

*Posters will be on Display for the Entire Week.
Presenters are Requested to be Present at Their Poster the Last Half-Hour Break of the Evening.*

**POSTER SESSION: THE ROLE OF MINERALS
IN THE FATE OF ORGANIC MATTER AND CHEMICAL EVOLUTION
Price Center Ballroom East**

Lambert J. F. Sakhno Y. Battistella A. Ribetto B. Mezzetti A. Georgelin T. Jaber M. Michot L.
[*Could Mineral Surfaces have Oriented Amino Acid Polymerization Towards Useful Products?*](#) [#4152]
We investigated selective amino acid polymerization on the surface of silicic minerals. Specific amino acid couples were deposited on silica or clays, thermally activated, and the oligomers formed were analyzed. Very different behaviors were observed.

Cameron R. D. Hermis N. Chin K. LeBlanc G. Barge L. M.
[*Electrochemistry of Early Earth Hydrothermal Chimneys and Simulations of Possible Prebiotic Metabolic Pathways*](#) [#4176]
We present the results of artificial seafloor hydrothermal chimney experiments, using using electrodes placed across the chimney wall to analyze the surface charge potential at the interface of the chimney/ocean/hydrothermal fluid.

Flores E. VanderVelde D. Russell M. J. Baum M. M. Barge L. M.
[*Redox and pH Gradients Drive Amino Acid Synthesis at Hydrothermal Vents*](#) [#4178]
We conducted experiments to test if amino acids could be synthesized in the presence of the redox-sensitive iron oxyhydroxides in simulated hydrothermal vent gradient conditions.

Barge L. M. Flores E. Abedian Y. Maltais T. Cameron R. Hermis N. Chin K.
Russell M. J. Baum M. M.
[*Effects of pH and Redox Gradients on Prebiotic Organic Synthesis and the Generation of Free Energy in Simulated Hydrothermal Systems*](#) [#4179]
Hydrothermal minerals in alkaline vents can promote phosphorus and organic concentration, redox reactions driven by catalytic metal sulfides, and the ambient pH and redox gradients can affect the synthesis of organics.

Abedian Y. Maltais T. VanderVelde D. Flores E. Barge L. M.
[*Phosphorous and Amino Acid Adsorption in Early Earth Seafloor Minerals*](#) [#4177]
In this work, we simulated early Earth iron hydroxide seafloor precipitates and measured their ability to absorb phosphate and phosphite; we also tested how P adsorption was affected by the presence of amino acids (alanine or aspartate).

Villafañe S. Baú J. Zaia D. Colín M. Negrón A. Heredia A.
[*Salinity Effect on Adsorption of Nucleic Acids Compounds onto Montmorillonite: A Prebiotic Chemistry Experiment*](#) [#4039]
Absorption of nucleic acids compounds in clay was studied using a primitive ocean analog. Results showed that the absorption process could be affected by high concentration of salts that are involved in the competition for available sites of mineral.

Afrin R. Ganbaatar N. Aono M. Yano T. Hara M.
[*Amino Acids Adsorption to Mineral Surfaces: Basis for Prebiotic Molecule Accumulation Studied at Nanoscale*](#) [#4070]
The single molecule force spectroscopy technique based on AFM was used to verify the binding interaction of several amino acids to pyrite surface. Results indicated the ionic nature of adsorption/desorption reaction on the pyrite substrate.

Hammer A. C. Corbit B. C. Doloboff I. J. Barge L. M.

[Structural and Compositional Diversity in Iron-Based Hydrothermal Chimney Simulants Grown with Functionalized Organics](#) [#4208]

Alkaline hydrothermal chimneys are a potential environment for origin of life. We show that iron-based chimney simulants show structural and compositional gradients indicative of their growth environments and that they are altered by organic dopants.

Cruz-Castañeda J. Negrón-Mendoza A. Ramos-Bernal S. Colín-García M.

Heredia A. Fuentes-Carreón C.

[Stability of the D-Ribose-Na+Montmorillonite and DL-Glyceraldehyde-Na+Montmorillonite Systems in Aqueous Suspension Under Gamma Radiation Fields at pH 7 and 92°C: Implications in Chemical Evolution](#) [#4007]

The objective of this project is focused on studying the stability of aldoses-clay suspensions, under gamma irradiation. To this end, we study the radiolysis of these systems by varying the irradiation dose and the ratio aldose-clay at pH 7 and 92°C.

Meléndez-López A. L. Negrón-Mendoza A. Ramos-Bernal S. Colín-García M. Heredia A.

[Effects of Gamma Irradiation in Nucleic Acids Bases Co-Adsorbed in a Na-Montmorillonite and Fe-Montmorillonite: Relevance in Chemical Evolution](#) [#4008]

Our aim is to study the role of clays in chemical evolution as protector agent under γ radiation. We study the co-adsorption of adenine and thymine-clay systems at different irradiation doses, pH to evaluate the adsorption and degree of decomposition.

Biondi E. Furukawa Y. Howell L. Benner S. A.

[Adsorption of RNA on Mineral Surfaces and Mineral Precipitates](#) [#4188]

We show trends in the interaction of RNA with natural minerals, synthetic mineral specimens, and co-precipitated pairs of synthetic minerals, overcoming the issues related to the study of the interactions between RNA and different mineral sources.