

**Monday, July 24, 2017**  
**INTERPLANETARY DUST PARTICLES AND MICROMETEORITES**  
**9:15 a.m. Sweeney C**

*The session covers the study of minerals and organic matter identified in extraterrestrial dust particles (IDPs and micrometeorites) and Wild 2 samples.*

**Chairs: George Flynn**  
**Queenie Chan**

- 9:15 a.m. Westphal A. J. \* Butterworth A. L. Tomsick J. Gainsforth Z.  
[Origin of GEMS: Comparison of Fe L-Edge Extinction in the ISM with Synchrotron X-Ray Absorption](#) [#6379]  
 We compare Fe L-edge extinction spectra of the ISM, measured by Chandra, with extinction spectra derived from absorption spectra of GEMS measured by STXM. We reject the hypothesis that interstellar silicates consist of GEMS-like objects.
- 9:30 a.m. Bradley J. P. \* Ishii H. A.  
[An Inconvenient Reality: Terrestrial Alteration of Interplanetary Dust Particles \(IDPs\) and Micrometeorites \(MMs\)](#) [#6260]  
 Rapid advances in analytical techniques couple with improved detection limits mandate renewed scrutiny of terrestrial alteration effects in interplanetary dust particles and micrometeorites.
- 9:45 a.m. Joswiak D. J. \* Brownlee D. E. Gainsforth Z.  
[High Temperature Igneous Silicate-Sulfide Assemblages in Comet Samples](#) [#6057]  
 Silicate-sulfide assemblages which may have igneous origins add to a growing list of high temperature materials found in comet samples.
- 10:00 a.m. Suttle M. D. \* Genge M. J.  
[The Diagenesis and Replacement of Cosmic Dust in the Geological Record](#) [#6010]  
 We report the discovery of abundant pseudomorphic fossil cosmic spherules, preserved in 87Ma old Cretaceous chalk. These replaced micrometeorites are composed of hematite or iron silicides and identified on the basis of characteristic textures.
- 10:15 a.m. Soens B. \* Goderis S. Greenwood R. C. McKibbin S. Van Ginneken M. Vanhaecke F. Debaille V. Franchi I. A. Claeys Ph.  
[Major, Trace Element Concentration and Triple-Oxygen Isotope Compositions of G- and I-Type Spherules from the Sør Rondane Mountains, East Antarctica](#) [#6288]  
 We present new major, trace element concentration (LA-ICP-MS) and triple-oxygen isotope (LF-IRMS) data for G- and I-type cosmic spherules. This study suggests that both types of micrometeorites may originate from ordinary chondrite parent bodies.
- 10:30 a.m. Vogt M. Hopp J. Gail H.-P. Ott U. Tieloff M. \*  
[Volatile Acquisition During Terrestrial Accretion: Solar Wind \(SW\)-Implanted Neon in Cosmic Dust](#) [#6216]  
 The “planetary” 20/22-Ne ratio of the atmosphere (9.8) compares to the “solar” mantle value (~12.5–12.7). Accretion of solar wind irradiated dust can supply sufficient Ne-B to Earth’s interior while the late veneer generates the atmospheric ratio.
- 10:45 a.m. Chan Q. H. S. \* Franchi I. A. Wright I. P.  
[Organic Components in Interplanetary Dust Particles and Their Implications for the Synthesis of Cometary Organics](#) [#6157]  
 Organic materials in interplanetary dust particles and meteorites are structurally distinctive.

- 11:00 a.m. Riebe M. E. I. \* Alexander C. M. O'D. Foustoukos D. I. Steele A. Cody G. D. Nittler L. R.  
[Effects of Heating on Insoluble Organic Matter in Small Particles During Atmospheric Entry](#) [#6252]  
Experiments simulating atmospheric entry heating modified insoluble organic matter from Cold Bokkeveld (CM2) to lower H/C ratios and isotopically lighter H and N composition. No major effects were found on Raman band characteristics.
- 11:15 a.m. Flynn G. J. \* Wirick S.  
[Comparison of the Aliphatic C-H Absorptions in Interplanetary Dust and Ceres](#) [#6231]  
IDPs are a viable exogenous source of aliphatic organic matter on Ceres, but the higher ratio of C-H<sub>3</sub> to C-H<sub>2</sub> on Ceres compared to most IDPs requires some modification to IDP organic matter either during accretion onto or residence on Ceres.