

Thursday, June 19, 2014
LRS APPLICATIONS IN THE FIELD OF GEOLOGICAL FLUIDS,
MINERAL PHYSICS, AND GEOPHYSICS
1:30 p.m. Umrath Lounge

Chairs: I-Ming Chou
Jean Dubessy

- 1:30 p.m. Chou I-M. *
[Calibration of Raman Shifts of Cyclohexane for Quantitative Analyses of Methane in Natural and Synthetic Fluid Inclusions](#) [#5010]
 Raman shifts of cyclohexane, calibrated at room temperature based on Ne emission lines, can be used as reference standards for obtaining accurate methane ν_1 peak positions for accurate pressure determination in natural or synthetic fluid inclusions.
- 1:45 p.m. Shang L. B. * Chou I-M. Burruss R. C. Hu R. Z. Bi X. W.
[Raman Spectroscopic Characterization of CH₄ Density Over a Wide Range of Temperature and Pressure](#) [#5015]
 The relationship among the methane ν_1 band position, temperature, and density was obtained by in situ Raman spectroscopic method. A derived equation can be used to calculate the density of pure CH₄ in natural or synthetic CH₄-bearing inclusion.
- 2:00 p.m. Lu W. * Hu Q. Ou W. Chen Y. Huang Y.
[Effect of Temperature, Pressure, and Component on Raman Calibration Factors for Quantitative Measurement of Dissolved Species in Aqueous Fluid](#) [#5076]
 Changes of Raman quantitative parameters with varying temperature, pressure, and component are discussed based on investigating Raman spectra of CO₂, CH₄, and Na₂SO₄ aqueous solutions with different concentrations of solutes.
- 2:15 p.m. Belgodere C. Dubessy J. * Sterpenich J. Pironon J. Vautrin D. Caumon M. C. Robert P. Randi A. Birat J. P.
[Experimental Determination of CO₂ Diffusion Coefficient in Aqueous Solutions Under Pressure via Raman Spectroscopy at Room Temperature: Impact of Salinity \(NaCl\) on Dissolved CO₂ Diffusivity](#) [#5040]
 Diffusion coefficient of dissolved CO₂ at 40 bar pressure and $21 \pm 1^\circ\text{C}$ was calculated using Raman spectroscopy of aqueous solutions, from 0 to 6 molNaCl . Kg⁻¹ H₂O, loaded in a High-Pressure Optical Cell.
- 2:30 p.m. Li J. * Chou I-M.
[An Occurrence of H₂ in Silicate Melt Inclusions in Quartz from Granite of Jiajika Granitic Pegmatite Deposit, China](#) [#5016]
 Laser Raman spectroscopic analyses of silicate melt inclusions in quartz, from granite of Jiajika Li-bearing pegmatite deposit in China, revealed the existence of H₂ in the vapor phase with unknown mechanisms for the formation and retention of H₂.
- 2:45 p.m. Caumon M.-C. * Tarantola A.
[Raman Spectra of Aqueous Fluid Inclusions: Effect of Mineral Birefringence and Metastability on Salinity Measurement](#) [#5062]
 Salinity of aqueous fluid inclusions can be determined using Raman spectroscopy. The effect of birefringence of the host mineral and of metastability of the fluid phase on the OH stretching vibration band of water are evaluated.

- 3:00 p.m. Dubessy J. * Martinez-Uriarte L. Leisen M. Caumon M.-C. Robert P.
[Coupling Raman Spectroscopy and Thermodynamic Modelling for the Estimation of pH in Fluid Inclusions](#) [#5086]
Calibration procedure of carbonate-bicarbonate-carbon dioxide by Raman spectroscopy is presented and discussed with respect to the pH estimation in fluid inclusions using microthermometric data, Raman and LA-ICP-MS analysis and thermodynamic modelling.
- 3:15 p.m. Reimer J. * Wambach J. Vogel F.
[Modulated FT-IR-Raman Spectroscopy of Hydrothermal Salt Solutions](#) [#5044]
We present an abstract on modulated FT-IR-Raman spectroscopy of hydrothermal salt solutions, focusing on the contact-ion pair formation in ternary sulfate mixtures.
- 3:30 p.m. COFFEE BREAK