

Tuesday, March 17, 2015

[T253]

EXOBIOLGY: PREBIOTIC CHEMISTRY TO EXTREMOPHILE BIOLOGY

1:30 p.m. Waterway Ballroom 5

**Chairs: Michael Callahan
Heath Mills**

- 1:30 p.m. Aponte J. C. * Dworkin J. P. Elsilá J. E.
[High Abundance of Methylamine in the Orgueil \(CII\) Meteorite](#) [#1075]
Molecular, isotopic, and enantiomeric analyses of aliphatic organic amines in the Orgueil meteorite.
- 1:45 p.m. Cooper G. * Rios A. C.
[Meteoritic Sugar Derivatives: Enantiomer Excesses and Laboratory Attempts at Duplication](#) [#2993]
This presentation will include the results of recent analyses of enantiomer ratios of meteoritic compounds as well attempts at laboratory recreation of such excesses.
- 2:00 p.m. Gerasimov M. V. * Zaitsev M. A. Safonova E. N.
[Peculiarities of Organic Matter Formation in Impact-Induced Vapor Plume](#) [#1839]
Heterogeneous catalysis on the surface of condensed particles is the main mechanism of organic compounds synthesis in the impact-induced vapor cloud.
- 2:15 p.m. Callahan M. P. * Cleaves H. J. II
[Complex Nitrogen Heterocycles in Aqueous Cyanide and Formaldehyde Reactions: Implications for Meteoritic and Prebiotic Chemistry](#) [#1444]
We used DART mass spectrometry to measure N-heterocycles in NH₄CN/H₂CO reactions and discuss the significance of the data to meteorites and the Miller Paradox.
- 2:30 p.m. Chevrier V. F. * Singh S. Nna-Mvondo D. Mege D.
[Infrared Properties of Titan Tholins in Liquid Methane and Ethane: Detection of Complex Organics in Titan Lakes](#) [#2936]
Simulation experiments show that tholins might be potentially detected in liquid hydrocarbons via reflectance spectroscopy in the near-infrared region.
- 2:45 p.m. Freissinet C. * Glavin D. P. Buch A. Szopa C. Kashyap S. et al.
[First In Situ Wet Chemistry Experiment on Mars Using the SAM Instrument: MTBSTFA Derivatization on a Martian Mudstone](#) [#2934]
High molecular masses were detected during the first MTBSTFA derivatization experiment with the Sample Analysis at Mars (SAM) instrument onboard Curiosity.
- 3:00 p.m. Buch A. * Belmahdi I. Szopa C. Freissinet C. Glavin D. P. et al.
[Determination of the Possible Sources of Chlorinated Hydrocarbons Detected During Viking and MSL Missions](#) [#2066]
This study investigates several propositions for chlorinated hydrocarbon formation, detected by the SAM experiment.
- 3:15 p.m. Nie N. X. * Dauphas N.
[Iron Isotope Constraints on the Photo-Oxidation Pathway to BIF Formation](#) [#2635]
Using high-precision Fe isotope measurements, we explore the possibility of a completely abiotic mechanism for BIF precipitation.
- 3:30 p.m. Cannon K. M. * Mustard J. F.
[Follow the Glass: Preservation and Colonization Potential of Martian Glass-Bearing Impactites](#) [#1900]
Basaltic glass acts as a biological substrate on Earth, and impact glass can preserve biosignatures. Here we map proximal impact glass deposits on Mars.

- 3:45 p.m. Sinha N. * Kral T. A.
[*Growth of Methanogens on Different Mars Regolith Analogues and Stable Carbon Isotope Fractionation During Methanogenesis*](#) [#1628]
Stable carbon isotope fractionation of methane produced by three different strains of methanogens growing on four different Mars regolith analogues.
- 4:00 p.m. Mills H. J. * Reese B. K.
[*Expanding the Limits of Life into the Ocean Crust: Metabolically Active Microbial Populations Within Mid-Atlantic Ridge Subsurface Basalt*](#) [#2849]
The objective of this study was to provide the first characterization of metabolically active microbial populations within multiple subsurface crustal samples.
- 4:15 p.m. Wright S. P. *
[*Microbial Diversity Analyses of Terrestrial Shocked Basalt and Shocked Basaltic Soil: Implications for Panspermia and Future Exobiology Measurements*](#) [#2758]
Gene sequencing reveal a wealth of bacteria, fungi, and other microbes in Lonar Crater shocked basalt and soil. SNC's, panspermia, and exobiology are discussed.
- 4:30 p.m. Pasini J. L. S. * Price M. C.
[*Panspermia Survival Scenarios for Organisms that Survive Typical Hypervelocity Solar System Impact Events*](#) [#2725]
Panspermia survival scenarios via icy impact delivery for various micro-organisms on solar system bodies and some example exoplanet super-Earths.