Thursday, March 15, 2007
STARDUST: MAINLY MINERALOGY
8:30 a.m. Marina Plaza Ballroom

Chairs: **F. J. M. Rietmeijer**
D. E. Brownlee

8:30 a.m. Nakamura T. * Tsuchiyama A. Akaki T. Uesugi K. Nakano T. Noguchi T.
Bulk Mineralogy and Three Dimensional Tomography of Individual Stardust Particles **[#1107]**
We have utilized synchrotron radiation X-ray to characterize bulk mineralogy and three dimensional structures of individual Stardust particles and found that Stardust particles can be classified to only two types: crystalline type and amorphous-rich type.

8:45 a.m. Tomeoka K. * Tomioka N. Ohnishi I.
Silicates and Glass in Comet Wild 2 Samples: An Analytical Transmission Electron Microscope Study **[#1267]**
This paper presents the results of detailed mineralogical investigation of seven Comet Wild 2 samples using a transmission electron microscope. It focuses on mineralogical characteristics of silicates and Si-O glass and discusses their relationship.

9:00 a.m. Mikouchi T. * Tachikawa O. Hagiya K. Ohsumi K. Suzuki Y. Uesugi K. Takeuchi A. Zolensky M. E.
Mineralogy and Crystallography of Comet 81P/Wild 2 Particles **[#1946]**
We report mineralogy and crystallography of several interesting phases in Comet Wild 2 particles analyzed by SEM, TEM and SR-XRD. These phases include possible Mg-Fe carbonate, Mg-rich chromite, and silica minerals (tridymite and cristobalite).

9:15 a.m. Chi M. * Ishii H. Toppani A. Dai Z. R. Joswiak D. J. Leroux H. Zolensky M. Keller L. P. Browning N. D. Bradley J. P.
Does Comet Wild-2 Contain GEMS? **[#2010]**
We have searched for GEMS in the comet Wild-2 sample. Most of the "GEMS-like" materials in Stardust were formed during hypervelocity impact of cometary grains into aerogel.

9:30 a.m. Joswiak D. J. * Matrajt G. Brownlee D. E. Westphal A. J. Snead C. J.
A Roedderite-bearing Terminal Particle from Stardust Track 56: Comparison with Rare Peralkaline Chondrules in Ordinary Chondrites **[#2142]**
A roedderite-bearing Stardust terminal particle may have links with rare alkali-rich ferromagnesian chondrules found in some in ordinary chondrites.

9:45 a.m. Gainsforth Z. * Butterworth A. Fakra S. Marcus M. A. Snead C. Westphal A. J.
Mineralogical Identification of Stardust Particles by XANES at the Advanced Light Source **[#2273]**
Micro-XANES at ALS beam line 10.3.2 provides a unique and powerful survey technique for CAI-like materials in Stardust samples by combining high counting statistics with *in situ* chemical and mineralogical identification.

10:00 a.m. Rietmeijer F. J. M. *
Challenges to Understand Aerogel Contaminated by Hypervelocity-impacted Comet Wild 2 Dust **[#1082]**
The smallest Wild 2 Fe-Ni-S and silicate phases in vesicular aerogel have predictable trends partially reminiscent of matrix units in aggregate IDPs.

10:15 a.m. Kearsley A. T. * Burchell M. J. Graham G. A. Hörz F. Wozniakiewicz P. A. Cole M. J.
Cometary Dust Characteristics: Comparison of Stardust Craters with Laboratory Impacts **[#1562]**
Comparison of digital elevation models of craters from laboratory gun shots with those from seven >50 μm impact features on Stardust Al foils shows that most of these larger comet Wild 2 dust impacts were produced by grains of low internal porosity.

10:30 a.m. Graham G. A. * Kearsley A. T. Vicenzi E. P. Teslich N. Dai Z. R. Rost D. Hörz F. Bradley J. P.
Analysis of Cometary Dust Impact Residues in the Aluminum Foil Craters of Stardust **[#1990]**
In this abstract we consider the state of residue preservation in a diverse range of micro-craters generated by comet Wild-2 dust impacts on the aluminum foil surfaces that were wrapped around the Stardust sample tray assembly.

10:45 a.m. Borg J. * Hörz F. Bridges J. C. Burchell M. J. Djouadi Z. Floss C. Graham G. A. Green S. F. Heck P. R. Hoppe P. Huth J. Kearsley A. Leroux H. Marhas K. Stadermann F. J. Teslich N.
SEM-EDS Analyses of Small Craters in Stardust Aluminium Foils: Implications for the Wild-2 Dust Distribution **[#1592]**
Implications for the Wild-2 dust distribution of the statistical results obtained by SEM-EDS from nearly 300 impact craters on aluminium foils of the Stardust sample tray assembly.

11:00 a.m. Bridges J. C. * Franchi I. A. Green S. F.
Stardust Microcrater Residue Compositional Groups **[#2180]**
Compositional groups are defined in residue from Stardust craters (1-9 Dc) by qualitative EDS. These compositional groups are being further studied by a FIB-SEM technique to determine representative residue compositions.

11:15 a.m. Brownlee D. E. * Joswiak D. Bradley J. Matrajt G.
The Origin of Crystalline Silicates in Comets and Large Scale Mixing in the Solar Nebula **[#2189]**
Many of the crystalline silicates in comet Wild 2 are related to rare components of primitive meteorites. These materials do not appear to have formed by annealing of amorphous interstellar grains but by high temperature processes that occurred in the inner regions of the solar nebula.

11:30 a.m. Ciesla F. J. * Cuzzi J. N.
Radial Transport of High Temperature Materials in the Solar Nebula: Applications to Stardust **[#1386]**
We are performing 2-D simulations of the outward transport of high temperature materials through the solar nebula region by turbulence in order to collect statistics on the paths and efficiency of this mode of transport.