Monday, June 16, 2014
POSTER SESSION I
4:00 p.m. Gargoyle Hall

LRS Applications in the Field of Planetary Sciences and Space Exploration

Kuebler K. E.
Spectroscopic Comparison of Lafayette and MIL 03346 Vein-Filling Materials **[#5004]**
I characterize the phyllosilicate alteration in Lafayette using correlated Raman and EMP traverses, like those [1, 2] performed on ALHA 77005 and MIL 03346. Interpretations reflect the status of the WU database developed with the MMRS [4–6].

Wang A. Sobron P. S. Zheng M. P. Kong F. J. Ma N. Zhao Y. Y. S.
Laser Raman Spectroscopic Study of Subsurface Salts from Dalangtan on Tibet Plateau — A Mars Analog Site Study **[#5007]**
We have identified Mg-sulfates and KMg-chlorides with very high degrees of hydrations within shallow subsurface in a hyper-arid region on Earth, which supports a hypothesis of a large mineralogical water reservoir in the subsurface on Mars.

Connor K. L. Wang A.
Laser Raman Spectroscopic Study of the Dehydration and Rehydration Processes of Ferrous Sulfates **[#5008]**
Laser Raman spectroscopic study of the dehydration and rehydration processes of ferrous sulfates.

Bathgate E. Maynard-Casely H. Caprarelli G. Xiao L. Stuart B. Smith K.
Raman and XRD Study of Icelandic Tephra: Characterisation of Alteration Minerals and Implications for Mars **[#5039]**
Icelandic tephra has been analysed using Raman and XRD to identify the minerals present. This data will improve understanding of the post-magmatic history of Iceland and develop methodologies for the analysis of remotely collected Raman data.

Košek F. Culka A. Jehlička J.
Using Handheld Raman Spectrometers for Discrimination of Secondary Sulfate Minerals at Outcrops: Potential and Limitations **[#5045]**
In this research we used two lightweight handheld Raman instruments (532 nm and 785 nm) to evaluate the possibility of *in-situ* identification of sulfates in complicated conditions (outdoor, poorly crystallized mineral phases).

Lopez-Reyes G. Peña Nogales O. Perez Oliveros A. Sanz A. Rull F.
Automated and Self-Regulated Raman Spectra Acquisition for Space Exploration: Exomars RLS Instrument **[#5047]**
RLS instrument, part of Exomars' payload, will automatically acquire Raman spectra from martian samples in-situ. In this work we present a set of algorithms that provide a self-regulated and unsupervised method for the acquisition of Raman spectra.

Goryainov, S. V. Moroz T. N. Pokhilenko N. P. Podgornykh N. M.
Raman Characterization of Crystalline and Amorphous Matter in Meteorite "Chelyabinsk" (South Urals, Russia) **[#5075]**
The major, minor and trace minerals in the fragments of meteorite "Chelyabinsk" which have subjected extreme thermodynamic influences have been identified by means of micro-Raman spectroscopy.

Sansano A. Navarro R. J. Medina J. Manrique-Martinez J. A. Lopez-Reyes G. Rull F.
Raman Study of Arctic Volcanic Mars Analogs. In-Situ and Laboratory Analysis **[#5096]**
In this study, the results of the Raman analysis of volcanic sites performed during the Arctic Analog expedition AMASE 2013 are presented. Preliminary results will be expanded in the conference.

LRS Applications in the Field of General Mineralogy, Petrology, and Gemology

Moroz T. N. Palchik N. A. Grigorieva T. N. Goryainov S. V. Encheva S.
Manganese Minerals from the Pozharite Locality, Central Rhodopes, Bulgaria: Raman and Infrared Spectroscopy and X-Ray Diffraction Data **[#5074]**
Complex of analytical methods show crystal-chemical peculiarities of studied rhodonite, allow identify of Mn silicates, carbonate, different manganese oxides, including 9.6 Å mineral todorokite.

Kuehn J. W.
Raman and Photoluminescence Spectroscopy in Mineral Identification **[#5028]**
Raman spectroscopy is particularly useful for rapid identification of minerals and gemstones. Raman spectrometers also allow PL studies for authentication of samples and geological provenance, diamond type screening and detection of HPHT treatments.

Brady J. B. Dyar M. D. McGowan E. Bartholomew P.
Building Analytical Competence for Geoscience Students Through use of Raman Spectroscopy **[#5037]**
We report initial results of a collaborative effort among faculty at Smith College, Mt. Holyoke College, and Holyoke Community College to develop instructional modules that use Raman spectrometers in geoscience courses and student research.

Aliatis I. Lambruschi E. Mantovani L. Bersani D. Ando S. Gatta G. D. Gentile P. Salvioli-Mariani E. Prencipe M. Tribaudino M. Lottici P. P.
The Raman Spectrum of Triclinic Albite: A Comparison Between Ab Initio Calculated and Measured Frequencies **[#5058]**
The Raman spectrum of triclinic low-albite is presented, where all 39 Ag modes are identified. A good agreement is found with ab initio calculations using the CRYSTAL14 program at the hybrid HF/DFT level, using WC1LYP Hamiltonian.

Stangarone C. Prencipe M. Mantovani L. Bersani D. Tribaudino M. Lottici P. P.
Ab Initio Calculated and Experimentally Measured Raman Spectra of Spodumene ($LiAlSi_2O_6$) **[#5061]**
Polarization Raman measurements on spodumene enabled the identification of all 30 active modes (14 Ag and 16 Bg). Ab initio CRYSTAL14 calculations (WC1LYP hamiltonian) give very good agreement for frequencies ($|\Delta| < 4.8$ cm^{-1}) and intensities.

Lambruschi E. Aliatis I. Bersani D. Mantovani L. Tribaudino M. Lottici P. P. Redhammer G.
Raman Spectra of $CaMgGe_2O_6$ and $CaCoGe_2O_6$ **[#5059]**
The Raman spectra of pyroxene germanates $CaMgGe_2O_6$ and $CaCoGe_2O_6$ are reported for the first time and compared with the corresponding silicates $CaMgSi_2O_6$ and $CaCoSi_2O_6$. The differences in the vibrational features are discussed.

Bersani D. Andò S. Scrocco L. Gentile P. Salvioli-Mariani E. Lottici P. P.
Study of the Composition of Amphiboles in the Tremolite — Ferro-Actinolite Series by Micro-Raman and SEM-EDXS **[#5063]**
In this work two different methods to identify the composition of amphiboles in the tremolite — ferro-actinolite series are proposed. They are based on the position of the main Ag Raman band and on the ratio of the OH stretching bands.

Wu Z. C. Ni Y. H. Ling Z. C. Wu H.
The Micro Raman Spectroscopy for Analysis of the Gypsum Dehydration by Simulated Space Weathering **[#5051]**
Herein, a simulated space weathering of hydrated sulfates (gypsum, $CaSO_4.2H_20$) by CO_2 low temperature plasma was reported. Gypsum dehydration is a significant process of weathering analyzed by micro-laser Raman spectroscopy.

LRS Applications in the Field of Cultural Heritage and Archaeology

González-Vidal J. J. Pérez-Pueyo R. Soneira M. J. Ruiz-Moreno S.
Mathematical Morphology and P-Splines Fitting: A Robust Combination for the Fully Automated Fluorescence Background Removal and Shot Noise Filtering in Raman Spectroscopy Applied to Pigments Analysis **[#5019]**
A new method has been developed for denoising a Raman spectrum using mathematical morphology combined with P-splines fitting, which requires no user input. It was applied to spectra measured on art works, resolving successfully the Raman information.

Custo G. Aldazabal V. Silveira M. Moens L. Vázquez C. Vandenabeele P.
Micro-Raman Analysis of Pigments from Hunter-Gatherers Archaeological Sites of North Patagonia (Argentina) **[#5021]**
Raman analysis of archaeological samples of prehistoric rock art, raw pigment materials and ceramics.

Custo G. Bellellil C. Carballido M. C. Moens L. Vandenabeele P. Vázquez C.
Micro-Raman Spectroscopical Analysis of Archaeological Artifacts from Northern Patagonia (Argentina) **[#5022]**
Raman analysis of archaeological artefacts, including shells, pigments, rock art and ceramics.

Coccato A. Jehlicka J. Moens L. Vandenabeele P.
Raman Spectroscopy for the Investigation of Carbon Based Black Pigments **[#5032]**
Carbon based black pigments play an important role among artists' materials. The disordered structure of these materials is investigated by means of Raman spectroscopy, which helps in the comprehension of their production processes.