

Thursday, March 23, 2017
PRESOLAR GRAINS AND OTHER SMALL PARTICLES
8:30 a.m. Montgomery Ballroom

[R506]

Chairs: Christine Floss
 Andrew Westphal

- 8:30 a.m. Monson N. N. Morris M. R. Young E. D. *
[Uniform Silicon Isotope Ratios Across the Milky Way Galaxy and Implications for Isotopic Galactic Chemical Evolution](#) [#1350]
 We show that there is no resolvable gradient in Si isotope ratios across the Milky Way Galaxy, implying we don't fully understand Galactic chemical evolution.
- 8:45 a.m. Liu N. * Nittler L. R. Alexander C. M. O'D. Wang J.
[Decoding Mixing in Supernovae: Correlated Silicon and Titanium Isotopic Signatures in Presolar SiC Grains of Type X](#) [#2331]
 We report correlated ⁴⁹Ti and ²⁸Si excesses in 14 X grains, confirming the absence of the short-lived isotope ⁴⁹V during grain condensation in SNe.
- 9:00 a.m. Stephan T. * Trappitsch R. Boehnke P. Davis A. M. Pellin M. J. et al.
[Analysis of Strontium, Zirconium, Molybdenum, and Barium Isotopes in Presolar Silicon Carbide Grains with CHILI](#) [#2513]
 We analyzed Sr, Ba, and, for the first time, also Zr and Mo isotopes in presolar SiC with CHILI to better understand s-process nucleosynthesis in AGB stars.
- 9:15 a.m. Stroud R. M. * De Gregorio B. T. Liu N. Alexander C. M. O'D. Nittler L. R. et al.
[Transmission Electron Microscopy of Rare Polytypes of Presolar SiC](#) [#2562]
 TEM analyses confirm that SiC grains with high order polytype structures, e.g., 6H, 15R, and higher, though rare, condensed in the outflows of ancient stars.
- 9:30 a.m. Charon E. * Engrand C. Benzerara K. Leroux H. Swaraj S. et al.
[A C-, N-, O-XANES/STXM and TEM Study of Organic Matter and Minerals in Ultracarbonaceous Antarctic Micrometeorites \(UCAMMs\)](#) [#2085]
 Ultracarbonaceous Antarctic Micrometeorites show association of low temperature organic phases and minerals processed in the inner solar system.
- 9:45 a.m. Haenecour P. * Floss C. Ogliore R. Wang A. Yada T.
[Presolar Grains in Micrometeorites: Evidence for the Injection of Supernova Dust into the Solar Nebula](#) [#1080]
 We present new data confirming that both O- and C-rich supernova grains are ~3 times more abundant in micrometeorites than in meteorites.
- 10:00 a.m. Joswiak D. J. * Brownlee D. E. Nguyen A. N. Messenger S.
[Fine-Grained CAIs in Comet Samples: Moderate Refractory Character and Comparison to Small Refractory Inclusions in Chondrites](#) [#1646]
 We describe two new CAIs from comet Wild 2 and two from a giant cluster IDP of probable cometary origin and the second O isotope measurement from a Wild 2 CAI.
- 10:15 a.m. Nguyen A. N. * Keller L. P. Messenger S. Rahman Z.
[Mineralogical Characterization of Fe-Bearing AGB and Supernova Silicate Grains from the Queen Alexandra Range 99177 Meteorite](#) [#2371]
 TEM analyses of one SN and two AGB silicates from QUE 99177 reveal amorphous grains with high Fe contents. One AGB grain has crystalline silicate inclusions.

- 10:30 a.m. Westphal A. J. * Bastien R. Butterworth A. L. Jilly-Rehak C. E. Ogliore R. C. et al.
[*Oxidation State of Fe in Giant Cluster Interplanetary Dust Particles*](#) [#2160]
We measure the oxidation state of Fe in giant cluster IDPs. Comparison with Wild 2 and CP-IDPs points toward a shallow size distribution for cometary metals.
- 10:45 a.m. Flynn G. J. * Wirick S. Butterworth A. L. Gainsforth Z. Westphal A. J. et al.
[*Silicon XANES Assessment of the Silicone Oil Content of GEMS in IDPs*](#) [#1059]
Si-XANES is effective in determining the amount of silicone oil contamination in microtome sections, and the silicone oil content of GEMS is below detection.
- 11:00 a.m. Floss C. * Finkel J. Haas B. Kearsley A. T. Burchell M. et al.
[*Hypervelocity Impact Experiments of Isotopically Enriched Projectile Materials: Understanding Presolar Grain Loss in Stardust Cometary Samples*](#) [#1104]
We carried out hypervelocity impact experiments using isotopically spiked projectiles. Our results indicate multiple mechanisms for presolar grain loss.
- 11:15 a.m. Snead C. J. * McKeegan K. D. Keller L. P. Messenger S.
[*Ion Probe Measurements of Comet Dust and Implications for Models of Oxygen Isotope Heterogeneity in the Solar System*](#) [#2623]
Oxygen isotope measurements for 12 Stardust crater residues and four hydrated interplanetary dust particles are presented, and implications are discussed.
- 11:30 a.m. Nuth J. A. * Johnson N. M. Ferguson F. T. Hilchenbach M. Merouane S. et al.
[*Refractory Organics in Comet 67P/Churyumov-Gerasimenko: Additional Evidence for Large-Scale Mixing in the Primitive Solar Nebula?*](#) [#1259]
COSIMA analyses of carbon-rich grains from Comet 67P are consistent with analogs formed from CO+hydrogen+nitrogen via surface mediated reactions at 775K.