

Friday, March 16, 2007
PRESOLAR/SOLAR GRAINS
1:30 p.m. Amphitheater

Chairs: B. S. Meyer
H. Busemann

- 1:30 p.m. Meyer B. S. * Wang C.
s-Process Branching at ^{186}Re , the Abundance of ^{186}Os , and Presolar Grains [#2055]
 Current *s*-process models overproduce ^{186}Os while *s*-process carrying presolar grains apparently have lower $^{186}\text{Os}/^{188}\text{Os}$ abundance ratios than *s*-process models predict. We explore possible resolutions to these two puzzles.
- 1:45 p.m. Reisberg L. C. Dauphas N. * Luguet A. Pearson D. G. Gallino R.
Large s-Process and Mirror Osmium Isotopic Anomalies Within the Murchison Meteorite [#1177]
 Leachates of the Murchison carbonaceous chondrite reveal *s*-process and mirror osmium isotopic anomalies. The bulk Os composition of Murchison is very close to that of most chondrites and of Earth, despite the extreme heterogeneity of the individual leachates.
- 2:00 p.m. Yokoyama T. * Rai V. K. Alexander C. M. O'D. Lewis R. S. Carlson R. W. Shirey S. B. Thiemens M. H. Walker R. J.
Nucleosynthetic Os Isotopic Anomalies in Carbonaceous Chondrites [#1151]
 Precise Os isotope analyses revealed the presence of substantial *s*-process enriched and depleted components in some primitive meteorites, yet also provides complementary data indicating homogeneity for bulk samples.
- 2:15 p.m. Croat T. K. * Stadermann F. J. Bernatowicz T. J.
Isotopic and TEM Investigations of Variations in Presolar Graphite Morphology [#1484]
 Variations in morphology and degree of graphitization among Murchison presolar graphites are seen in microstructural studies. Trends in the isotopic ratios, O content, and properties of internal grains are examined in more disordered graphites.
- 2:30 p.m. Heck P. R. * Amari S. Hoppe P. Lewis R. S. Baur H. Wieler R.
Neon-22, Oxygen-18, and Aluminum-26 Excesses in Single Presolar Graphite Grains from Murchison: A Combined Rare Gas and NanoSIMS Study [#1645]
 We present new He, Ne, C, O and Mg-Al isotope analyses of single presolar graphite grains from Murchison. We found excesses in ^{22}Ne , ^{18}O and ^{26}Al and one very gas-rich grain with detectable amounts of nucleosynthetic ^{20}Ne ; He was not detected.
- 2:45 p.m. Amari S. * Zinner E. Lewis R. S.
Search for Extinct Radioactivities in Low-Density Presolar Graphite [#2024]
 Extinct radioactivities in low-density graphite have been investigated. Evidence of ^{60}Fe has not been found due to huge errors. Isotopic signatures of Si and Ca in the grains indicate that they were decoupled in the Si/S zone in supernovae.
- 3:00 p.m. Hynes K. M. * Croat T. K. Bernatowicz T. J.
Microstructure of Silicon Carbides Found Within Presolar Graphite [#1693]
 Composite presolar grains (e.g., silicon carbide within graphite) can place constraints on circumstellar environments in which both of these phases form. We present results from a TEM study of rare Murchison graphites that contain internal SiCs.
- 3:15 p.m. Gyngard F. * Amari S. Zinner E. Gallino R. Lewis R. S.
Lithium, Boron, and Sulphur Isotopic Ratios in Large Presolar SiC Grains from Murchison [#1963]
 We report here Li, B, and S isotopic ratios in nine large, up to 60 μm , presolar SiC grains from the Murchison L series.

- 3:30 p.m. Nittler L. R. * Hoppe P. Stroud R. M.
Elemental Heterogeneity in an Isotopically Homogeneous SiC Aggregate from a Supernova [#2321]
NanoSIMS imaging of an aggregate-structure SiC X grain reveals a sub-grain with lower abundances of N, Mg, Al, Ca and Ti than the rest of the grain, but similar isotopic composition. Implications for supernova dust formation will be discussed.
- 3:45 p.m. Marhas K. K. * Amari S. Gyngard F. Zinner E. Lewis R. S.
Fe Isotopic Composition of Presolar SiC Grains [#2124]
Iron isotopes have been measured in type X and mainstream SiC grains from Murchison with the NanoSIMS. Clear excesses in ^{57}Fe from the X grains have been detected and possible scenarios for ^{57}Fe excesses are discussed.
- 4:00 p.m. Stroud R. M. * Nittler L. R. Alexander C. M. O'D. Zinner E.
Transmission Electron Microscopy and Secondary Ion Mass Spectrometry of an Unusual Mg-rich Presolar Al_2O_3 Grain [#2203]
We report here on the first TEM study of a Group 2 presolar Al_2O_3 grain.
- 4:15 p.m. Busemann H. * Zega T. J. Alexander C. M. O'D. Cody G. D. Kilcoyne A. L. D. Nittler L. R. Stroud R. M. Yabuta H.
Secondary Ion Mass Spectrometry and X-Ray Absorption Near-Edge Structure Spectroscopy of Isotopically Anomalous Organic Matter from CR1 Chondrites GRO 95577 [#1884]
We located interstellar organics from a CR1 chondrite with NanoSIMS and analyzed FIB-extracted sections with XANES. D-rich material appears not associated with a functional group, whereas ^{15}N -rich matter shows some affinity to nitrile functionality.
- 4:30 p.m. Vollmer C. * Hoppe P. Brenker F. E. Holzapfel C.
A Presolar Silicate Trilogy: Condensation, Coagulation and Transformation — New Insights from NanoSIMS/TEM Investigations [#1262]
We report on new results of a combined NanoSIMS/TEM study of presolar silicates in the Acfer 094 meteorite. Sixty-five grains have been detected giving a matrix-normalized abundance of ~ 175 ppm. Two of these grains were prepared by FIB and analyzed by TEM.