

Tuesday, March 11, 2008
FORMATION AND ALTERATION OF CARBONACEOUS CHONDRITES
1:30 p.m. Marina Plaza Ballroom

Chairs: M. E. Zolensky
 N. M. Abreu

- 1:30 p.m. Hezel D. C. * Needham A. W. Russell S. S.
Fe-Isotopic Composition of Chondrules, CAIs, Matrix and Bulk Meteorite in Mokoia and Grosnaja CV-Chondrites [#1603]
 Chondrules and CAIs in CV chondrites range from -1.40 to $+0.21$ $\delta^{56}\text{Fe}$. Average chondrule $\delta^{56}\text{Fe}$ must be close to matrix and bulk chondrite. Modeling shows that a combination of nebula and parent body processes explain the isotopic spread of chondrules.
- 1:45 p.m. Brearley A. J. *
Amorphous Carbon-rich Grains in the Matrices of the Primitive Carbonaceous Chondrites, ALH 77307 and Acfer 094 [#1494]
 Carbon-rich grains have been located *in situ* by energy filtered TEM in the matrices of the primitive chondrites ALH 77307 and Acfer 094. The grains are essentially pure carbon and are either amorphous or show a limited degree of graphitization.
- 2:00 p.m. Zanda B. * Hewins R. H. Robert F.
A Memory of Ancient Ices Preserved in Carbonaceous Chondrite Matrices [#1532]
 Abundances of H_2O , C and N in CC become zero when $\Delta^{18}\text{O} \sim 3\text{‰}$, corresponding to 30–40% matrix in the rock probably as rims on chondrules. CC inherited a common component, ice with IOM with C/N = 22, accreted only in their interstitial “true matrix.”
- 2:15 p.m. Palme H. * Pack A.
Formation of Chondrites by Reaction of Dusty Ices with Solar Nebula Gas [#1821]
 Components of chondritic meteorites are in extreme disequilibrium. Some of these features can be explained by reaction of dusty ices from the outer solar system with hot nebular gas, in particular variations in oxygen fugacity and oxygen isotopes.
- 2:30 p.m. Weisberg M. K. * Connolly H. C. Jr.
On the Relationship Between Chondrites, Comets, and Asteroids, a Petrologic Perspective [#1981]
 The relationship between asteroids, comets and chondrites is supported by spectroscopic, dynamical and petrologic data. Petrologic data on comet Wild 2 from Stardust further support a close relation between comets and chondrites.
- 2:45 p.m. Abreu N. M. * Brearley A. J.
Petrologic and Chemical Effects of the Onset of Aqueous Alteration on the Matrices of CR Chondrites: GRA 95229 [#2013]
 Fine-grained materials in GRA 95229 are studied through EPMA and SEM and compared to matrices of other CR chondrites. Aqueous alteration is reflected by a progressive decrease in the Fe content of the matrix as a result of the progressive formation of magnetite.
- 3:00 p.m. de Leuw S. * Rubin A. E. Wasson J. T.
Carbonates and Associated Sulfide Rims in CM Chondrites: Complex Formational Histories [#1197]
 It is widely accepted that less-altered meteorites contain only calcite and that with progressive alteration dolomite crystals occur. Our investigations show that carbonate formation during aqueous alteration is more complex than previously thought.
- 3:15 p.m. Ford R. L. * Brearley A. J.
Element Exchange Between Matrix and a CAI in the Allende Meteorite [#2399]
 We present findings on the Ca loss of a type A CAI from Allende, and compare the amount lost with the amounts of Ca in the Ca-rich aureole surrounding the CAI.

- 3:30 p.m. Abe K. * Sakamoto N. Krot A. N. Yurimoto H.
Abundances of New-PCP in Acfer 094 and Other Carbonaceous Chondrites [#1509]
We have measured abundances of new-PCP in various chemical groups of carbonaceous chondrites. The new-PCP has been commonly observed in Acfer 094, but not detected in the other chondrites, suggesting that asteroid process decomposed new-PCPs.
- 3:45 p.m. Zolensky M. E. * Ohsumi K. Mikouchi T. Hagiya K. Le L.
Crystallinity of Fe-Ni Sulfides in Carbonaceous Chondrites [#1676]
We examine the crystallinity and crystal structures of Fe-Ni sulfides in five carbonaceous chondrites — Acfer 094 (CM2), Tagish Lake (C2 ungrouped), Kaidun C1, Bali (CV2/3 oxidized), and Efremovka (CV3 reduced).
- 4:00 p.m. Cody G. D. * Fogel M. L. Yabuta H. Alexander C. M. O'D.
The Peculiar Relationship Between Meteoritic Organic Molecular Structure and Deuterium Abundance [#1765]
Dramatic variation and complex relationships exist between organic molecular structure and deuterium abundance in type 1, 2, and 3 chondrites. Extensive isotopic exchange likely occurred during parent body alteration.
- 4:15 p.m. Bonal L. * Huss G. R. Krot A. N. Nagashima K.
Lithic Clasts of CB/CH-like Carbonaceous Chondrite Isheyevo: Diversity Revealed by Mineralogy, Structure of Organic Matter and Oxygen Isotopic Composition of Carbonates [#1506]
Mineral chemistry and O-isotopes revealed a high diversity among the lithic clasts of Isheyevo (CB/CH). Detailed comparisons show that they are distinct and not clearly affiliated with CI/CM: they probably represent previously unsampled parent bodies.
- 4:30 p.m. Weirich J. R. * Isachsen C. Kring D. A. Swindle T. D.
Ar-Ar Ages of L-Melt Rocks: Two Unusual Ages, and Some Insight into the Host of K [#1665]
Ar-Ar dating of two L-chondrite impact melts produce collisional ages of 4540 and ~50 Ma. Arrhenius plots rule out pyroxene as a second source of K. High temperature behavior of released Ar may be due to a phase change of feldspathic material.