

Thursday, March 22, 2018

[R621]

POSTER SESSION II: INSTRUMENT AND PAYLOAD CONCEPTS II: SPECTROSCOPY
6:00 p.m. Town Center Exhibit Area

Coupland D. D. S. Stonehill L. C. Dallmann N. A. Feldman W. C.
 Mesick K. E. et al. **POSTER LOCATION #338**

[*Elpasolite Planetary Ice and Composition Spectrometer \(EPICS\): A Low-Resource Combined Gamma-Ray and Neutron Spectrometer for Planetary Science*](#) [#2684]

EPICS is a low-resource gamma-ray and neutron spectrometer for planetary science missions, enabled by new scintillator and photodetector technologies.

Heffern L. E. Hardgrove C. Johnson E. Parsons A. Prettyman T. et al. **POSTER LOCATION #339**

[*Active Nuclear Investigations of Planetary Surfaces with SINGR \(Single-Scintillator Neutron and Gamma Ray Spectrometer\)*](#) [#2249]

The Single-scintillator Neutron and Gamma Ray spectrometer (SINGR) can be used with a PNG to determine H content and elemental composition of planetary surfaces.

Heuer S. V. Peplowski P. N. Lawrence D. J. Lorenz R. D. **POSTER LOCATION #340**

[*A Novel Technique to Determine Atmospheric Column Density Using a Gamma-Ray and Neutron Spectrometer During Atmospheric Entry*](#) [#2290]

Energetic particle simulations of cosmic rays on planetary atmospheres are used to evaluate atmospheric column-density measurements for planetary entry probes.

Peplowski P. N. Lawrence D. J. Beck A. W. Burks M.

Chabot N. L. et al.

POSTER LOCATION #341

[*Nuclear Spectroscopy of Asteroid 16 Psyche*](#) [#2114]

We discuss a unique nuclear phenomenon expected on the surfaces of metal asteroids, and the implications for the Psyche Gamma-Ray and Neutron Spectrometer.

Peplowski P. N.

POSTER LOCATION #342

[*Modeling Planetary Gamma-Ray and Neutron Emissions with Geant4*](#) [#2663]

GNEPS is a new toolkit to simulate gamma-ray and neutron emissions from planetary surfaces. The software facilitates analysis of nuclear spectroscopy data.

Johnstone S. Montano S. Feldman W. C. Stonehill L.

POSTER LOCATION #343

[*Refining the Search for Water on Mars Using Balloon-Borne Gamma Ray Neutron Spectrometer*](#) [#2523]

The use of a balloon-borne gamma ray neutron spectrometer flying over the martian surface at an altitude of 2–4 km would provide km scale water ice abundance.

Burks M. T. Drury O. B. Goldsten J. O. Lawrence D. J.

Peplowski P. N. et al.

POSTER LOCATION #344

[*Emerging Role of High-Purity Germanium Detectors for Planetary Science*](#) [#1802]

Germanium-based gamma-ray detectors are emerging as a powerful tool for planetary science. This poster discusses one past and three new missions.

Avicé G. Belousov A. Madzunkov S. Farley K. A. Simcic J. et al.

POSTER LOCATION #345

[*A New Quadrupole Ion Trap Mass Spectrometer for Measuring Noble Gases in Planetary Atmospheres*](#) [#1158]

Precise measurements of Kr and Xe in the Venus atmosphere with a Quadrupole Ion Trap Mass Spectrometer.

Atkinson A. Abedin M. N. Misra A. K. Elsayed-Ali H.

POSTER LOCATION #346

[*Planetary Surface Characterization Using a 633nm Laser to Reduce the Background Radiation in Raman Signal*](#) [#1431]

High intensity, short wavelength, incident lasers are causing sample fluorescence relative to near infrared wavelengths.

King J. L. Watts J. C. Dyar M. D. Bleacher J. McAdam A. et al. **POSTER LOCATION #347**
[Preliminary Comparison of Handheld XRF Spectrometers for Geological Univariate Calibrations](#) [#1172]
 Measurements of peak area and intensity are used to compare two handheld XRF units to determine the best calibration for major and trace elements.

King J. L. Watts J. C. Dyar M. D. Bleacher J. McAdam A. et al. **POSTER LOCATION #348**
[Comparison of Univariate and Multivariate Calibration Methods for Geological Trace Elements with Handheld XRF](#) [#1176]
 Univariate and multivariate analysis methods were used to create calibration curves for trace elements measured with two handheld XRF instruments.

Watts J. C. King J. L. Dyar M. D. Ytsma C. Bleacher J. et al. **POSTER LOCATION #349**
[Filter Selection for Analysis of Geological Samples with Handheld Bruker Tracer XRF](#) [#1169]
 Optimal measurement settings for a handheld XRF instrument were determined by analyzing major and minor element compositions of geological reference materials.

Cho Y. Cohen B. A. **POSTER LOCATION #350**
[In Situ Dating Experiments of Igneous Rocks Using the Potassium-Argon Laser Experiment \(KARLE\) Instrument: A Case Study for ~380 Ma Basaltic Rocks](#) [#1129]
 K-Ar dating experiments were conducted for two basaltic rocks. Accuracy of <25 Ma and precision of 50 Ma were achieved.

Núñez J. I. Klima R. L. Murchie S. L. Warriner H. E. Boldt J. D. et al. **POSTER LOCATION #351**
[The Advanced Multispectral Infrared Microimager \(AMIM\) for the In Situ Exploration of Planetary Surfaces](#) [#2780]
 AMIM provides spatially-correlated mineralogy and microtexture of rocks and soils at the microscale for future *in situ* exploration of planetary surfaces.

Own C. S. Thomas-Keprta K. T. Cushing J. DeRego T. Own L. S. et al. **POSTER LOCATION #352**
[Portable Electron Microscopy for Space: To ISS and Beyond](#) [#2756]
 Mochii S is a novel portable SEM with X-ray spectroscopy (EDS) we are preparing for ISS flight, enabling new terrestrial, on-vehicle, and robotic space science.

Edmunson J. Gaskin J. A. Jerman G. A. Salvatore M. Gallegos Z. E. **POSTER LOCATION #353**
[The Science Case for a Scanning Electron Microscope on Mars](#) [#2488]
 Approaching outstanding science questions about Mars with an *in situ* scanning electron microscope.

Mullen T. Parente M. Dyar M. D. **POSTER LOCATION #354**
[Domain Adversarial Neural Networks Applied to Laser-Induced Breakdown Spectroscopy](#) [#1182]
 Using LIBS spectra from two datasets (one labeled and one partially unlabeled), we trained a neural network to predict elemental abundances from both datasets.

Rammelkamp K. Vogt D. S. Schröder S. Hübers H.-W. **POSTER LOCATION #355**
[Towards LIBS Chlorine Quantification Using the CaCl Molecular Emission in Martian Atmospheric Conditions](#) [#1947]
 A multivariate approach that includes molecular emission from CaCl in LIBS is investigated for the quantification of chlorine in martian atmospheric conditions.

Torre-Fdez I. Ruiz-Galende P. Madariaga J. M. Aramendia J. Gómez-Nubla L. et al. **POSTER LOCATION #356**
[The Relevance of the Creation of a Raman and NIR Spectroscopic Database for the Upcoming Mars Missions](#) [#2943]
 A Raman and NIR spectral database of minerals has been created to assist the interpretation of the spectroscopic information collected by future rovers in Mars.

Lim L. F. Southard A. E. Hess L. A. Kotecki C. A. Getty S. A. et al. **POSTER LOCATION #357**
[Carbon Nanotube Field Emitter Design for In Situ EPMA](#) [#1717]

The mini-EPMA instrument's electron source is a novel addressable array of carbon nanotube field emitters.

Maturilli A. Helbert J. **POSTER LOCATION #358**
[The Planetary Spectroscopy Laboratory \(PSL\): Spectroscopy from UV to FIR for Sample Temperatures from 70 to 1000 Kelvin](#) [#1345]

PSL provides reflection, transmission, and emission spectroscopy of planetary analogues from UV to the FIR and for sample temperatures from 70 to 1000 Kelvin.

Kitazato K. Nasu S. Iwata T. Abe M. Ohtake M. et al. **POSTER LOCATION #359**
[Near-Infrared Spectroscopy of Mars and Jupiter from the NIRS3 Instrument on Hayabusa2](#) [#2438]

We present results from analysis of near-infrared observational data of Mars and Jupiter obtained by the NIRS3 instrument onboard the Hayabusa2 spacecraft.