

**Thursday, July 27, 2017**  
**CHONDRITES: ORIGINS AND PROCESSING OF**  
**CHONDRITES AND CHONDRITIC COMPONENTS II**  
**9:15 a.m. Sweeney A**

*The session covers alteration of chondrites, including aqueous alteration, thermal metamorphism, and the effects of impacts on chondrite parent bodies.*

**Chairs: Elena Dobrică**  
**Alexander Ruzicka**

- 9:15 a.m. Verdier-Paoletti M. J. \* Marrocchi Y. Avice G. Roskosz M. Gurenko A. Gounelle M.  
[Temperature Precipitation of Ca-Carbonates in CM Chondrites Inferred from In-Situ Oxygen Isotopes](#) [#6080]  
 Conditions of aqueous alteration of CM chondrites are constrained by determining the temperature-precipitation of Ca-carbonates from their O-isotopic compositions.
- 9:30 a.m. Zolensky M. \* Le L.  
[Asteroid Pond Mineralogy: View from a Cognate Clast in LL3 Northwest Africa 8330](#) [#6164]  
 Lithologies from asteroid ponds.
- 9:45 a.m. Dunn T. L. \* Battifarano O. K. Gross J.  
[Composition and Metamorphism of Matrix Material in Unequilibrated CK Chondrite Northwest Africa 5343](#) [#6359]  
 We examine the composition, texture, and metamorphism of matrix material in the least metamorphosed CK chondrite, NWA 5343. We suggest that NWA 5343 is metamorphosed to petrologic subtype 3.5–3.6 conditions.
- 10:00 a.m. Simon S. B. \* Sutton S. R. Brearley A. J.  
[Response of Cr and Ti Valences to the Onset of Metamorphism in CO Chondrites](#) [#6323]  
 Neither the valence of Cr in CO<sub>3</sub> olivine nor the phases that Cr redistributes into with the onset of metamorphism are known. We report initial results for Cr and Ti valences in olivine in low-grade chondrites ALHA 77307 (CO<sub>3.0</sub>) and Kainsaz (CO<sub>3.2</sub>).
- 10:15 a.m. Ruzicka A. M. \* Hugo R. C.  
[EBSD Analyses of Seven Ordinary Chondrites: Deformation Metrics and Implications for Parent Body Thermal Histories](#) [#6368]  
 EBSD methods were used to study seven ordinary chondrites and identify metrics related to deformation intensity, pre-shock temperature, and post-shock annealing. Data imply early impacts occurred on warm parent bodies during thermal metamorphism.
- 10:30 a.m. Muftakhedinova R. F. Petrova E. V. \* Yakovlev G. A. Grokhovsky V. I.  
[The Structural Changes in Ordinary Chondrite Tsarev L5 After Shock Wave Loading](#) [#6016]  
 In the present work we studied structural changes in the Tsarev L5 meteorite after loading with an impact of converging shock waves.
- 10:45 a.m. Zhang B. \* Bouvier A. Shieh S.  
[Assessing Shock Levels of Enstatite-Rich Meteorites by Raman Spectroscopy](#) [#6144]  
 We collected Raman spectra from eight enstatite-rich meteorites. The enstatites from different shock stages have negligible differences in the Raman shifts of  $\nu_3$ . The FWHMs and the shock stages of them have a linear relationship ( $r^2 = 0.96$ ).

11:00 a.m. Agrawal P. \* Carlozzi A. A. Karajeh Z. S. Bryson K. L.

[Meteorite Material Model for Structural Properties](#) [#6026]

In order to prepare material models for the entire family of asteroids, meteorite units are developed for ordinary chondrites. The meteorite unit is a representative volume that accounts for diverse minerals, porosity, cracks and matrix composition.

11:15 a.m. Haskins J. B. \* Stern E. C. Bauschlicher C. W. Jr. Lawson J. W.

[Atomistic Simulation of Chondritic Melts at Atmospheric Entry Conditions](#) [#6054]

Aerodynamic heating during atmospheric entry causes the surface of meteoroids to melt. The properties of the melt influence estimates of ablation and trajectory. We use quantum simulations to determine melt properties at entry conditions.