

Friday, July 28, 2017
FORMATION OF CHONDRULES AND CHONDRITE PRECURSORS
 8:30 a.m. Sweeney B

*The session covers properties of chondrules and related chondrite components,
 as well as models for chondrule formation.*

**Chairs: Denton Ebel
 Henner Busemann**

- 8:30 a.m. Ebel D. S. * Hubbard A. Alexander C. M. O'D. Libourel G.
[Volatile Depletion and Chondrule Formation](#) [#6391]
 Volatile depletion of elements with T (50% condensation) below that of Mg show trends that correlate negatively with the matrix fraction in meteorite groups, maybe due to the efficiency of chondrule formation from single reservoirs to make chondrites.
- 8:45 a.m. Zhang M. M. * Lin Y. T. Tang G. Q. Li X. H.
[Coordinated Petrography and Oxygen Isotopic Compositions of Al-Rich Chondrules from CV3 Chondrites](#) [#6178]
 In this study, we coordinated the petrology, bulk compositions and oxygen isotope compositions of 12 ARCs from Allende and Leoville and Ningqiang chondrites in order to elucidate any potential genetic relationships between ARCs, CAIs and FMCs.
- 9:00 a.m. Schrader D. L. * Nagashima K. Waitukaitis S. R. Davidson J.
 Connolly H. C. Jr. Laurretta D. S.
[Evidence for Highly ¹⁶O-Rich Chondrule Precursors](#) [#6232]
 We report on the *in situ* chemical and O-isotopic compositions of agglomeratic olivine chondrules in the Renazzo-like carbonaceous chondrites to determine the origin of their silicate precursors.
- 9:15 a.m. Deng Z. Ebel D. S. * Gemma M. Moynier F. Chaussidon M.
[Contrasting Mg Isotopic Signatures in Leoville \(CV3r\) Chondrules](#) [#6403]
 One Leoville (CV3-r) chondrule show CAI-like ²⁶Mg in Ca-rich pyroxene, suggesting potential relict material of older age than chondrules generally, but the REE signatures are not highly enriched. Chondrule Mg isotopic systematics differ remarkably.
- 9:30 a.m. Zanda B. * Lewin E.
[The Chondritic Assemblage](#) [#6265]
 Understanding the links between matrix and other chondritic components is critical to our vision of the protoplanetary disk. Chemical analyses of chondrules matrix and bulk CCs are not precise and accurate enough to support component complementarity.
- 9:45 a.m. Harries D. * Barth M. I. F.
[Sulfide, Oxide, and Nitride Formation in CM Chondrites: A Connection to the Formation of Type II Chondrules Involving Ices?](#) [#6201]
 We investigate the hypothesis that the complex mineralogies of sulfide-oxide(-nitride) assemblages in CM2 chondrites are related to the processing of ices in type II chondrule-forming environments.
- 10:00 a.m. Pape J. * Mezger K. Bouvier A.-S. Baumgartner L. P.
[In-Situ ²⁶Al-²⁶Mg Dating of Single Chondrules by Secondary Ion Mass Spectrometry](#) [#6109]
 We present ²⁶Al-²⁶Mg mineral isochron ages of single chondrules from ordinary chondrites by SIMS.

- 10:15 a.m. Hewins R. H. * Condie C. Morris M. Richardson M. L. A. Ouelette N. Metcalf N.
[*Thermal History Match Between CBB Chondrules and Impact Plume Models*](#) [#6257]
SO textures were reproduced with temperature fluctuations during cooling. Tracer particles in computed ejecta fans show that temperature fluctuations occurred. The reheating of SO chondrules is a strong argument that CBB formed in an impact plume.
- 10:30 a.m. Rubin A. E. *
[*Fourteen Points — A Wilsonian Approach to Chondrule Formation: Evidence for Multiple Melting of Chondrules*](#) [#6039]
Evidence that most chondrules were melted multiple times includes relict grains, overgrowths, olivine shards, overly large phenocrysts, the necessity of having coarse nuclei to form porphyritic textures, non-spherical chondrule shapes & igneous rims.
- 10:45 a.m. Müsing K. D. Busemann H. * Huber L. Metzler K. Wieler R. Maden C.
[*The Enrichment of Noble Gases in Cluster Chondrite Clasts*](#) [#6312]
We compare noble gas contents and isotopic compositions of type 3 ordinary chondrite cluster chondrite clasts with their host clastic matrices to better understand their origins. The former are strongly enriched in Kr and Xe compared to the latter.
- 11:00 a.m. Herbst W. * Greenwood J. P.
[*The Flyby Model for Chondrule and Chondrite Formation*](#) [#6133]
We expand on our proposal that chondrules, and possibly chondrites, can form when pre-existing aggregates of solar nebula solids, in the mm-m size range, have close encounters (flybys) with planetesimals that have incandescent lava at their surfaces.
- 11:15 a.m. Wasson J. T. *
[*Formation of the Sun in a Stellar Cluster; CAIs as Large PreSolar Grains*](#) [#6315]
Calcium-aluminum rich inclusions have isotopic compositions different from their host chondrites. Many simplifications arise if the CAIs are presolar grains. In this case they cannot be used as chronological or isotopic standards.