EXOBIOLOGY: SEARCHING FOR (SIGNS OF) LIFE HIGH AND LOW, NEAR AND FAR
1:30 p.m. Waterway Ballroom 1

Chairs: Nina Lanza
        Steven Ruff

1:30 p.m. Ohno S.* Ishibashi K. Miyake N. Kawaguchi Y. Kakehashi Y. et al.
The Biopause Project: Balloon Experiments for Sampling Stratospheric Bioaerosol [#1890]
We show the first results of the Biopause project, balloon experiments for the sampling of stratospheric bioaerosol including unculturable ones.

1:45 p.m. Grimm R. E.* Marchi S.
Hadean Bombardment Did Not Limit Early Subsurface Habitability [#1268]
Impact heat is dissipated rapidly and melt-sheet cooling times are fast compared to the waning bombardment. Most days in the Hadean, it’s good to be alive.

2:00 p.m. Phillips-Lander C. M.* Miller K. M. Haustrath E. M. Stockton A. M. McCollum N. et al.
Light, Temperature, and Nutrient Availability Influence Microbial Colonization of Lava Caves [#1667]
Microbial colonization in spatially co-located lava caves at Craters of the Moon National Monument is influenced by light, temperature, and phosphate limitation.

2:15 p.m. Bleacher J. E.* Shiro B. R. McAdam A. C. Young K. E. Johnson S. S. et al.
Studies of Young Hawaiian Lava Tubes: Linking Geophysics, Geochemistry, Mineralogy, and Habitability in Basalt Subsurface Environments on Mars [#2634]
We report on a study to link geophysics measurements from the surface with measurements of a lava tube’s geochemistry, mineralogy, and environmental habitability.

2:30 p.m. Morisson M.* Buch A. Szopa C. Raulin F. Stambouli M.
TMAH Thermochemolysis of a Martian Regolith Simulant: Optimization of an Analytical Method for the Detection of Trace Organic Matter by the MOMA-Pyr-GC-MS Experiment Onboard the ExoMars-2020 Rover [#1079]
We optimized an analytical method for the detection of trace organic matter by the MOMA-Pyr-GC-MS experiment onboard the ExoMars-2020 rover.

2:45 p.m. Lanza N. L.* Clegg S. M. Cousin A. Forni O. Kirk M. F. et al.
Identifying Potential Chemical Biosignatures in Manganese Minerals with Laser-Induced Breakdown Spectroscopy [#2913]
Maybe LIBS can say / If manganese chemistry / Shows sneaky microbes.

3:00 p.m. Pontefract A.* Hachey J. Mojarro A. Walker V. K. Roweder H. et al.
Understanding Habitability and Biosignature Preservation in a Hypersaline Mars Analog Environment: Lessons from Spotted Lake [#1124]
A study of the microbial community of Spotted Lake, revealing the organisms and metabolic processes that could leave behind a robust biosignature.

3:15 p.m. Craig P. I.* Mickol R. L. Archer P. D. Kral T. A.
Nontronite and Montmorillonite as Nutrient Sources for Life on Mars [#1997]
Methanogens can grow on Mars-relevant clay minerals without supplemental media, suggesting Noachian Mars could potentially have supported microbial life.
3:30 p.m. Silver M. * Mora S. Ivey M. Chevrier V.  
*An Experimental Assessment on the Effects of Variations in Sulfate Concentrations on Sulfate Reducing Bacteria in Simulated Martian Conditions [#1047]*
An experimental assessment of the survival capabilities of sulfate reducing bacteria in simulated martian conditions.

3:45 p.m. Tarnas J. D. Mustard J. F. Sherwood Lollar B. Bramble M. S.  
*Radiolytic Hydrogen Production on Noachian Mars [#2030]*
Radiolysis of pore water generated biologically significant quantities of hydrogen in the martian subsurface during the Noachian.

4:00 p.m. Bouquet A. * Glein C. Wyrick D. Waite J. H.  
*Production of H₂ by Radiolysis of Water in the Cores of Icy Bodies Increases the Habitability of the Outer Solar System [#1429]*
We quantify how radionuclides in icy bodies’ cores can produce molecular hydrogen by radiolysis of liquid water, increasing habitability of the body.

4:15 p.m. Johnson S. S. * Ellington A. D. Anslyn E. V. Graham H. V. Mahaffy P. R.  
*Fingerprinting Non-Terran Life [#2164]*
Without presupposing any particular molecular framework, this new approach could be used to search for agnostic biosignatures, particularly on Ocean Worlds.

4:30 p.m. Neish C. D. Lorenz R. D. Turtle E. P. Barnes J. W. Trainer M. G. et al.  
*Strategies for Detecting the Products of Aqueous Chemistry on Titan [#1457]*
Amino acids / Hiding in Titan’s craters / Let’s go collect them!

4:45 p.m. Teodoro L. F. Davila A. F. McKay C. P. Dartnol L. R. Elphic R. C.  
*Ionizing Radiation in the Subsurfaces of Enceladus and Europa: Implications for the Search for Evidence of Life [#2863]*
We model the radiation environment originated by GCR on the shallow surfaces of icy moons. We will present the dosage accumulated for a series of biomarkers.