

Tuesday, March 20, 2012

POSTER SESSION I: CHONDRITE COMPONENTS AND PRIMARY PROCESSES

6:00 p.m. Town Center Exhibit Area

Kebukawa Y. Cody G. D.

[*Deuterium-Hydrogen Exchange Kinetics: Implications for Early Chemical Evolution of Chondritic Insoluble Organic Matter*](#) [#1034]

We report D-H exchange kinetics obtained using laboratory synthesized organic polymers, in order to evaluate the D-H exchange between D enriched organic polymers and D depleted water. Our results explain well the known chondritic δD values.

Gasda P. J. Taylor G. J.

[*The Distribution of Organic Carbon in CR2 Chondrite EET 92161*](#) [#1677]

We present Raman spectral maps of EET 92161 CR2 chondrite to understand the distribution and petrographic context of organics in carbonaceous chondrites to learn how these compounds are affected by aqueous alteration on meteorite parent bodies.

Peeters Z. Changela H. Stroud R. M. Alexander C. M. O'D. Nittler L. R.

[*Coordinated Analysis of In Situ Organic Material in the CR Chondrite QUE 99177*](#) [#2612]

We report the results of a coordinated analysis of several FIB lift-out sections by XANES, TEM and nanoSIMS, investigating the chemical, structural, and isotopic nature of in situ organic matter in QUE 99177.

Okabayashi S. Yokoyama T. Hirata T.

[*Iron Isotopic Signature for Fe-Ni Metal of Ordinary Chondrite Using Newly Developed Technique: LAL-MC-ICPMS*](#) [#1871]

Fe-isotopic compositions of Fe-Ni metals in ordinary chondrites were measured using laser ablation in liquid (LAL)-MC-ICPMS technique. We found that Fe-Ni metals in H chondrites have slightly lighter Fe-isotopic signature than L and LL chondrites.

Petaev M. I. Lehner S. W. Buseck P. R.

[*Chemical Fractionation During Processing of Silicates in S-Rich Systems: Implications for the Origin of Enstatite Chondrites*](#) [#2229]

We review physicochemical conditions of silicate sulfidation in EH chondrites that resulted in chemical fractionations of major elements relevant to the origin and chemical compositions of enstatite chondrites.

Lehner S. W. Petaev M. I. Buseck P. R.

[*Sulfidation of Enstatite in the Fine-Grained Matrix of EH3 Sahara 97072*](#) [#2309]

We report TEM results of a S-enriched area where niningerite and silica occur surrounded by enstatite. The mineralogy and chemistry can be explained by reaction of enstatite and FeNi metal with S_2 and CO gas at ~1000 and -1100K.

Varela M. E. Zinner E.

[*Silica-Rich Objects in Acfer 128: A SIMS Study*](#) [#1405]

We report the results of major- and trace-element studies of some silica-bearing objects in Acfer 182.

Parai R. Huang S. Jacobsen S. B.

[*Precise Determination of Calcium Isotope Variations in Meteoritic and Planetary Materials*](#) [#1625]

Large mass-dependent Ca-isotope effects have been found in planetary materials. We use a Monte Carlo model to explore the precision and accuracy of Ca double spike techniques that are used to correct for mass-dependent fractionation during analysis.

Kaltenbach A. Stirling C. H. Amelin Y.

[*Uranium Isotopic Composition of Carbonaceous Chondrites*](#) [#1691]

We present uranium isotope and concentration data of 12 carbonaceous chondrites, analyzed by MC-ICPMS. Minor variations in the $^{238}U/^{235}U$ ratios are detected, showing that it is necessary for a reliable Pb-Pb chronology to analyze U and Pb isotopes.

Fukami Y. Yokoyama T.

[*Tellurium Isotope Anomalies in Carbonaceous Chondrites: Results for Sequential Acid Leaching Experiments* \[#1861\]](#)

We present preliminary data of Te-isotopic compositions in acid leachates of the Murchison meteorite (CM2) measured by N-TIMS. No isotope anomalies were found in all leachates but one that potentially shows depletion of *s*-process Te.

Crowther S. A. Filtner M. J. Gilmour J. D.

[*Pathways of Iodine and Xenon into Terrestrial Planets* \[#1919\]](#)

Our understanding of the behaviour of halogens and noble gases on planetesimals is limited. We focus on the I-Xe systematics of primitive meteorites, seeking to understand their incorporation into and subsequent processing on planetesimals.

Isa J. Rubin A. E. Wasson J. T.

[*Bulk Compositions of CV and CK Chondrites: Support for a Close Relationship* \[#2809\]](#)

The CV and CK chondrites do not seem to be separate groups; they may have originated in the same asteroidal parent body.

Tepljakova S. N. Humayun M. Lorenz C. A. Ivanova M. A.

[*A Common Parent for IIE Iron Meteorite and H Chondrites* \[#1130\]](#)

We report new siderophile element abundances for the metal in the IIE irons — Watson, Tobychan, Elga, Verkhne Dnieprovsk, and Miles — to examine the possible genetic relations between IIE metal and H chondritic precursors.

Humayun M. Weisberg M. K.

[*A Possible Ordinary Chondrite Affinity for Metal from the Unique Chondrite NWA 5492* \[#1458\]](#)

NWA 5492 metal is compositionally similar to that from the unique chondrite GRO 95551, and both are linked to H-chondrite siderophile-element composition despite the more extreme state of reduction in NWA 5492.

Ebihara M. Sekimoto S. Shirai N. Nakamura T. Tsuchiyama A. Abe M. Fujimura A. Mukai T. Yada T.

[*Neutron Activation Analysis of Rocky Grains Recovered by the Hayabusa Spacecraft — Revisited* \[#1986\]](#)

Two additional small rocky grains recovered by the Hayabusa spacecraft were analyzed by instrumental neutron activation analysis. These grains were shown to be chondritic in elemental composition.

Nagano T. Tsuchiyama A. Shimobayashi N. Seto Y. Noguchi R. Imai Y. Matsumoto T. Matsuno J.

[*Homogeneity of LL5 and LL6 Chondrites in Relation to Hayabusa Sample Analysis* \[#2500\]](#)

Statistical analysis of LL chondrite textures shows that difference between the mineral abundance of Itokawa samples from that of LL chondrites is due to errors of a small amount of samples, and Itokawa surface material is consistent with LL chondrites.

Monnereau M. Toplis M. J. Baratoux D. Guignard J.

[*Thermal Constraints on the Time and Duration of Accretion of the H-Chondrite Parent Body* \[#2046\]](#)

Thermal evolution of the H-chondrite parent body is modeled and compared to available thermochemical constraints, with a focus on the effects of non-instantaneous accretion. Results point to accretion times that are unlikely to be >0.5 m.y.

Melanson D. Samson C. Herd R. K. Fry C. McCausland P. J. A. Umoh J. Holdsworth D. W.

[*X-Ray Micro-Computed Tomography Imaging of the Buzzard Coulee Chondrite* \[#1506\]](#)

This abstract outlines research and some results of X-ray micro-computed tomography imaging of the Buzzard Coulee H4 chondrite. A comparison of bulk density results and an analysis of radio-density profile curves are discussed.

Christoffersen P. A. Simon J. I. Ross D. K. Friedrich J. M. Cuzzi J. N.

[Particle Size Distributions Obtained Through Unfolding 2D Sections: Towards Accurate Distributions of Nebular Solids in the Allende Meteorite](#) [#2058]

Nebular components of Allende were characterized using high-resolution X-ray maps. Data were processed by matrix inversion to transform two-dimensional particle section areas into volumes. The algorithm was calibrated on the particle size standard NIST 1019b.

Lunning N. G. Corrigan C. M. Welzenbach L. C. McCoy T. J.

[Using Immersion Oils to Classify Equilibrated Ordinary Chondrites from Antarctica](#) [#1566]

This abstract describes the oil immersion method used at the Smithsonian Institution to classify the equilibrated ordinary chondrites in the U.S. Antarctic Meteorite collection.