Tuesday, April 25, 2017
ORIGIN AND EVOLUTION OF LIFE: THEORY/FUNDAMENTAL QUESTIONS:
BIOTHERMODYNAMICS: THE RELATIONSHIPS BETWEEN
NON-EQUILIBRIUM SYSTEMS, ENERGY FLOW AND LIFE
11:15 a.m. Arizona Ballroom E-G

Chairs: **Elbert Branscomb**
Stuart Bartlett

11:15 a.m. Sojo V. * Lane N.
From Geological pH Gradients to Active Ion Pumping at Alkaline Hydrothermal Vents **[#3266]**
Differences in the Wood-Ljungdahl pathway between archaea and bacteria pose a challenge to CO_2 reduction at alkaline vents. I will present a possible resolution.

11:30 a.m. Russell M. J. * Beckett P.
Is Helicoidal Green Rust the Missing Link Between Hydrothermal Chemistry and Biochemistry? **[#3192]**
We suggest that screw-dislocated delaminatable green rusts acted as metabolizing information microengines generating peptide much as ribosomes generate protein.

11:45 a.m. Hud N. V. *
A Simple Solution to the Energy Flux Required for the Origin and Early Evolution of Biopolymers **[#3648]**
Hydration-dehydration cycles on the early Earth would have been the perfect source of energy and disequilibrium conditions for driving biopolymer synthesis.

12:00 p.m. Hart C. E. * Gorman-Lewis D.
Energetics of Acidianus Ambivalens During Aerobic Growth on Sulfur and Varying Nutrient Availability **[#3374]**
Thermodynamics of growth was determined for A. ambivalens during aerobic growth on sulfur to investigate energetic needs under varying nutrient availability.

12:15 p.m. *Lunch*