

Thursday, March 22, 2018

[R553]

ASTROBIOLOGY II: LIFE DETECTION, ORIGINS OF LIFE, PREBIOTIC CHEMISTRY

1:30 p.m. Waterway Ballroom 5

Chairs: Sarah Johnson
Dante Lauretta

- 1:30 p.m. Johnson S. S. * Graham H. Anslyn E. Conrad P. Cronin L. et al.
[Agnostic Approaches to Life Detection](#) [#2294]
We report on recent progress in searching for evidence of biology without presupposing a particular molecular framework.
- 1:45 p.m. Mendez A. * Schulze-Makuch D. Nery G. Rivera-Valentin E. G. Davila A. et al.
[A General Mass-Energy Habitability Model](#) [#2511]
A mass-energy habitability model was developed to characterize the habitability of any environment. It was validated with Earth and applied to other planets.
- 2:00 p.m. Lauretta D. S. * Balram-Knutson S. S. Bennett C. A. Bos B. J. Drouet d'Aubigny C. et al.
[OSIRIS-REx Encounters Earth: Signatures of a Habitable World](#) [#1240]
The OSIRIS-REx Gravity Assist permitted observations of Earth, allowing a repeat of the famous search for life that the Galileo mission team performed in 1990.
- 2:15 p.m. Lehmer O. R. * Catling D. C. Hoehler T. M. Parenteau M. N.
[The Productivity of Oxygenic Photosynthesis Around Cool Stars](#) [#1578]
Around M dwarf stars like TRAPPIST-1, Earth-like biospheres may be growth limited by photon availability rather than nutrient availability.
- 2:30 p.m. Burton A. S. * Berger E. L. Locke D. R. Lewis E. K.
[Correlated Amino Acid and Mineralogical Analyses of Milligram and Sub-Milligram Samples of Carbonaceous Chondrite Lonewolf Nunataks 94101](#) [#2425]
We present the results of coordinated mineralogical and amino acid analyses of small meteorite samples to identify correlations between mineralogy and organics.
- 2:45 p.m. Elsila J. E. * Dworkin J. P. Glavin D. P. Johnson N. M.
[Indigenous Amino Acids in Iron Meteorites](#) [#1520]
We report the first analyses of amino acids in iron meteorites, with detection of low abundances of compounds in members of IAB, IIIAB, and pallasite groups.
- 3:00 p.m. Rodriguez L. E. House C. H. Callahan M. P. *
[Plausible Prebiotic Reactions in Highly Complex Organic Mixtures Lead to the Synthesis of Peptide Nucleic Acid Monomers](#) [#2791]
Mix one part nitrogen heterocycle and one part "prebiotic soup" and presto — PNA monomers (and a bunch of other stuff)!
- 3:15 p.m. Bell E. A. * Trail D. Harrison T. M. Boehnke P.
[Implications of Hadean Mineralogical Diversity for Origin of Life Studies](#) [#1565]
Models calling for low Hadean mineralogical diversity (which limit origin of life scenarios) aren't supported by Hadean samples when compared to modern analogs.