

Wednesday, March 14, 2007
STARDUST: WILD-2 REVEALED
8:30 a.m. Marina Plaza Ballroom

Chairs: F. J. Stadermann
S. A. Sandford

- 8:30 a.m. Stephan T. * Flynn G. J. Sandford S. A. Zolensky M. E.
TOF-SIMS Analysis of Comet Wild 2 Particles Extracted from Stardust Aerogel [#1126]
 TOF-SIMS of seven cometary fragments from three tracks in Stardust aerogel showed a heterogeneous composition. Although large deviations were observed for individual particles, the average composition is close to CI that seems to represent bulk Wild 2.
- 8:45 a.m. Rost D. * Stephan T. Vicenzi E. P. Bullock E. S. MacPherson G. J. Westphal A. J. Snead C. J. Flynn G. J. Sandford S. A. Zolensky M. E.
ToF-SIMS Analysis of Cometary Matter in Stardust Aerogel Tracks [#2346]
 Exceedingly minute amounts of ultrafine grained cometary matter found in STARDUST aerogel have a chondritic composition on average. On and below the μm length scale, however, heterogeneities were observed.
- 9:00 a.m. Ishii H. A. * Brennan S. Bradley J. P. Luening K. Ignatyev K. Pianetta P.
Refining the Quantitative Elemental Composition of Comet Wild 2 Dust in Aerogel [#1736]
 For improved accuracy elemental compositions of Comet Wild 2 dust, we developed a dual threshold analysis approach that better distinguishes cometary material from aerogel background. The impact on dust deceleration track composition is demonstrated.
- 9:15 a.m. Stadermann F. J. * Floss C. Bose M.
Correlated High Spatial Resolution Elemental and Isotopic Characterization of Wild 2 Cometary Samples [#1334]
 Isotopic data alone only give a partial picture of a given sample. Here we discuss complementary high resolution isotopic and elemental imaging for the identification of interstellar and solar system matter in cometary samples.
- 9:30 a.m. Palma R. L. * Pepin R. O. Schlutter D. Simones J.
Helium and Neon Isotopic Compositions from Stardust Aerogel Particle Tracks [#2032]
 Helium and neon isotopic compositions were measured in flight spare aerogel, flight aerogel without apparent cometary material, and three aerogel fragments from a melted Stardust particle entry track.
- 9:45 a.m. Matrajt G. * Wirick S. Ito M. Messenger S. Brownlee D. Joswiak D.
Carbon Investigation of Stardust Particles: A TEM, NanoSIMS and XANES Study [#1201]
 Carbon was investigated using three different techniques in ultrathin sections of two Stardust particles. A significant ^{15}N isotope enrichment was found associated with the carbonaceous phases present in the particles.
- 10:00 a.m. Gallien J. -P. Khodja H. Herzog G. F. * Taylor S. Koepsell E. Daghlian C. P. Flynn G. J. Sitnitsky I. Lanzirotti A. Sutton S. R. Keller L. P.
Characterization of Three Carbon- and Nitrogen-rich Particles from Comet 81P/Wild 2 [#1605]
 Bulk N/C ratios in three N- and C-rich fragments are subsolar, but like some remote cometary and C-chondrite values. Mn-, Cr-, and Ni-to-Fe ratios are chondritic; Zn/Fe is higher. IR spectra show diverse organic species. One fragment has Ca- and O-hotspots.

- 10:15 a.m. Wirick S. * Leroux H. Tomeoka K. Zolensky M. Flynn G. J. Tyliczszak T. Butterworth A. Tomioka N. Ohnishi I. Nakamura Messenger K. Sandford S. Keller L. Jacobsen C.
Carbonates Found in Stardust Aerogel Tracks [#1534]
Carbonates were identified in Wild 2 samples. These carbonates were identified using electron diffraction and X-ray absorption near edge structure spectroscopy. We believe these carbonates have a terrestrial source and are a contaminant in the samples.
- 10:30 a.m. Cody G. D. * Yabuta H. Alexander C. M. O'D. Araki T. Kilcoyne A. L. D.
Placing Comet 81P/Wild 2 Organic Particles into Context with Chondritic Organic Solids [#2286]
The organic structure of Comet 81P/Wild 2 particles are analyzed and compared with chondritic organic matter. A high degree of chemical complexity is observed in the Comet 81P/Wild 2 samples, possibly indicating multiple synthetic origins for the organic solids.
- 10:45 a.m. Glavin D. P. * Dworkin J. P.
Detection of Amine Compounds in Samples Returned by Stardust [#1052]
We investigated the abundances of primary amine compounds in Stardust comet-exposed flight aerogel using LC-ToF-MS. The high relative abundance of methylamine and ethylamine in the aerogel compared to controls suggests that these two amines are cometary in origin.
- 11:00 a.m. Clemett S. J. * Nakamura-Messenger K. McKay D. S. Sandford S. A.
Identification of Aromatic Organic Matter from Comet 81P/Wild 2 by ultra-L²MS [#2091]
The technique of ultrafast two-step laser mass spectrometry has been used to investigate the nature and distribution of organic matter in dust samples from Comet 81P/Wild 2, as returned by the Stardust sample return mission.
- 11:15 a.m. Ebel D. S. * Mey J. L. Rivers M. L.
Nondestructive Laser Confocal Scanning Microscopy and Synchrotron Microtomography of Single Stardust and Analog Tracks in Aerogel Keystones [#1977]
We compare confocal microscopy (LCSM) and X-ray tomography of whole tracks in aerogel keystones. LCSM allows direct quantification of sub-micron 3D spatial particle fragment relationships. It is more convenient than XR-CMT, and optical identification of grain mineralogy may be possible.
- 11:30 a.m. Westphal A. J. * Bastien R. K. Butterworth A. L. Von Korff J. Anderson D. Mendez B. Prasad R. Kelley N. Frank D. Lettieri R. Gainsforth Z. Snead C. J. Warren J. L. Zolensky M. E.
Search for Contemporary Interstellar Dust in the Stardust Collector [#1457]
We describe the effort to identify interstellar dust in the Stardust collector with high-magnification digital imaging and a web-based search called Stardust@home. The >20000 scanners have very high efficiency in detection of very small tracks.