](#) [#2793]

We discuss Kr and Xe abundances in Rumuruti chondrites. None of the samples need to contain phase Q gases to explain the results. Phase Q might have been destroyed by parent body oxidation or by oxidation of the precursor material in the nebula.

Orthous-Daunay F.-R. Thissen R. Vuitton V. Somogyi A. Mespouledé M. Beck P. Bonnet J.-Y. Dutuit O. Schmitt B. Quirico E.

[Orbitrap-MS and FT-ICR-MS of Free and Labile Organic Matter from Carbonaceous Chondrites](#) [#2654]

We used two types of high-resolution FT-MS to analyze the free and labile organic matter in carbonaceous chondrites of type 1 and 2. The methanol extraction and laser desorption gave access to highly and poorly functionalized molecules respectively.