

Thursday, April 27, 2017

**ORIGIN AND EVOLUTION OF LIFE: PREBIOTIC CHEMISTRY:
ELECTRON TRANSFER REACTIONS OF INTEREST TO ASTROBIOLOGISTS**

11:15 a.m. Mesa Room

**Chairs: Laura Barge
Annette Rowe**

- 11:15 a.m. El-Naggar M. Y. * Pirbadian S. Byun H. S. Xu S. Jangir Y. Gross B. J. Rowe A. R. Karbelkar A. Chong G. Nakano A. Subramanian P. Jensen G. J.
[Hotwired Life: Electron Transport Across the Biotic-Abiotic Interface](#) [#3228]
Here we focus on the physical mechanisms and astrobiological significance of extracellular electron transport as an energetic biosphere-geosphere link.
- 11:30 a.m. Bueter L. M. * Johnson C. M. Chanda P. Beard B. L. Roden E. E. Boyd E. S.
[Reductive Dissolution of Pyrite by Methanogens](#) [#3407]
Several species of methanogen are shown to be capable of the reductive dissolution of pyrite (FeS₂).
- 11:45 a.m. LeBlanc G. * Wirth D. M. Whitehead H. D. Yungbluth J. Ludewick G. Barge L. M. Cameron R.
[Electrochemical and Rapid Prototyping Strategies for more Precise Analysis of Geo-Electrochemical Environments of Interest to Astrobiology](#) [#3168]
Direct electrochemical deposition and detection methods, as well as 3D printing techniques, have been used to analyze systems to mimic hydrothermal vents.
- 12:00 p.m. Barge L. M. * Krause F. C. Jones J.-P. Billings K. Sobron P.
[Geo-Electrodes and Fuel Cells for Simulating Hydrothermal Vent Environments](#) [#3470]
We used fuel cells to understand the catalytic potential of hydrothermal minerals and chimneys, using samples from a black smoker as an initial demonstration.
- 12:15 p.m. *Lunch*