

Friday, March 14, 2008
PRESOLAR GRAINS: STILL MORE ISOTOPES OUT OF THIS WORLD
1:30 p.m. Amphitheater

Chairs: C. Floss
T. J. Zega

- 1:30 p.m. Nishiizumi K. * Caffee M. W. Kohno M. Misawa K. Nagao K. Tomiyama T.
Exposure Histories of Micrometeorites Found in a 434 kyr Old Layer in the Dome Fuji Ice Core, Antarctica [#2231]
Highly concentrated micrometeorite layers were found in the Dome Fuji ice core. Cosmogenic ^{10}Be in particles collected at 2641 m in the core identified an extraterrestrial origin of the particles and histories of the meteoritic material.
- 1:45 p.m. Gounelle M. * Mostefaoui S. Meibom A. Engrand C. Duprat J.
The Discovery of an In Situ Presolar Silicon Carbide in an Antarctic Micrometeorite [#1612]
We report the discovery of the first presolar SiC grain in the micrometeorite population. C and N isotopic analyses identify it as belonging to the main stream population.
- 2:00 p.m. Zega T. J. * Nittler L. R. Alexander C. M. O'D. Stroud R. M.
Transmission Electron Microscopy Analysis of a Presolar Cr-rich Spinel Grain [#2424]
We report results from a TEM analysis of a presolar Cr-rich spinel grain.
- 2:15 p.m. Stroud R. M. * Nittler L. R. Alexander C. M. O'D.
Transmission Electron Microscopy of a Presolar Supernova Hibonite Grain [#1778]
Results from the first TEM study of a supernova oxide grain indicate that it is a single crystal of hibonite, similar to hibonite grains from asymptotic giant branch stars. The grain shows evidence for impact fracture, but not radiation damage.
- 2:30 p.m. Nguyen A. N. * Stadermann F. J. Nittler L. R. Alexander C. M. O'D.
Characterization of Presolar Silicate and Oxide Grains Using NanoSIMS and Auger Spectroscopy [#2142]
Abundant presolar silicate and oxide grains have been identified in ALH A77307 using NanoSIMS. Their O and Si isotopic ratios have been investigated. Auger spectroscopy studies of the grains' chemical compositions reveal Mg/Fe \sim 1 for most of the silicates.
- 2:45 p.m. Hoppe P. * Vollmer C. Heck P. R. Groener E. Gallino R. Amari S.
NanoSIMS Studies of Small Presolar SiC Grains: C- and Si-Isotopic Compositions and Trace Element Abundances [#1025]
Submicrometer-sized presolar SiC grains have C- and Si-isotopic characteristics compatible with those of larger grains. The rare SiC Z grains show high enrichments in Ba that correlate with Si-isotopic compositions.
- 3:00 p.m. Croat T. K. * Stadermann F. J.
Extreme Si-29 and Si-30 Enrichments Found in Rare Murchison SiC-containing Graphites [#1739]
Isotopic and microstructural studies of two Murchison graphites reveal internal SiCs that constitute a new SiC isotopic group, with extreme ^{29}Si and ^{30}Si excesses indicative of a massive star origin, which until now was mostly hidden within graphite.
- 3:15 p.m. Knight K. B. * Sutton S. R. Newville M. Davis A. M. Dauphas N. Lewis R. S. Amari S. Steele I. M. Savina M. R. Pellin M. J.
Trace Element Determinations in Presolar SiC Grains by Synchrotron X-Ray Fluorescence: Commencement of a Coordinated Multimethod Study [#2135]
We determined trace element compositions of individual \sim 1–3 μm presolar SiC grains from 6 KJG grains and 26 additionally cleaned KJG grains from the Murchison CM chondrite using nondestructive synchrotron X-ray fluorescence (SXRF).

- 3:30 p.m. Jadhav M. * Amari S. Zinner E. Maruoka T.
Ti Isotopic Ratios in Low-Density Graphite Grains from Orgueil [#1047]
We report Ti isotopic analyses of low-density (LD) graphite grains from Orgueil. Our results confirm that, similar to Murchison graphites, LD graphites from Orgueil seem to originate from type II supernovae.
- 3:45 p.m. Heck P. R. * Gyngard F. Meier M. M. M. Avila J. N. Amari S. Zinner E. Lewis R. S. Baur H. Wieler R.
Presolar Neon and Helium Exposure Ages of Jumbo Presolar SiC Grains (LS+LU) from Murchison [#1239]
We have detected cosmogenic and nucleosynthetic He and Ne in very large (10–50 μm) single presolar SiC (LS + LU) from Murchison. Presolar exposure ages range from 3 to 480 Myr and overlap with the age range previously determined by ^6Li excesses.
- 4:00 p.m. Yokoyama T. * Alexander C. M. O'D. Walker R. J.
Osmium Isotopic Anomalies of Insoluble Organic Matter in Chondrites [#1376]
We present evidence for Os isotopic anomalies in the insoluble organic matter (IOM) separated from eight chondrites. Presolar grains in the IOM fractions are presumably the sources of the anomalies.
- 4:15 p.m. Floss C. * Stadermann F. J.
The Stardust Inventories of CR Chondrites QUE 99177 and MET 00426, and the Distribution of Presolar Silicate and Oxide Grains in the Early Solar System [#1280]
Stardust abundances in QUE 99177 and MET 00426 are high, consistent with their low degrees of aqueous alteration. Both also have presolar silicate/oxide ratios that are significantly higher than those previously found in other primitive meteorites.
- 4:30 p.m. Keller L. P. * Messenger S.
Coordinated Chemical and Isotopic Studies of GEMS Grains in IDPs [#2347]
GEMS grains in cometary IDPs have different origins and histories and we recognize three groups based on coordinated TEM and NanoSIMS analyses.