DEVELOPMENTS IN ADVANCED TECHNIQUES FOR METEORITE AND RETURNED SAMPLE ANALYSIS

8:45 a.m.   Sibley Auditorium

Chairs: Derek Sears
Barbara Cohen

8:45 a.m. Yesiltas M. *   Sedlmair J.  Hirschmugl C. J.  Peale R. E.
* Three-Dimensional FT-IR Tomography of Carbonaceous Chondrites [#5043]
We have applied three-dimensional synchrotron-based FT-IR spectro-microtomography technique to carbonaceous chondrites in order to obtain signatures and spatial distributions of organic matter as well as mineral species.

9:00 a.m. Sears D. W. G. *   Ebel D. S.   Wallace S.   Friedrich J. M.
* X-Ray Computed Tomography and the Radiation History of Meteorites [#5156]
In a blind test, five samples of Bruderheim were placed in a CT scanner and five kept as controls. The samples that were placed in the scanner received a radiation dose comparable to the dose received by meteorites during their cosmic ray exposure.

9:15 a.m. Friedrich J. M. *   Glavin D. P.   Rivers M. L.   Dworkin J. P.
* Effect of a Routine Synchrotron X-Ray Microtomography Scan on the Amino Acid Content of the Murchison CM Chondrite [#5208]
We conducted experiments to examine if exposure to synchrotron radiation during a typical µCT scan causes detectable changes in the amino acid content of a carbonaceous chondrite. We found a µCT scan caused no change in the amino acid content.

9:30 a.m. Caplan C. E. *   Huss G. R.   Hammer J. E.   Ogliore R. C.   Nagashima K.
* Crystal Orientation Effects for Oxygen-Isotope Measurements of Magnetite and Chromite [#5333]
We measured the oxygen isotopic compositions of terrestrial magnetite and chromite to investigate instrumental mass fractionation due to crystal orientation.

9:45 a.m. Cohen B. A. *
* The Potassium-Argon Laser Experiment (KArLE): In Situ Geochronology for Planetary Robotic Missions [#5353]
The Potassium (K) - Argon (Ar) Laser Experiment (KArLE) will make in situ whole-rock noble-gas geochronology measurements with 10% uncertainty or better for rocks 2 Ga or older, sufficient to resolve the absolute age of many planetary samples.

10:00 a.m. Sapers H. M. *   Laquerre A.   Hill P. J. A.   Phaneuf M. W.   Osinski G. R.
* Large Area Imaging of Planetary Materials [#5366]
Astromaterials are extremely limited necessitating advanced non-destructive analytical techniques to maximize data collection. Large area imaging allows for contiguous image acquisition at resolutions as high as 100 nm for areas approaching 25 cm2.