

Tuesday, March 14, 2006
INTERPLANETARY DUST PARTICLES
8:30 a.m. Crystal Ballroom B

Chairs: G. Matrajt
F. J. M. Rietmeijer

- 8:30 a.m. Toppani A. Dukes C. Baragiola R. Bradley J. P. *
Segregation of Mg, Ca, Al and Ti in Silicates During Ion Irradiation [#2056]
 We report refractory element segregation in silicates exposed to ionizing radiation in IDPs, lunar solar grains and mineral standards. The results may provide insight about the origin of GEMS.
- 8:45 a.m. Rietmeijer F. J. M. * Pun A. Nuth J. A. III
Initial Results on CaSiO Vapor Condensates: Potential Implications for Dust in Chondritic Aggregate Particles [#1117]
 Deep metastable eutectic condensates in a CaSiO vapor: Oxygen fugacity and the annealing of novel, primitive extraterrestrial silicates.
- 9:00 a.m. Tsuchiyama A. * Uesugi K. Nakano T. Okazaki T. Nakamura K. Nakamura T.
 Noguchi T. Yano H.
Three-Dimensional Structures of Interplanetary Dust Particles and IDP-like Large Micrometeorites Using Synchrotron Radiation Microtomography [#2001]
 3-D structures (porosities and fractal dimensions) of IDPs and IDP-like micrometeorites were examined. Although the spatial resolution is not sufficient for fine textures, we can obtain non-destructive 3-D information complementary to TEM and SEM.
- 9:15 a.m. Joswiak D. J. * Brownlee D. E.
Non-GEMS Silicate Glasses in Chondritic Porous Interplanetary Dust Particles [#2190]
 At least two populations of non-GEMS silicate glasses are present in chondritic porous interplanetary dust particles, a bulk silicate glass free of nanophase Fe-rich inclusions and an Al-rich interstitial glass which typically occurs between Fe-rich olivines.
- 9:30 a.m. Flynn G. J. * Lanzirotti A. Sutton S. R.
Chemical Compositions of Large Cluster IDPs [#1216]
 We performed X-ray fluorescence spectroscopy on two large cluster IDPs, which sample the IDP parent body at a mass scale two orders-of-magnitude larger than ~10 μm IDPs, allowing proper incorporation of larger mineral grains into the bulk composition of the parent body.
- 9:45 a.m. Floss C. * Stadermann F. J. Wopenka B.
The Presence and Absence of Different Isotopically Anomalous Phases in the Primitive Interplanetary Dust Particle Tiberius [#1290]
 Tiberius contains presolar corundum and SiC, and ^{15}N -rich hotspots, but presolar silicate grains are absent. The presence of phyllosilicates suggests aqueous alteration may have destroyed presolar silicates, but not more refractory presolar phases.
- 10:00 a.m. Christoffersen R. * Keller L. P.
Space Plasma Ion Processing of IDP Sulfides: A Comparison to Silicates Based on In-Situ TEM Ion Irradiation Experiments [#1738]
 Pyrrhotite in IDPs shows relative less evidence of space radiation processing than silicates. We have calibrated and confirmed pyrrhotite's resistance to radiation-induced amorphization relative to silicates in a series of *in-situ* TEM irradiation experiments.

- 10:15 a.m. Matrajt G. * Brownlee D. Sadilek M. Kruse L.
The Fate of Organic Phases in Porous IDPs and Micrometeorites During Atmospheric Entry: A Pulse-heating Study [#1006]
We performed pulse-heating experiments on three organic molecules loaded in a porous substrate to investigate their survival by imitating the processes of atmospheric entry heating experienced by IDPs and micrometeorites.
- 10:30 a.m. Aléon J. * McKeegan K. D. Leshin L.
Oxygen Isotopes in Chondritic Interplanetary Dust: Parent-Bodies and Nebular Oxygen Reservoirs [#1921]
High precision oxygen isotope measurements of chondritic interplanetary dust particles reveal that all particles including porous anhydrous cluster particles of potential cometary origin have a composition typical of bulk carbonaceous chondrites.
- 10:45 a.m. Alexander C. M. O'D. * Keller L. P.
Are There Clues to the Dust 'Annealing' Process in Protoplanetary Disks in IDPs? [#2325]
We review the properties CP-IDPs and their components to determine whether they hold clues to the process responsible for the "annealing" seen in dust in protoplanetary disks.
- 11:00 a.m. Nittler L. R. * Busemann H. Hoppe P.
Isotopic and Micro-Raman Investigation of Interplanetary Dust Particles Collected During 2003 Earth Passage Through Comet Grigg-Skjellerup Dust Stream [#2301]
We report microscale H and N isotopic and Raman spectral data for IDPs collected in April 2003. The samples show extreme D and ¹⁵N enrichments carried by very primitive organic matter. A high abundance of D anomalies might indicate a cometary origin.
- 11:15 a.m. Genge M. J. *
Ordinary Chondrite Micrometeorites from the Koronis Asteroids [#1759]
Seventy percent of coarse-grained micrometeorites are shown to have affinities to ordinary chondrites.
- 11:30 a.m. Maurette M. Brack A. Duprat J. Engrand C. *
Kerogen-rich Micrometeorites and Crude Petroleum in Hadean Time [#1583]
Antarctic micrometeorites can be assimilated to a kind of cosmic kerogen-rich "shales" when deposited on the sea floor, and trapped in sediments that get steadily buried. They could thus have formed huge amounts of crude petroleum on the young Earth.