

Tuesday, March 14, 2006

CHONDRITES: METAL-RICH, SHOCK EFFECTS, METAMORPHISM, AND CLASSIFICATION
8:30 a.m. Marina Plaza Ballroom

Chairs: M. K. Weisberg
M. Gounelle

- 8:30 a.m. Petaev M. I. *
Modeling Major and Trace Element Chemistry of Zoned Metal Grains from the CH and CB Chondrites [#1681]
 To place better constraints on the origin of zoned metal grains from the CH and CB chondrites their major and trace element chemistry is modeled with the undated ZONMET code, which now includes 33 elements as well as new diffusion and activity coefficients.
- 8:45 a.m. Ivanova M. A. * Kononkova N. N. Franchi I. A. Verchovsky A. B. Korochantseva E. V. Trierloff M. Krot A. N. Brandstaetter F.
Isheyevo Meteorite: Genetic Link Between CH and CB Chondrites? [#1100]
 Based on the mineralogy, petrography, bulk chemical, oxygen, and nitrogen isotopic compositions and ⁴⁰Ar-³⁹Ar age, Isheyevo is genetically related to CH and CB carbonaceous chondrites and provides a link between these group of pristine meteorites.
- 9:00 a.m. Krot A. N. * Ulyanov A. A. Ivanova M. A. Russell S. S.
Origins of Chondrules in the Metal-rich Carbonaceous Chondrites [#1224]
 The CH/CB-like chondrite Isheyevo contains chondrules of several generations, which could have formed by different mechanisms and later accreted together with metal grains, CAIs, and heavily-hydrated matrix lumps into the Isheyevo parent body.
- 9:15 a.m. Weisberg M. K. * Kimura M. Suzuki A. Ohtani E. Sugiura N.
Discovery of Coesite and Significance of High Pressure Phases in the Gujba CB Chondrite [#1788]
 We report clusters of coesite and coesite mixed with quartz in the Gujba CB chondrite, the first discovery of coesite in a meteorite. We previously found majorite-pyroxene and wadsleyite. These high-pressure phases record a range of shock pressures.
- 9:30 a.m. Gounelle M. * Young E. D. Shahar A. Kearsley A.
Magnesium Isotopic Composition of CAIs and Chondrules from CB_b Chondrites [#2014]
 We measured magnesium isotope ratios in 17 chondrules and 3 CAIs from the CB_b chondrites HH 237 and QUE 94411 by LA-MC-ICPMS. We find no detectable ²⁶Al excesses in the three CAIs and approximately normal (chondritic) δ²⁵Mg in CAIs and chondrules.
- 9:45 a.m. Zipfel J. * Weyer S.
Impact or Solar Nebula Origin of CB Chondrites? Evidence from Fe Isotopes [#1902]
 Whether CB chondrites have an impact or solar nebula origin is explored by evaluating evidence from bulk Fe isotopes. Mass dependent Fe isotope compositions with increasingly lighter Fe from Gujba through Hammadah al Hamra 237 and Isheyevo are observed.
- 10:00 a.m. Swindle T. D. * Kring D. A. Olson E. K. Isachsen C. E.
Ar-Ar Dating of Shock-melted Ordinary Chondrites: Chronology of Asteroidal Impacts [#1454]
 Three samples of H impact melt LAP 02240 have Ar-Ar plateaus at ~3900 Ma, consistent with the "lunar cataclysm" and other meteorite impact ages. LL impact melt breccia NWA 1701 records an ~1000 Ma impact, which degassed melt more thoroughly than clasts.
- 10:15 a.m. Perronnet M. * Zolensky M. E.
Characterization and Quantification of Metallic and Mineral Phases in the Highly Hydrated Grosvenor Mountains 95577 CR1 Chondrite [#2402]
 Metallic and mineral phases of CR1 GRO 95577 have been quantified using X-ray elemental maps. The abundance of calcite, magnetite and intermediate sulfides plus the relatively low microprobe analysis total support a high degree of aqueous alteration.

- 10:30 a.m. Abreu N. M. * Brearley A. J.
Early Solar System Processes Recorded in the Matrices of CR2 Chondrites MET 00426 and QUE 99177 [#2395]
TEM and HRTEM observations of matrix and dark inclusions in the MET 00426 and QUE 99177 indicate that the fine-grained component of these meteorites is largely composed of amorphous silicate material. This amorphous material is the potential precursor of phyllosilicates.
- 10:45 a.m. Mikouchi T. * Zolensky M. Tachikawa O. Komatsu M. Ivanova M. A. Le L. Gounelle M.
Electron Back-Scatter Diffraction (EBSD) Analysis of Two Unusual Minerals in Carbonaceous Chondrites [#1855]
We report application of EBSD to identify two possible new minerals in carbonaceous chondrites (Fe-Cr phosphide in Kaidun and Ca-Al oxide in NWA470). The presence of these unique phases offers useful information on the formation of these meteorites.
- 11:00 a.m. Kimura M. * Grossman J. N. Weisberg M. K.
Fe-Ni Metal in Primitive Chondrites: Indicators of Classification and Metamorphic Conditions [#1260]
We report the relationship between metamorphic grade and the characteristic features of Fe-Ni metal in O and CO chondrites, in order to explore the classification criteria and metamorphic conditions of the highly primitive chondrites.
- 11:15 a.m. Grossman J. N. * Rubin A. E.
Dominion Range 03238: A Possible Missing Link in the Metamorphic Sequence of CO3 Chondrites [#1383]
DOM 03238 is probably CO3, but metal has been largely converted to magnetite. Olivine and matrix chemistry show it to be the first CO3.1 chondrite. The early metamorphic changes in the CO group are identical to those in ordinary chondrites.
- 11:30 a.m. Friedrich J. M. *
Impact-related Metal/Silicate Segregation in L Chondrites Falls: Clues from Major Elements [#2084]
Using bulk chemical analyses and analyzed sample size, one can place a limit on the scale of shock-related metal/silicate segregation. Results suggest shock-related heating could have played a role in early differentiation of solar system materials.
- 11:45 a.m. Schrader D. L. * Schmidt B. E. Lauretta D. S.
Oxidation and Sulfidation-Oxidation of Fe-based Alloys in H₂-H₂S-CO₂ Gas Mixtures [#2256]
We present the results of an experimental study of corrosion at 700°–1000°C in gases with enhanced O/H and at 1000°C in gases with enhanced (O+S)/H ratios, compared to solar abundances.