Shkolyar S. Eshelman E. Farmer J. Hamilton D. Daly M. Youngbull C.  
*Finding Biosignatures in Mars Analog Samples Using Visible and UV-Gated Raman Spectroscopy, and UV Time-Resolved Fluorescence Spectroscopy* [3004]

We explore UV-gated Raman and UV time-resolved fluorescence data sets, like those obtainable on Mars 2020, to detect biosignatures in realistic Mars analogs.

Cimpoiasu V. M. Popa R. Radulescu F. Nealon K. H.  
*Solitary Probe for Electrochemical Analysis and Reporting (SPEAR), a Multiplex Instrument for Electrochemical Analysis of Habitable Environments* [3103]

We have developed an instrument called SPEAR and software that can analyze chemical gradients in penetrable environments without using manipulators.

Hara E. K. Bhartia R. Abbey W. J. Carrier B. L. Wanger G. Beegle L. W.  
*Analogue Sample Development for Simulation of Mars Paleolake Environments: Assessing Spectral Effects* [3569]

Discussing methods for Mars paleolake analogue sample creation with an emphasis on promoting organic adsorption onto mineral surfaces.

*Accessing Refractory Martian Organics Using the Mars Organic Molecule Analyzer’s Laser Desorption Mass Spectrometry Experiment* [3577]

The 2020 ExoMars rover LDMS mode will expand the capabilities for astrobiological investigations into the detection of extant or extinct life on Mars.

*Validating Accuracy of Rover-Based Sample Selection Approaches with a Field Validation Team: Returned Sample Analysis and Relevance to Mars 2020* [3647]

Results of laboratory analysis of samples selected by the Field Validation Team associated with 2016 CanMars rover-based analogue mission.

Kendall S. L. Storrie-Lombardi M. C. Cady S. L.  
*Stromatolite Texture Analysis: Hot Spring Spicular Geyserite* [3717]

Texture analysis used in conjunction with other capabilities may determine whether laminated sedimentary deposits are of biogenic origin.

O’Neil L. P. Catling D. C. Elam W. T.  
*Extending Anticipated Mars 2020 Rover Capabilities Through Modeling of X-Ray Scattering Ratios* [3229]

Modeling of X-ray scattering will reveal more information on lighter elements in spectra collected by an X-ray fluorescence instrument on Mars.

Wilhelm M. B. Sansano A. Sanz-Arranz J. A. Sobron P. Rull F. Davila A. F.  
*Critical Assessment of Biosignature Detection with Raman Spectroscopy on Biologically Lean Soils* [3424]

The ExoMars RLS Simulator instrument detected only C-C bonds in biologically-lean soils; no specific biomarkers were observed.