Thursday, March 10, 2011
DUSTY HORIZONS: INTERPLANETARY, INTERSTELLAR, AND COMETARY PARTICLES
1:30 p.m. Waterway Ballroom 4

Chairs: **Scott Messenger**
Andrew Westphal

1:30 p.m. Westphal A. J. * Allen C. Bajt S. Bechtel H. A. Borg J. Brenker F. Bridges J. Brownlee D. E. Burchell M. Burghammer M. Butterworth A. L. Cloetens P. Davis A. M. Floss C. Flynn G. J. Fougeray P. Frank D. Gainsforth Z. Grün E. Heck P. R. Hillier J. K. Hoppe P. Howard L. Hudson B. Huss G. R. Huth J. Kearsley A. King A. J. Lai B. Leitner J. Lemelle L. Leroux H. Lettieri R. Marchant W. Nittler L. R. Ogliore R. C. Postberg F. Price M. C. Sandford S. A. Sans Tresseras J. A. Schmitz S. Schoonjans T. Silversmit G. Simionovici A. Srama R. Stadermann F. J. Stephan T. Stodolna J. Stroud R. M. Sutton S. R. Toucoulou R. Trieloff M. Tsou P. Tsuchiyama A. Tyliczszak T. Vekemans B. Vincze L. Wordsworth N. Zevin D. Zolensky M. E. >29,000 Stardust@home Dusters
Four Interstellar Dust Candidates from the Stardust Interstellar Dust Collector **[#2083]**
We report the discovery of two new interstellar dust candidates in the aerogel collectors of the Stardust Interstellar Dust Collector, and the analyses of these and two previously identified candidates.

1:45 p.m. Simionovici A. * Allen C. Bajt S. Bastien R. Bechtel H. Borg J. Brenker F. E. Bridges J. C. Brownlee D. E. Burchell M. J. Burghammer M. Butterworth A. Cloetens P. Davis A. M. Floss C. Flynn G. Frank D. Gainsforth Z. Grün E. Heck P. R. Hillier J. Hoppe P. Howard L. Huss G. R. Huth J. Kearsley A. T. King A. J. Lai B. Leitner J. Lemelle L. Leroux H. Lettieri R. Marchant W. Nittler L. Ogliore R. Postberg F. Sandford S. Sans Tresseras J. A. Schoonjans T. Schmitz S. Silversmit G. Srama R. Stadermann F. J. Stephan T. Stodolna J. Stroud R. M. Sutton S. Tucoulou R. Trieloff M. Tsou P. Tsuchiyama A. Tyliczszak T. Vekemans B. Vincze L. Westphal A. J. Zevin D. Zolensky M. E. Price C. >29,000 Stardust@home Dusters
High Fluence Synchrotron Radiation Microprobe Effects on Stardust Interstellar Dust Candidates **[#2812]**
We are presenting for the first time damage effects produced by focused high-fluence synchrotron beams on Stardust interstellar dust candidates. The damage produced on submicrometer grains shows up as particle smearing. We attribute this mainly to charging effects.

2:00 p.m. Postberg F. * Allan C. Bajt S. Bechtel H. A. Borg J. Brenker F. Bridges J. Brownlee D. E. Bugiel S. Burchell M. Burghammer M. Butterworth A. L. Cloetens P. Davis A. M. Floss C. Flynn G. J. Frank D. Gainsforth Z. Grün E. Heck P. R. Hillier J. K. Hoppe P. Howard L. Huss G. R. Huth J. Kearsley A. King A. J. Lai B. Leitner J. Lemelle L. Leroux H. Nittler L. R. Ogliore R. C. Price M. C. Sandford S. A. Sans Tresseras J. A. Schmitz S. Schoonjans T. Silversmit G. Simionovici A. Srama R. Stadermann F. J. Stephan T. Sterken V. Stodolna J. Stroud R. M. Sutton S. R. Toucoulou R. Trieloff M. Tsou P. Tsuchiyama A. Tyliczszak T. Vekemans B. Vincze L. Westphal A. J. Zolensky M. E.
A New View on Interstellar Dust — High Fidelity Studies of Interstellar Dust Analogue Tracks in Stardust Flight Spare Aerogel **[#1823]**
High speed [5–30 km/s] interstellar dust (ISD) analogues shot onto Stardust aerogel flight spares show morphology of impact tracks and structural and chemical modification of the projectiles. First results indicate a different ISD flux than previously assumed.

2:15 p.m. Niimi R. * Tsuchiyama A. Kadono T. Okudaira K. Hasegawa S. Tabata M. Watanabe T. Yagishita M. Machii N. Nakamura A. M.
Dependence on Projectile Density of Impact Track Morphology in Silica Aerogel **[#1934]**
We launched projectiles of several densities into silica aerogel at 6 km/s to simulate capture of Wild 2 dust. Our study of track morphology has shown that aspect ratio of an impact track is a good indicator of an impactor's density.

2:30 p.m. Joswiak D. J. * Brownlee D. E. Matrajt G.
Comprehensive Examination of Large Mineral and Rock Fragments in Stardust Tracks: Insights Into the Source Regions of Comet Wild 2 Materials **[#2246]**
Large mineral and rock fragments studied in 16 SD tracks represent a wide range of materials that formed in the nebula including chondrules, RIs, mineral grains, and unequilibrated minerals and rock assemblages that are analogous to cluster IDPs or chondrite matrix.

2:45 p.m. Stodolna J. * Jacob D. Leroux H.
Comparing Wild 2 Fine-Grained Material to Matrix of Primitive Meteorites **[#2025]**
We report a TEM examination of the fine-grained material from track 80. It compares well with main characteristics of the matrix of primitive chondrites. This fine-grained Wild 2 material could constitute the very primitive part expected of the comet.

3:00 p.m. Bridges J. C. * Changela H. G. Gurman S. J.
EXAFS Analyses of Comet 81P/Wild 2 **[#2692]**
EXAFS studies of Comet Wild 2 identify silicate, sulphide, and oxide phases. They also provide more evidence, with complementary XRF, XANES, for Fe oxides, some of which are cometary and some which may be associated with capture.

3:15 p.m. Greenberg M. * Ebel D. S.
3D Fluorescent and Reflective Imaging of Whole Stardust Tracks in Aerogel **[#2640]**
We present two new methods for three-dimensional imaging and analysis of Stardust tracks: (1) visible light laser fluorescence and spectral imaging of aerogel, and (2) stereo XRF mapping of whole tracks. Combined with existing procedures, we can improve on past analyses.

3:30 p.m. De Gregorio B. T. * Stroud R. M. Nittler L. R. Cody G. D. Kilcoyne A. L. D. Wirick S.
Correlated Microanalysis of Cometary Organic Grains Returned by Stardust **[#2603]**
Carbonaceous matter in Stardust samples is chemically-similar to IOM in meteorites and IDPs, with additional highly-aromatic and highly-aliphatic components. All extremely N-rich samples studied so far are likely contaminants.

3:45 p.m. Nakashima D. * Ushikubo T. Zolensky M. E. Weisberg M. K. Joswiak D. J. Brownlee D. E. Matrajt G. Kita N. T.
High Precision Oxygen Three Isotope Analysis of Wild-2 Particles and Anhydrous Chondritic Interplanetary Dust Particles **[#1240]**
Two Wild-2 particles and three anhydrous IDPs show oxygen isotope ratios similar to those of other Wild-2 particles, anhydrous IDPs, and carbonaceous chondrite chondrules, suggesting the presence of the common oxygen isotope reservoir.

4:00 p.m. Flynn G. J. * Lanzirotti A. Sutton S. R.
Fe-XANES Measurement of an Anhydrous Cluster IDP **[#2521]**
Cluster IDPs sample the anhydrous IDP parent at a larger size than 10 µm CP IDPs. Fe-XANES on L2009R2 gives a mean Fe-valance near Fe^{2+}. The absence of Fe-metal suggests that at this size the anhydrous IDP parent is different from Wild 2 particles.

4:15 p.m. Messenger S. *
Stratospheric Collection of Dust from Comet 73P/Schwassmann-Wachmann 3 **[#2158]**
We consider the prospects for the stratospheric collection of dust from comet 73P/Schwassmann-Wachmann 3 (SW3). SW3 experienced a major outburst and fragmentation event in 1995. We find that SW3 formed an Earth-crossing dust stream that is amenable for collection.

4:30 p.m. Craig J. P. * Sears D. W. G.
New Insight into the Fine Scale Properties of Antarctic Micrometeorites from Thermoluminescence Analysis **[#1237]**
We measured NTL/ITL of 29 10–15-µm samples from a suite of AMMs that are comparable to IDPs and Stardust. Glow curve shape and ITL levels point to mineralogy inconsistent with CI or CM material with large heterogeneity in thermal/radiation history.