

Tuesday, July 18, 2017

THE FORMATION AND EVOLUTION OF ORGANICS ON THE EARLY EARTH

2:00 p.m. Price Center Theatre

Chair: Kensei Kobayashi

- 2:00 p.m. Vaida V. * Rapf R. J. Perkins R. J.
[*Harnessing Energy from Stellar Radiation to Build Chemical Complexity for Life*](#) [#4116]
 This presentation discusses results of our laboratory experiments modeling the use of sunlight to generate abiotically the chemical complexity needed for the synthesis of biopolymers necessary for life, using the chemistry of pyruvic acid.
- 2:20 p.m. Burton A. S. * Berger E. L.
[*Chiral Selectivity as a Bridge to Homochirality*](#) [#4119]
 We investigate the transition from racemic, abiotic chemistry to homochiral polymers used in proteins; exploring the polymerization behavior of chiral amino acids to determine if they show a preference for homochiral or heterochiral polymerization.
- 2:40 p.m. Saitta A. M. * Pietrucci F.
[*From Quantum Computational Physics to the Origins of Life*](#) [#4046]
 Quantum atomistic computational methods have yet to make a breakthrough in prebiotic chemistry. Here I present, via our new topological approach to chemical networks, ab initio studies from Miller experiment to RNA nucleotide synthesis in solution.
- 3:00 p.m. Forsythe J. G. Weber A. L. *
[*Prebiotic Peptide \(Amide\) Bond Synthesis Accelerated by Glycerol and Bicarbonate Under Neutral to Alkaline Dry-Down Conditions*](#) [#4064]
 We report a new process for robust peptide bond synthesis in the pH 6–10 range that involves dry-down heating of amino acids in the presence of glycerol and bicarbonate (substrates: L-alanine, L-2-aminobutyric acid, β -alanine, isoserine).

FLASH TALKS HIGHLIGHTING POSTERS

- 3:20 p.m. Bada J. L. * Chalmers J. Burton A. Scheu B. Cimorelli C. Dinwell D. B.
[*Laboratory Simulated Volcanic Lightning and Prebiotic Synthesis*](#) [#4102]
- 3:25 p.m. Schreiber U. * Mayer C. Bronja A. Schmitz O. J.
[*Archean Fluid Inclusion of Hydrothermal Quartz Minerals — Archives of Prebiotic Chemistry on Early Earth?*](#) [#4018]
- 3:30 p.m. Kolb V. M. *
[*Prebiotic Organic Reactions in Water*](#) [#4025]
- 3:32 p.m. Gavette J. V. * Krishnamurthy R. Springsteen G.
[*Exploring the Role and Reaction Constraints of Malonate Within the Context of the “Glyoxylate Scenario”*](#) [#4167]
- 3:34 p.m. Jaipaul R. Tewari B. B. *
[*Interaction of Alanine and Aspartic Acid with Aluminum, Iron and Zinc Oxides and its Relevance in Chemical Evolution*](#) [#4033]

- 3:36 p.m. Kim H. J. *
[*Stereoselective Prebiotic Nucleotide Synthesis for Threose Nucleic Acid*](#) [#4184]
- 3:38 p.m. Takahashi J.
[*Biological Homochirality and Symmetry Breaking of the Universe*](#) [#4156]
- 3:40 p.m. *Coffee Break*