

Tuesday, March 20, 2012
POSTER SESSION I: CHONDRULE FORMATION AND DISK CHEMISTRY
6:00 p.m. Town Center Exhibit Area

Luu T.-H. Chaussidon M. Birck J.-L.

[*Mg Isotopic Constraints on the Origin of Mg-Rich Olivines in Allende Matrix and Porphyritic Type I Chondrules*](#) [#2201]

Mg-rich olivines from Allende (CV3.2) were analyzed for their O- and Mg-isotopic compositions using ion microprobes. The goal of the present study is to put some new constraints on the origin of these objects, which remains an open question.

Ingalls S. C. Young E. D. Gounelle M.

[*Do Magnesium Isotope Systematics of Al-Rich Chondrules Offer Insights into the History of Chondrule Formation in General?*](#) [#2665]

We describe new magnesium isotope data for Al-rich chondrules from Allende and Krymka. Results suggest these objects may provide important new constraints on chondrule formation in general.

Miura H. Tsukamoto K.

[*Numerical Simulation of Solidification of Chondrules: Formation of Olivine Bars in \$Mg_2SiO_4\$ - \$Fe_2SiO_4\$ System*](#) [#1715]

We numerically simulated formation of olivine bars observed in barred olivine chondrules. The parallel set of bars was reproduced from a platy seed crystal by morphological instability. The calculated Mg/Fe zoning is compared with experiments.

Dwyer C. A. Nimmo F. Asphaug E.

[*A Physical Model for Simultaneous Production of CH and CB Chondrules During an Impact Event*](#) [#2291]

We present a physical, analytical model for determining impactor diameter and velocity of impact events capable of simultaneously generating CH chondrules (modeled to be vapor condensates) and CB chondrules (modeled to be melt droplets).

Rocha S. E. Jones R. H.

[*An Experimental Study of the Conditions of Type II Chondrule Formation in Ordinary Chondrites*](#) [#2595]

We report experiments that reproduce type II chondrule textures at slow cooling rates. Since plagioclase is not observed in type II chondrules, the conditions under which plagioclase crystallizes place a lower limit on chondrule cooling rates.

Marrocchi Y. Libourel G.

[*Evidence of High-Temperature Formation of Sulfide Phases of Chondrules*](#) [#1386]

We report a systematic petrographic and mineralogical study of sulfides in type I chondrules of the carbonaceous chondrite Vigarano (CV3). Our results suggest that sulfides were inherited from the high-temperature chondrule-forming event.

Bigolski J. N. Weisberg M. K. Connolly H. C. Jr. Ebel D. S.

[*Microchondrule-Bearing, Iron-Rich Chondrule Rims in Northwest Africa 5717*](#) [#2426]

Observations of the ungrouped chondrite Northwest Africa 5717 reveal a preponderance of microchondrules, along with mineral and lithic fragments, within Fe-rich rims that surround host chondrules, providing new insight into accretionary processes.

Dobric? E. Brearley A. J.

[*Glassy Vesiculated Microchondrule-Like Spherules in the Matrix of Unequilibrated Ordinary Chondrites*](#) [#2197]

In the matrix of UOCs (MET 00526 and Semarkona) we have identified a number of glassy vesiculated microchondrule-like spherules. Their distinct texture and chemical compositions suggest that they were formed by extremely rapid heating and cooling.

Lehner S. W. Petaev M. I. Buseck P. R.

[Relation Between Silicate Chondrules and Metal-Sulfide Nodules in EH3 Chondrites](#) [#2252]

We compare the composition of sulfides in MSN and chondrules, report spheroidal aggregates of silicates, silica, metal, and sulfides, and the variation in the abundance of opaque and non-opaque minerals comprising MSN and silicate chondrules.

Feng L. ElGoresy A. Zhang J. Hao J. Boyet M. Yang L.

[Excess \$^{36}\text{S}\$ in Lawrencite and Nitrogen Isotopic Compositions of Sinoite from Almahata Sitta MS-17 EL3 Chondrite Fragment](#) [#1766]

Excess ^{36}S in lawrencite and N isotopes in sinoite from an EL3 fragment of Almahata Sitta were analyzed by NanoSIMS 50L. The isotopic compositions provide information on the formation and evolution processes of the early solar system and Earth.

Das J. P. Meshik A. P. Pravdivtseva O. Hohengberg C. M.

[Trapped Noble Gases in Magnetic and Non-Magnetic Separates from Allende Chondrules: Clues for Noble Gas Fractionation during Chondrule Formation](#) [#2346]

Magnetic (M) and non-magnetic (NM) phases were separated from big and small chondrules from Allende. M phases carry higher trapped noble gases, suggesting fractionation of noble gas during chondrule formation. Also, big chondrules are less homogenized.

Beyersdorf-Kuis U. Trieloff M. Cartwright J. A. Bennett J. Ott U.

[Cosmogenic Noble Gases in Single Chondrules from CV and CR Chondrites](#) [#1763]

We present noble gas data from single chondrules and associated matrix to look for evidence of pre-irradiation. Our data suggest a pre-irradiation of Vigarano and El Djouf 001 chondrules.

Huber L. Metzler K. Maden C. Vogel N. Wieler R.

[Cosmic Ray Irradiation History of Individual Murchison Chondrules Analyzed by UV-Laser Ablation](#) [#1420]

We analyzed noble gases of Murchison chondrules with in situ laser ablation to investigate the position of pre-irradiated chondrules in respect to primary rock fragments and lithic clasts.