

Thursday, July 27, 2017  
**POSTER SESSION II: CHONDRITES:**  
**ALTERATION, METAMORPHISM AND IMPACT PROCESSES**  
**5:30 p.m. Poster Area**

Herd R. K.

[\*Numeric Codes Document Chondrule Textures and Crystallization History\*](#) [#6362]

Ferromagnesian chondrule textures record processes to which they have been subjected. Not all phases in the chondrules are phenocrysts and the chondrules are not all porphyries. Numeric codes record textures in four size ranges for each chondrule.

Tosi A. A. Zucolotto M. E. Sears D. W.

[\*The Conditions to Get Colour Cathodoluminescence by Electron Microprobe Applied to the Classification of Primitive Meteorites of Type 3\*](#) [#6156]

Colorful cathodoluminescence images of Bishunpur and Hedjaz meteorite were obtained by optical microscope and electron microprobe. A comparison between both techniques was established, which leads to conclusion that they are compatible.

Che S. Brearley A. J.

[\*The Origin of Alkali-Halogen Zonal Sequence in an Allende Type C CAI\*](#) [#6324]

We report detailed SEM and STEM observations on a Type C CAI 04 from Allende CV3 chondrite. This CAI reveals a unique zonal alteration sequence and complex alteration textures resulting from the replacement of primary anorthite grains.

Mogi K. Yamashita S. Nakamura T. Matsuoka M. Okumura S. Furukawa Y.

[\*Dehydration Process of Experimentally Heated Murchison Without any Effects of Adsorbed and Rehydrated Water\*](#) [#6225]

In order to understand the dehydration process of asteroids, Murchison was experimentally heated and analyzed. We determined correct reflectance spectra and water contents of the heated Murchison samples without any effects of water contaminations.

Johnson J. M. Ziegler K. Brearley A. J.

[\*The Intriguing Interaction Between the Northwest Africa NWA 2364 CV3<sub>Ox</sub>A Chondrite and Its Lithic Inclusion: Implications for Post Emplacement Parent Body Aqueous Alteration\*](#) [#6279]

Chondrite, LI rim / Heavy isotope data / Hints at a moist past.

Falster A. U. Simmons W. Rubin A. E.

[\*The Petrofabric in CBa Gujba — Comparison to CV3R Chondrites a Terrestrial Ash-Flow Tuff\*](#) [#6040]

The petrofabric in Gujba resembles those of OC, CM1 and CV3 chondrites produced by shock-induced shearing, consistent with the presence of high-pressure phases. The Battleship Rock ash-flow tuff has a stronger petrofabric, formed by flow deposition.

Schrader D. L. Zega T. J.

[\*MicroStructure of a Pyrrhotite-Pentlandite Intergrowth in LL6 Saint-Séverin\*](#) [#6347]

We report on the microstructure of a pyrrhotite-pentlandite intergrowth in the LL6 chondrite fall Saint-Séverin to determine microstructural indicators of formation in sulfides from LL chondrites.

Sheikh D.

[\*SEM/EDX Analysis of Tenham Meteorite Chondrules\*](#) [#6205]

Analyzing the Tenham meteorite using an SEM/EDX reveals a low volume of chondrules visible, suggesting a blurring of the chondrule outlines due to thermal metamorphism. Analysis of the chondrules reveals a high atomic weight percent of Na and Al.

Dutta A. Bhattacharya A. Mishra M. Raghuram Sadiq M. Roy S.  
[Trace Elements and REE Geochemistry of Olivine and Enstatite Chondrules in Ordinary Chondrites: Insights into Their Cosmochemical Genesis](#) [#6088]

Characterization of chondrule geochemistry from ordinary chondrites.

Maksimova A. A. Felner I. Oshtrakh M. I.  
[Northwest Africa 6286 and 7857 Meteorites: Study Using Magnetization Measurements and Mössbauer Spectroscopy](#) [#6009]

The characterization of NWA 6286 and NWA 7857 meteorites using optical and scanning electron microscopy, X-ray diffraction, magnetization and Mössbauer measurements is presented.

Maksimova A. A. Chukin A. V. Oshtrakh M. I.  
[Iron Distribution Between the M1 and M2 Sites in Silicates in Northwest Africa 6286 and 7857 Meteorites Evaluated Using XRD Data and Mössbauer Spectroscopy](#) [#6007]

The iron distribution between the M1 and M2 sites in silicates in fragments of NWA 6286 LL6 and NWA 7857 LL6 ordinary chondrites was studied using X-ray diffraction and Mössbauer spectroscopy.

Lunning N. G. Waters L. E. McCoy T. J.  
[Amphibole and Phlogopite Formation on the R Chondrite Parent Body: An Experimental Investigation](#) [#6373]

High-temperature hydrated minerals can form at the pressures and the temperatures expected for the interiors of planetesimals. Under water-saturated conditions, minimum silicate melting can initiate at temperatures as low as 870°C at 40 MPa.

Verdier-Paoletti M. J. Vacher L. G. Marrocchi Y. Gattacceca J. Sonzogni C. Gurenko A. Gounelle M.  
[Testing the Genetic Relationship Between Fluid Alteration and Brecciation](#) [#6081]

The Boriskino meteorite is composed of numerous clasts displaying brecciation features and various degrees of alteration. Consequently it constitutes an object of choice to study the relationship between brecciation and alteration.

Li Y. Hsu W.  
[Large Cl/F Variations of Apatites from Impact Melt Portion in L-Melt Breccia Northwest Africa 7251](#) [#6028]

The large Cl/F variations in apatites have been reported in several differentiated meteorite samples, but was rarely observed in ordinary chondrites. Here we report apatites with large Cl/F variations in the impact melt portion of NWA 7251.

Kruglikov N. A. Grokhovsky V. I.  
[Mid-Infrared Microspectrometry of Chelyabinsk LL5 Olivine](#) [#6350]

Experiments were made on bulk samples of the Chelyabinsk. Spectra obtained on olivine grains by microscopic IRFT spectroscopy. Shift of Chelyabinsk olivine peaks positions is normal. Seymchan olivine spectrum peaks show lower shifts.

Petrova E. V. Maksimova A. A. Danilenko I. A. Grokhovsky V. I.  
[Thermal Effect on the Chelyabinsk LL5 Meteorite Texture](#) [#6244]

Light and dark lithology samples of the Chelyabinsk LL5 meteorite were investigated by differential thermal analysis. The samples texture was explored by optical microscopy and SEM with EDS before and after heating in the laboratory.

Strait M. M. Macke R. J. Molesky M. J. May B. A. Flynn G. J. Durda D. D.  
[Internal Structural Changes Resulting from Impact Experiments](#) [#6235]

How impacts affects the density and porosity of meteorites as analogs for asteroids.

Martínez-Jiménez M. Brearley A. J.  
[Phase Transformation Mechanisms of Ca-Majorite in the Shocked Villalbedo de la Peña Ordinary Chondrite: Clues to Cooling Paths in Shocked Meteorites](#) [#6160]

An anisotropic Ca-rich majorite from a shock melt vein in Villalbedo de la Peña L6 ordinary chondrite has been studied in detail. A FIB section reveals a majorite crystal undergoing dissociation to a symplectitic majorite plus Ca-rich glass.

Kusiak M. A. Krzesińska A. Wirth R. Konečný P.

[Rutile NanoStructure as an Indication of Shock and Thermal History of Chondrites](#) [#6086]

Rutile occurs associated to ilmenite as either thin lamellae or anhedral grains. Two rutile types differ significantly. Zr-in-rutile thermometry exhibits that  $T > 700^{\circ}\text{C}$  were operating. Good stoichiometry is a striking disparity to terrestrial rutiles.

Hugo R. C. Ruzicka A. M. Rubin A. E.

[Elbert and Saint-Severin: LL6\(S4\) Chondrites with Contrasting Shock Histories](#) [#6298]

Although both LL6 and shock stage S4, optical microscopy, transmission electron microscopy, and electron backscatter diffraction data show that Elbert and Saint-Severin have significantly different shock histories.

Thompson M. S. Keller L. P. Christoffersen R. Loeffler M. J. Morris R. V. Graff T. G. Rahman Z.

[Pulsed-Laser Irradiation Space Weathering of a Carbonaceous Chondrite](#) [#6375]

We used pulsed laser irradiation of the Murchison meteorite to simulate space weathering processes in the laboratory. We analyzed changes in the spectral, chemical, and microstructural characteristics of the material after irradiation.

Korochantseva E. V. Buikin A. I. Verchovsky A. B.

[Gases Trapped During Catastrophic Event on L-Chondrite Parent Body Revealed by Stepwise Crushing](#) [#6242]

We present the first noble gas and nitrogen stepwise crushing data for the L-chondrite Ghubara.

Vokhmintsev A. S. Weinstein I. A.

[Photoluminescence Thermal Quenching in Chelyabinsk LL5 Chondrite with Light-Colored Lithology](#) [#6066]

The temperature behavior of the photoluminescence spectra in the Chelyabinsk LL5 chondrite with light-colored lithology is studied. The temperature quenching curves are numerically analyzed in the framework of the Mott and Street mechanisms.

Schleiting M. Bischoff A.

[Brecciation of Ordinary Chondrites — Survey of 2248 Meteorites](#) [#6085]

Thin sections of 994 H, 736 L, and 115 LL chondrites and hand specimen of 202 H and 201 L chondrites at the Institut für Planetologie were studied in order to obtain the abundance of brecciated rocks among these chondrites.

Tenner T. J.

[Evaluating Silica Excess in Dominion Range 08006 Chondrule Plagioclase: Comparisons to Yamato 81020 and Acfer 094 Chondrule Plagioclase](#) [#6394]

The presence of excess silica in DOM 08006 chondrule plagioclase attests to its petrologic type 3.0 nature.