Friday, July 31, 2015
ORGANIC MATTER IN METEORITES:
SOURCES, DISTRIBUTIONS, AND EVOLUTION
1:30 p.m. Sibley Auditorium

Chairs: **Joseph Nuth III**
Bradley De Gregorio

1:30 p.m. Tachibana S. * Piani L. Dessimoulie L. Hama T. Kimura Y. Endo Y. Fujita K. Nakatsubo S. Fukushi H. Mori S. Chigai T. Yurimoto H. Kouchi A.
Photochemistry in Molecular Clouds: Structure and Physical Properties of Organic Residues and Ice and Sublimation of Volatile Molecules **[#5248]**
We present the structure and physical properties of organic residues formed in low temperature photochemical experiments to simulate the formation and evolution of organic matter in molecular clouds. Sublimated volatile species are also discussed.

1:45 p.m. Nuth J. A. III * Johnson N. M. Ferguson F. T.
Fischer-Tropsch Reactions: Not the Simple Chemistry We Were All Led to Believe **[#5038]**
We report the production rate and solid/gas-phase product distribution of FTT reactions on iron, magnetite and iron-silicate smoke catalysts as a function of time, temperature and previous exposure history. The results are more complex than expected.

2:00 p.m. Johnson N. M. * Locke D. R. Yazzie C. A. Ferguson F. T. Nuth J. A. III
Organic Coatings Deposited by Fischer-Tropsch-Type Reactions **[#5370]**
Organic coating discussion includes results from pyrolysis GCMS, surface area and carbon deposition and how they differ according to temperature, time, and starting material.

2:15 p.m. Flynn G. J. *
Comparison of Organic Matter in Comets Churyumov-Gerasimenko and Wild 2 and in IDPs **[#5075]**
IR measurements of the surface of Churyumov-Gerasimenko show an organic feature from 3.1–3.3 μm, but neither Wild 2 particles, from jets sampling the interior, nor CP IDPs show this, suggesting comet surfaces may not represent the bulk organic.

2:30 p.m. Clemett S. J. * Messenger S. Nakamura-Messenger K. Thomas-Keprta K. L.
Coordinated Chemical and Isotopic Imaging of the Bells (CM2) Meteorite **[#5339]**
The organic composition of Bells matrix shows distinct compositional variations associated with the presence of organic nanoglobules. The presence of NH3 and simple carbonyls spatially appear spatially correlated with the nanoglobules.

2:45 p.m. Vinogradoff V. * Remusat L. Bernard S. Le Guillou C.
The Insoluble Organic Matter of the Paris CM Chondrite **[#5032]**
We study the IOM of the Paris carbonaceous chondrite, considered as one of the least altered chondrites, and compared it to Murchison IOM. Paris CM is likely the best CM sample available to infer the nature of the OM accreted on the CM parent body.

3:00 p.m. Bose M. * Root R. Pizzarello S.
Sulfur Compounds Detected by XANES in Murchison and Allende **[#5260]**
Sulfur speciation in insoluble organic matter extracted from Murchison and Allende was studied using XANES. The organic matter contains elemental sulfur, alkyl disulfides, thiols, sulfur heterocycles dibenzothiophene, thianthrene and sulfones.

3:15 p.m. Henkel T. * Lyon I. C.
First In-Situ Analysis of Amino Acids in the Murchison Meteorite with C60-TOFSIMS **[#5256]**
We found amino acids with a similar abundance pattern as previously reported by others. These amino acids show a spatial correlation with Mg indicating a possible involvement of Mg (or the corresponding mineral) in the processing of organic matter.

3:30 p.m. De Gregorio B. T. * Stroud R. M. Burgess K. D. Davidson J. Nittler L. R. Alexander C. M. O'D.
Chemical Heterogeneity of Organic Matter in Minimally-Heated CO Chondrites **[#5128]**
IOM from CO chondrites of low petrologic grade contain unusual S-rich organics with a compact texture. Aberration-corrected TEM-EELS indicates S in aromatic heterocycles. Nanoglobules in these residues contain more aromatic carbon than bulk IOM.

3:45 p.m. Kebukawa Y. * Zolensky M. E. Chan Q. H. S. Fries M. Steele A. Kilcoyne A. L. D. Rahman Z. Cody G. D.
Constraining Thermal Processing of Carbon-Rich Aggregates in Xenolithic Clasts from Sharps (H3.4) Meteorite **[#5158]**
We analyzed the carbon-rich aggregates using FTIR, Raman, C-XANES and TEM, in order to constrain their thermal process and possible origins. The estimated temperatures using several methods vary from 300° up to 800°C.