

Wednesday, March 9, 2011
EARLY SOLAR SYSTEM RESERVOIRS AND PROCESSES II:
CHONDRULES AND AMOEBOID OLIVINE AGGREGATES
1:30 p.m. Waterway Ballroom 4

Chairs: Herbert Palme
Gerald Wasserburg

- 1:30 p.m. McDonough W. F. * Ash R. D. Puchtel V.
[Composition of Chondrules and the Assessment of Chondritic Abundances: A Planetary Perspective](#) [#2430]
 We have measured refractory trace-element ratios in chondrules from enstatite, ordinary and carbonaceous chondrites and find a high intrameteorite variability that has consequences for the modeling of planetary compositions.
- 1:45 p.m. Simon S. B. * Beckett J. R. Vaughan W. M. Sutton S. R. Grossman L.
[Chondrule-Composition Melts: Response of Fe and Ti Valence to Changing Redox Conditions](#) [#1271]
 Chondrule-composition melts were held at 1400°C and an fO_2 three log units below iron-wüstite (IW-3) and cooled at IW-0.5 at 10°–1000°C/h to investigate how readily the valences of Fe and Ti respond to changing redox conditions during crystallization.
- 2:00 p.m. Beckett J. R. * Ma C. Connolly H. C. Jr. Stolper E. M.
[Origin of the Refractory Component in Ferromagnesian Chondrules and Constraints on Their Thermal Histories: Clues from Glass Inclusions in Olivine from Carbonaceous Chondrites](#) [#2071]
 Compositions of glass inclusions in olivine from CM, CR, and CV chondrites can be described as mixtures of Type C CAIs and SiO₂ that are far from olivine saturation. This places severe constraints on possible thermal histories.
- 2:15 p.m. Kropf A. * Libourel G.
[Gas-Melt Interaction Experiments at High Temperature and High SiO\(g\) Partial Pressure — Implication of Melt Composition to Chondrule Formation](#) [#1160]
 We conducted new silica evaporation/condensation experiments to explore solar nebular gas-melt interaction. Olivine starting matters resulted in formation of pyroxene phases and Si-rich rims. Chondrule formation in nebular regions with high P(SiO) is supported.
- 2:30 p.m. Miura H. * Yokoyama E. Nagashima K. Tsukamoto K.
[Rim Formation of Barred Olivine Chondrules: Condition for Rapid Crystal Growth Along Droplet Surface](#) [#1732]
 To clarify the formation mechanism of the rim of barred olivine chondrules, we analytically derive the condition of the rapid crystal growth along the droplet surface as a function of the cooling rate.
- 2:45 p.m. Wasserburg G. J. * Hutcheon I. D. Aleon J. Ramon E. C. Krot A. N. Nagashima K. Brearley A. J.
[Extremely Na and Cl Rich Chondrule Al3509 from the Allende Meteorite](#) [#1147]
 This Ca-Al-rich chondrule is not a replacement product. It has ~10% Na and ~1% Cl. Large excesses of ³⁶S were found uncorrelated with Cl and ²⁶Al/²⁷Al < 3 × 10⁻⁶. It represents the fluid responsible for late alteration in volatile-rich outer layers prior to formation of Allende.

