

**Thursday, July 30, 2015**  
**CARBONACEOUS CHONDRITES: HYDROUS AND ANHYDROUS**  
**1:30 p.m. Stanley Hall Room 105**

**Chairs:** Martin Lee  
 Jutta Zipfel

- 1:30 p.m. Young E. D. \* Ly A. Kohl I.  
[\*The Chemical Consequences of Chondrite Parent Body Hydrothermal Activity\*](#) [#5273]  
 Numerical models and analog studies point to the possibility for isochemical alteration during hydrothermal alteration of carbonaceous chondrites. Isochemical alteration is not evidence against fluid flow.
- 1:45 p.m. Vaccaro E. \* Wozniakiewicz P. J. Starkey N. A. Franchi I. A. Russell S. S.  
[\*Grain Size Distribution in the Matrix of Primitive Meteorites\*](#) [#5258]  
 We describe the abundances and size distribution of discrete grains of different phases observed within the matrix of: Acfer 094, ALHA77307, MIL 07687 and QUE 99177 and discuss how the observed differences may be evidence of parent body processes.
- 2:00 p.m. Tsuchiyama A. \* Takahashi R. Miyake A. Kaswamura K.  
[\*Hydrous Alteration Experiments of Mg Amorphous Silicate Nanoparticles\*](#) [#5165]  
 Disordered mixed layer hydrous silicates easily formed by hydrous alteration experiments using nanoparticles of Mg amorphous silicates. Implications for hydrous carbonaceous chondrites are discussed.
- 2:15 p.m. Treiman A. H. \* Gross J.  
[\*The CR2 Chondrite NWA 801: Petrography and Petrology\*](#) [#5077]  
 NWA 801 is fairly typical of CR2 chondrites.
- 2:30 p.m. Jones R. H. \* Brearley A. J. Henkel T. Lyon I.  
[\*Assessing the Degree of Secondary Alteration in Chondrules from One of the Least Altered CR Chondrites, EET 92042\*](#) [#5190]  
 Most chondrules in EET 92042 are close to pristine. Observed alteration effects at the edges of chondrules, including smooth phyllosilicate rims, are heterogeneous because they are dependent on local mineralogy.
- 2:45 p.m. Orthous-Daunay F.-R. \* Flandinet L. Thissen R. Vuitton V. Bonal L.  
[\*Effects of Aqueous Alteration on the Free Organic Matter in Several CR Chondrites by ESI-Orbitrap-MS\*](#) [#5306]  
 We extracted and analyzed different soluble organic fractions from variously altered CR chondrites using high resolution Orbitrap-MS. The molecular diversity decreases as the aqueous alteration degree increase in our sample set.
- 3:00 p.m. Singerling S. A. \* Brearley A. J.  
[\*The Effects of Aqueous Alteration on Primary Iron Sulfides in CR and CM Chondrites\*](#) [#5271]  
 This study describes the textures and compositions of two groups of primary sulfides which have experienced aqueous alteration. This provides further evidence for the presence of primary sulfides in CR and CM chondrites.
- 3:15 p.m. Dominguez G. \* Gainsforth Z. McCleod A. Kelly P. Bechtel H. Keilmann F. Thiemens M. Westphal A. Basov D. N.  
[\*Tracing Aqueous Alteration in Murchison Using NanoFTIR, SEM, TEM, and STXM\*](#) [#5362]  
 Aqueous alteration of primitive meteorites may be an important source of prebiotic molecules. Here, using nanoFTIR and STXM, we present in-situ evidence of prebiotic molecule as inferred by P=O bond mapping and associated mineralogy in this region.

- 3:30 p.m. Lee M. R. \* Lindgren P.  
[\*Serpentinisation of Chondrules in the Murchison CM Carbonaceous Chondrite by Centripetal Replacement and Cementation\*](#) [#5220]  
We have found that phenocrysts in Murchison chondrules contain serpentine. Olivine-hosted veins have formed by replacement whereas polyhedral serpentine has formed by cementation of pores within clinoenstatite grains.
- 3:45 p.m. Brearley A. J. \* Le Guillou C.  
[\*More Evidence of the Importance of Amorphous Silicates in CM Carbonaceous Chondrites: New Observations from a Fine-Grained Rim in the CM2 Chondrite, TIL 91722\*](#) [#5192]  
A fine-grained rim in TIL 91722 contains abundant amorphous silicate material containing nanophase sulfides. Phyllosilicates are rare. The amorphous material has a high ferric iron content indicative of oxidation coupled with hydration.
- 4:00 p.m. King A. J. \* Schofield P. F. Russell S. S.  
[\*Thermal Alteration of CI and CM Chondrites: Mineralogical Changes and Metamorphic Temperatures\*](#) [#5212]  
Modal mineralogy, H<sub>2</sub>O abundances and spectral features are used to constrain the origin of thermally altered CI and CM chondrites. Heterogeneous heating was probably caused by impact shocks and affected the surfaces of many C-type asteroids.
- 4:15 p.m. Quirico E. \* Bonal L. Flandinet L. Beck P. Alexander C. M. O' D. Yabuta H. Nakamura T. Nakato A. Schmitt-Kopplin P.  
[\*Rating Thermal Metamorphism in C2 Chondrites with Insoluble Organic Matter\*](#) [#5090]  
We report a Raman and FTIR survey of IOM in 51 types 1 and 2 chondrites, and discuss the implications on nature and extent of thermal metamorphism.
- 4:30 p.m. Tomeoka K. \* Ohnishi I.  
[\*Redistribution of Chondrules and Matrix Grains in the Mokoia Chondrite Parent Body: A Model\*](#) [#5148]  
Based on our recent studies of the Mokoia CV3 chondrite, we propose a model that the lithology of this meteorite formed through redistribution of chondrules and matrix grains in the meteorite parent body.
- 4:45 p.m. Sakai M. \* Tomeoka K. Seto Y. Miyake A.  
[\*Pseudomorphs of Chondrules and CAIs in Dark Clasts in the Allende CV3 Chondrite\*](#) [#5233]  
We will present the results of SEM (back-scattered electron) and TEM observations of chondrule pseudomorphs in two DCs in Allende CV3 chondrite.
- 5:00 p.m. Zipfel J. \* Palme H. DiRocco T. Pack A.  
[\*Inclusion AF in Allende Revisited — Relationship to Dark Inclusions?\*](#) [#5217]  
Presenting new data for oxygen isotopes of Allende AF inclusion and relationship to dark inclusions in CV3 chondrites.