

## Jeffery C. Seitz

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### Education:

- Ph.D. Geological Sciences (May 1994) Virginia Polytechnic Institute and State University  
Dissertation: *Experimental Determination of the Volumetric Properties for the System CO<sub>2</sub>-CH<sub>4</sub>-N<sub>2</sub> at 100-1000 Bars and 50-300°C*. Dissertation Advisor: Dr. Robert Bodnar.
- A.M. Earth and Planetary Sciences (December 1989) Washington University, St. Louis, MO  
Thesis: *Characterization of Aqueous Gas-Rich Fluid Inclusions by Microthermometry and Laser Raman Spectroscopy: Aspects of Differential Partitioning of Gases by Clathrate Hydrates*. Thesis Advisor: Dr. Jill Pasteris
- A.B. Earth and Planetary Sciences (May 1986) Washington University, St. Louis, MO

### Positions Held:

- 2006-present: Chair, Department of Earth and Environmental Sciences (formerly Geological Sciences).
- 2008-present: Professor of Geology. California State University, East Bay.
- 2003-08: Associate Professor of Geology. California State University, East Bay.
- 2008-present: Faculty Advisor, East Bay Science Project at the California State University, East Bay. California Science Project.
- 2000-08: Director, East Bay Science Project (formerly the BEST Institute) at the California State University, East Bay. California Science Project.
- 1997-2003: Assistant Professor of Geology. California State University, East Bay (formerly California State University, Hayward).
- 1994-97: U.S. Department of Energy Distinguished Postdoctoral Fellowship. Chemical and Analytical Sciences Division, Oak Ridge National Laboratory. *P-V-T studies of aqueous gas mixtures*.
- 1991-94: Dissertation research fellowship, Chemical and Analytical Sciences Division, Oak Ridge National Laboratory.
- 1989-91: Graduate Teaching Assistant, Department of Geosciences, Virginia Polytechnic Institute and State University.
- 1986-89: Graduate Research Assistant, Department of Earth and Planetary Sciences, Washington University.
- 1987: Graduate Teaching Assistant, Department of Earth and Planetary Science, Washington University.

### Awards and Professional Recognition:

- George and Miriam Phillips Outstanding Professor of the Year (California State University East Bay, 2010).
- NASA Ames Research Associate. August 1998- October 2000.
- Stanford University-ASEE Faculty Research Fellowship. (NASA Ames Research Center, 1998 and 1999).

U.S. Department of Energy Distinguished Postdoctoral Research Fellowship (Oak Ridge National Laboratory, 1994, 1995, 1996).

Dissertation Research Fellowship (Oak Ridge National Laboratory, 1991-1993).

Best Invited Paper (Microbeam Analysis Society, 1990).

Tillman Award for Teaching Excellence (Virginia Polytechnic Institute, 1990).

Wheeler Fellowship (Washington University).

Research Internship (Argonne National Laboratory, 1986).

John E. Ohle Award for Outstanding Senior in Geology (Washington University, 1986).

### **Recent Funding History:**

2010

- Principal Investigator, National Science Foundation, Math Science Partnership (\$11.96 million) SF Bay-Integrated Middle School Science Project (IMSS).
- Principal Investigator, California Science Project (\$50,000) CSMP Funding for East Bay Science Project (2009-10).

2009

- Co-Investigator, NASA: K-12 Competitive Grants Opportunity (\$1,400,000) NASA LIFTOFF: NASA Learning Inspires Fundamental Transformation by Opening Future Frontiers for High School Science, Technology, Engineering and Mathematics Education.
- Principal Investigator, California Science Project (\$50,000) NCLB X Funding for the East Bay Science Project.

2007

- Co-Investigator, NASA: Exobiology and Evolutionary Biology Program (\$512,417) Experimental determination of the partial molal heat capacities and volumes of aqueous organic compounds.

2006

- Principal Investigator, California Science Project (\$50,000) NCLB 4 Funding for East Bay Science Project (2007-08).
- Principal Investigator, California Science Project (\$21,530) NCLB Technical Assistance and Support Program for East Bay Science Project (Federal Funds, NCLB iii).
- Principal Investigator, California Science Project (\$28,470) NCLB Technical Assistance and Support Program for East Bay Science Project (State Funds).

2005

- Principal Investigator, California Science Project (\$50,000) CSMP NCLB ii Funding for the BEST Project at CSUEB
- Principal Investigator, California Science Project (\$54,000) CSMP NCLB Funding for the BEST Institute 2004-05 (NCLB i).
- Principal Investigator, California Science Project (\$30,000) Continued funding for BEST Institute.

2004

- Principal Investigator, California Science Project (\$136,500) BEST Institute 2003-04

2003

- Principal Investigator, California Science Project (\$20,342) Continued funding for BEST Institute.
- Principal Investigator, California Science Project (\$158,650) Continued funding for BEST Institute.

2002

- Principal Investigator, California Science Project (\$40,000) Expansion and continuation of BEST Institute.

2001

- Principal Investigator, California Science Project (\$119,983). Expansion and continuation of BEST Institute.

2000

- Principal Investigator, California Science Project (\$88,693). Establishment of BEST Institute, an science teacher development and environmental education institute at CSU Hayward.
- California Science Project (\$7,100). Technology grant to the BEST Institute.

1998

- Subcontract, NASA ALERT grant (\$30,000). Science education grant in cooperative program between NASA and the CSU system.
- Principal Investigator, California State University, Hayward RSCA Grant (\$5,000). Development of Computer-based Instruction in Optical Mineralogy and Petrology.

### **Teaching Experience:**

*Professor, Department of Earth & Environmental Sciences (formerly Geological Sciences), California State University, East Bay (formerly California State University, Hayward)*

- Introduction to Earth Science (GEOL 1001)
- Environmental Geology Laboratory (GEOL 1002)
- How Earth Systems Work (GEOL 1003)
- Physical Geology (GEOL 2101)
- Fundamentals of Physical Geology (GEOL 2100)
- Fundamentals of Meteorology (GEOL 3040)
- Exploring the Solar System (GEOL 3060)
- Optical Mineralogy (GEOL 3611)
- Mineralogy and Optical Crystallography (GEOL 3601)
- Mineralogy (GEOL 3610)
- Igneous and Metamorphic Petrology (GEOL 3701)
- Issues in Geology – Planetary Science (GEOL 3999)
- Survey of Geochemistry (GEOL 4130)
- Introduction to Planetary Science (GEOL 4200)
- Senior Seminar: Astrobiology (GEOL 4800)
- Geological Field Studies in Hawaii (GEOL 4850)
- Advanced Topics in Geology: Isotope Geochemistry (GEOL 6620)
- Advanced Topics in Geology: Planetary Geology (GEOL 6620)
- Advanced Topics in Geology with Laboratory: Basalt Petrology (GEOL 6621)
- Graduate Seminar: Fluids in the Earth's Crust (GEOL 6811)
- Graduate Seminar: Planetary Science (GEOL 6811)
- Mathematics in the Sciences (MATH 6045)
- Technology and the Future (SCI 1005)
- Science, Technology and Values (SCI 3335)

*Graduate Teaching Assistant, Department of Geosciences, Virginia Polytechnic Institute and State University*

- Engineering Geology Laboratory
- Physical Geology Laboratory

*Graduate Teaching Assistant, Department of Earth and Planetary Sciences, Washington University*

- Planetary Atmospheres

### **University and Administrative Service:**

- 2010-11: Elected Vice Chair, Academic Senate, California State University, East Bay
- 2010-11: University Layoff Committee, California State University, East Bay
- 2010-11: Research Strategic Planning Task Force, California State University, East Bay
- 2010-12: Elected member, Academic Senate, California State University, East Bay, representing the College of Science
- 2006-present: Department Chair, Department of Earth and Environmental Sciences, California State University, East Bay
- 2008-present: Elected at-large member, Academic Senate, California State University, East Bay
- 2008-09: Elected member, Executive Committee, Academic Senate, California State University, East Bay.
- 2003-04: Elected member, Executive Committee, Academic Senate, California State University, East Bay
- 2002-07, Elected at-large member, Academic Senate, California State University, East Bay
- 2000-2008: Director, East Bay Science Project (formerly the BEST Institute), California Science Project
- 2000-08: Elected member, University Committee on Instruction and Curriculum, California State University, East Bay
- 2000-present: Member, University General Education Subcommittee, California State University, East Bay

### **Research Experience:**

*Professor, Department of Earth & Environmental Sciences, California State University, East Bay*

- Electron microscopy
- Hydrothermal organic geochemistry, high temperature/pressure volumetric properties of fluids

*NASA Ames Research Center*

- Stratospheric ozone depletion
- Evaluation of UV field on vegetation by in situ measurement of plant pigments

*Graduate Student and Postdoctoral Research Associate, Chemical Technology Division, Oak Ridge National Laboratory*

- Design of high temperature, high pressure vibrating tube densimeter system capable of delivering precisely metered gas and aqueous mixtures
- Measurement of volumetric properties of aqueous and gas mixtures at high temperature and pressure by vibrating tube densimetry
- Thermodynamic modeling of high temperature, high pressure fluid mixtures

*Graduate Student, Department of Geosciences, Virginia Polytechnic Institute and State University*

- Fourier transform infrared (FTIR) spectroscopy of fluids and fluid inclusions

- Laser Raman microprobe spectroscopy of fluids
- Microthermometry of fluid inclusions

*Graduate Student, Department of Earth and Planetary Sciences, Washington University*

- Laser Raman microprobe spectroscopy of fluids, fluid inclusions and clathrate hydrates
- Microthermometry of fluid inclusions
- Thermodynamic modeling of clathrate hydrates
- Electron microprobe characterization of petrographic samples
- X-ray diffraction analysis, quantitative measurement of silica content in clay samples

### **Graduate Students:**

Thomas Butler, M.S., 2004  
 Robert Campbell, M.S., 2006  
 Atosa Abedini, M.S., 2009  
 John Stockwell, M.S., current  
 Ashley Hall, M.S., current

### **Graduate Student Committees:**

Lora Teitler, M.S., 2007  
 Gary Kupp, M.S., 2006  
 Cheryl Wells Costello, M.S., 2002  
 Bruce Pauley, M.S., 2000  
 Denise Armstrong, M.S., 2000  
 Richard Brown, M.S., 1997

### **Professional Affiliations:**

Geological Society of America, American Geophysical Union, Geochemical Society, American Chemical Society, National Center for Science Education

### **Refereed Articles:**

- Blencoe J. G., Drummond S. E., Seitz J. C., and Nesbitt B. E. (1996) A vibrating-tube densimeter for fluids at high pressures and temperatures. *International Journal of Thermophysics*, **17**, 179-190.
- Blencoe J. G., Seitz J. C., and Anovitz L. W. (1999) The CO<sub>2</sub>-H<sub>2</sub>O system. II. Calculated thermodynamic mixing properties for 400°C and 1-400 MPa. *Geochimica et Cosmochimica Acta*, **63**, 2393-2408.
- Butler T.W. and Seitz J. C. (2006) Apparent seasonal variations in iron photoreduction in acidic discharge from a former pyrite mine, Oakland, California. *Applied Geochemistry*, **21**, 1109-1122.
- Chou I-M., Pasteris J. D., and Seitz J. C. (1990) High density volatiles in the system C-O-H-N for the calibration of a laser Raman microprobe. *Geochimica et Cosmochimica Acta*, **54**, 535-543.
- Pasteris J. D., Seitz J. C., Morgan G. B., and Wopenka B. (1993) CH<sub>4</sub>-rich inclusions from quartz veins in the valley and ridge province and anthracite fields of Pennsylvania Appalachians -- Discussion. *American Mineralogist*, **78**, 216-219.
- Pasteris J. D., Seitz J. C. and Wopenka B. (1985) Compositional interpretation of synthetic C-O-H fluid inclusions by micro-Raman analysis and microthermometry. In *Microbeam Analysis 1985* (ed., J. T. Armstrong), San Francisco Press, 25-28.

- Pasteris J. D., Seitz J. C., Wopenka B. and Chou I-M. (1990) Recent advances in the analysis and interpretation of C-O-H-N fluids by application of laser Raman microspectroscopy. In *Microbeam Analysis 1990*, San Francisco Press, 228-234. Invited paper.
- Pasteris J. D., Wopenka B., and Seitz J. C. (1988) Practical aspects of quantitative laser Raman microprobe spectroscopy for the study of fluid inclusions. *Geochimica et Cosmochimica Acta*, **52**, 979-988.
- Seitz J. C. and Blencoe J. G. (1996) Volumetric properties for  $\{(1-x)\text{CO}_2 + x\text{CH}_4\}$ ,  $\{(1-x)\text{CO}_2 + x\text{N}_2\}$ , and  $\{(1-x)\text{CH}_4 + x\text{N}_2\}$  at the pressures (19.94, 29.94, 39.94, 59.93, 79.93, and 99.93) MPa and the temperature 673.15 K. *Journal of Chemical Thermodynamics*, **28**, 1207-1213.
- Seitz J. C. and Blencoe J. G. (1999) The  $\text{CO}_2\text{-H}_2\text{O}$  system. I. Experimental determination of volumetric properties at 400°C, 10-100 MPa. *Geochimica et Cosmochimica Acta*, **63**, 1559-1569.
- Seitz J. C., Blencoe J. G., Joyce D. B., and Bodnar R. J. (1992) Excess molar volumes for  $\text{CO}_2\text{-CH}_4\text{-N}_2$  mixtures. 7th International Symposium on Water-Rock Interaction. *Proceedings*, **2**, 1025-1028.
- Seitz J. C., Blencoe J. G., and Bodnar R. J. (1996) Volumetric properties of  $\{(1-x)\text{CO}_2 + x\text{CH}_4\}$ ,  $\{(1-x)\text{CO}_2 + \text{N}_2\}$ , and  $\{(1-x)\text{CH}_4 + \text{N}_2\}$  at the temperatures (323.15, 373.15, 473.15, 573.15) K and pressures (9.84, 19.84, 29.84, 39.84, 59.83, 79.83, 99.83) MPa. *Journal of Chemical Thermodynamics*, **28**, 521-538.
- Seitz J. C., Blencoe J. G., and Bodnar R. J. (1996) Volumetric properties of  $\{x_1\text{CO}_2 + x_2\text{CH}_4 + (1-x_1-x_2)\text{N}_2\}$  at the temperatures (323.15, 373.15, 473.15, 573.15) K and pressures (19.84, 39.84, 59.83, 99.83) MPa. *Journal of Chemical Thermodynamics*, **28**, 539-550.
- Seitz J. C., Blencoe J. G., Joyce D. B. and Bodnar R. J. (1994) Volumetric properties of  $\text{CO}_2\text{-CH}_4\text{-N}_2$  fluids at 200°C and 1000 bars: Comparison of equations of state and experimental data. *Geochimica et Cosmochimica Acta*, **58**, 1065-1071.
- Seitz J. C. and Pasteris J. D. (1990) Theoretical and practical aspects of differential partitioning of gases by clathrate hydrates in fluid inclusions. *Geochimica et Cosmochimica Acta*, **54**, 631-639.
- Seitz J. C., Pasteris J. D., and Chou I-M. (1993) Raman spectroscopic characterization of gas mixtures. I. Quantitative composition and density determination of  $\text{CH}_4$ ,  $\text{N}_2$ , and their mixtures. *American Journal of Science*, **293**, 297-321.
- Seitz J. C., Pasteris J. D., and Chou I-M. (1996) Raman spectroscopic characterization of gas mixtures. II. Quantitative composition and pressure determination of the  $\text{CO}_2\text{-CH}_4$  system. *American Journal of Science*, **296**, 577-600.
- Seitz J. C., Pasteris J. D., and Morgan G. B. (1993) Quantitative analysis of mixed volatile fluids by Raman microprobe spectroscopy: A cautionary note on spectral resolution and peak shape. *Applied Spectroscopy*, **47**, 816-820.
- Seitz J. C., Pasteris J. D., and Wopenka B. (1987) Characterization of  $\text{CO}_2\text{-CH}_4\text{-H}_2\text{O}$  fluid inclusions by microthermometry and laser Raman microprobe spectroscopy: Inferences for clathrate and fluid equilibria. *Geochimica et Cosmochimica Acta*, **51**, 1651-1664.

#### **Published Abstracts and Presentations:**

- Bennett B. F., Schulte M. D., and Seitz J. C. (2010) Determination of the Partial Molal Heat Capacities of Dilute D-glucose at elevated temperatures relevant to low grade hydrothermal Activity. Astrobiology Science Conference, April 26-29, 2010. Extended Abstract.

- Blencoe J. G., Anovitz L. M., and Seitz J. C. (1997) Serious shortcomings of semi-empirical equations of state for high-temperature aqueous C-O-H-N fluids. Abstract. Geological Society of America Annual Meeting, *Abstracts with Programs*, A-210.
- Blencoe J. G., Anovitz L. M., and Seitz J. C. (1997) A Fundamental Flaw in Modified Redlich-Kwong Equations for Supercritical H<sub>2</sub>O-CO<sub>2</sub> Fluids. Abstract. American Geophysical Union 1997 Spring Meeting. *EOS*.
- Blencoe J. G., Anovitz L. M., and Seitz J. C. (1998) A Helmholtz free energy model for supercritical H<sub>2</sub>O-CO<sub>2</sub> mixtures. Abstract. Geological Society of America Annual Meeting. *Abstracts with Program*, A319.
- Blencoe J. G., Anovitz L. M., and Seitz J. C. (1998) A new method for modeling the thermodynamic mixing properties of high-temperature H<sub>2</sub>O-CO<sub>2</sub> fluids. Abstract. American Geophysical Union Spring Meeting, *EOS*.
- Blencoe J. G., Anovitz L. W. Singh, J. and Seitz J. C. (1999) A modified virial equation of state for binary mixed-volatile fluids. Abstract. Geological Society of America Annual Meeting, *Abstracts with Programs*, 354.
- Blencoe J. G., Anovitz L. W., Singh J., and Seitz J. C. (2001) Relative bouyancies of CO<sub>2</sub>-H<sub>2</sub>O mixtures at 300-400°C and pressures up to 100 MPa. Abstract. Geological Society of America Annual Meeting. *Abstracts with Programs*.
- Blencoe J. G., Seitz J. C., and Anovitz L. M. (1997) Excess free energies and activity-composition relations for H<sub>2</sub>O-CO<sub>2</sub> fluids at 400°C and 1-4000 bars. Extended Abstract. International Symposium on Hydrothermal Reactions.
- Blencoe J. G., Seitz J. C., Anovitz L. M., Joyce D. B., and Bodnar R. J. (1996) Thermodynamic mixing properties of C-O-H-N Fluids at High Pressures and Temperatures. Abstract. U. S. Department of Energy, Office of Basic Energy Sciences. Reactivity and Mobility of Geologic Fluids: Constraints from Inorganic Geochemistry, 10.
- Labotka T. C., Anovitz L. M., Blencoe J. G., and Seitz J. C. (1998) The effects of the mixing properties of H<sub>2</sub>O-CO<sub>2</sub> on the flow of metamorphic fluids. Abstract. Geological Society of America Annual Meeting. *Abstracts with Program*, A319.
- Pasteris J. D., Chou I-Ming, and Seitz J. C. (1989) Raman microprobe analysis of high-pressure fluid standards. Abstract. Geological Association of Canada Annual Meeting, Program with Abstracts, **14**, A93-A94.
- Pasteris, J. D., Seitz J. C., Wopenka B., and Chou I-Ming (1990) Recent advances in the analysis and interpretation of C-O-H-N fluids by application of laser Raman microspectroscopy. Abstract. 12<sup>th</sup> International Congress for Electron Microscopy. Proceedings, 276-277.
- Rhett G. W., Seitz J. C., Schulte M. D., and Hall A. S. (2010) Densities of Dilute Adenosine Solutions to 50 MPa and 373.15 K. Goldschmidt Conference, June 13-18. Abstract.
- Seitz J. C. (1999) Development of a web-based atlas of rocks and minerals in thin section. Abstract. American Geophysical Union Fall Meeting. *EOS*, Transactions AGU Volume 80, No. 46, F123.
- Seitz J. C. and Blencoe J. G. (1997) Experimentally determined volumetric properties and solvus relations for H<sub>2</sub>O-CO<sub>2</sub>-N<sub>2</sub> mixtures at 300°C and pressures <1000 bars. Abstract. Geological Society of America Annual Meeting, *Abstracts with Programs*, A-209.
- Seitz J. C. and Blencoe J. G. (1997) Experimental determination of the volumetric properties and solvus relations of H<sub>2</sub>O-CO<sub>2</sub> mixtures at 300-400°C and 75-1000 bars. Extended Abstract. International Symposium on Hydrothermal Reactions.
- Seitz J. C. and Blencoe J. G. (1996) Experimentally determined volumetric properties of CO<sub>2</sub>-H<sub>2</sub>O mixtures at 400°C and pressures up to 1000 bars. Abstract. Geological Society of America Annual Meeting, *Abstracts with Program*.

- Seitz J. C. and Blencoe J. G. (1996) Experimentally determined volumetric properties and solvus relations for H<sub>2</sub>O-CO<sub>2</sub> fluids at 350°C and pressures up to 1000 bars. Abstract. American Geophysical Union 1996 Fall Meeting. *EOS*.
- Seitz J. C., Blencoe J. G. and Bodnar R. J. (1993) Experimentally determined volumetric properties of CO<sub>2</sub>-CH<sub>4</sub> mixtures at 100-1000 bars and 50-300°C. Abstract. Geological Society of America Annual Meeting, *Abstracts with Program*, A212-213.
- Seitz J. C., Blencoe J. G. and Bodnar R. J. (1994) Experimentally determined volumetric properties of CO<sub>2</sub>-CH<sub>4</sub>, CO<sub>2</sub>-N<sub>2</sub>, and CH<sub>4</sub>-N<sub>2</sub> mixtures at 100-1000 bars and 50-300°C. Abstract. American Geophysical Union 1994 Spring Meeting. *EOS*, **75**, 136-137.
- Seitz J. C., Blencoe J. G. and Bodnar R. J. (1994) Experimentally determined volumetric properties of CO<sub>2</sub>-CH<sub>4</sub>-N<sub>2</sub> mixtures at 20-100 MPa and 323-573K. Abstract. Geological Society of America Annual Meeting, *Abstracts with Program*.
- Seitz J. C., Blencoe J. G., Joyce D. B., and Bodnar R. J. (1991) P-V-T-X properties of CO<sub>2</sub>-CH<sub>4</sub> mixtures at 100°C and 400 to 1000 bars by vibrating tube densimetry. Abstract. American Geophysical Union 1991 Fall Meeting. *EOS*.
- Seitz J. C., Blencoe J. G., Joyce D. B., and Bodnar R. J. (1992) Volumetric properties of CO<sub>2</sub>-CH<sub>4</sub>-N<sub>2</sub> fluids. Abstract. Fourth Biennial Pan-American Conference on Research on Fluid Inclusions. *Programs with Abstracts*, 80.
- Seitz J. C. and Bodnar (1990) Structures I and II clathrates in sediments on the seafloor: Implications for water depth and fluid source. Abstract. V. M. Goldschmidt Conference, *Program Abstracts*, 80.
- Seitz J. C. and Bodnar R. J. (1990) Structures I and II clathrates in sediments on the seafloor: Implications for their distribution. Abstract. American Geophysical Union 1990 Fall Meeting, *EOS*, **71**, 1932.
- Seitz J. C. D'Antoni H., and Skiles J. W. (1999) Correlation of TOMS ozone ground-based UV-B measurements for Ushuaia, Argentina. American Geological Union Fall Meeting. *EOS*, Transactions AGU Volume 80, No. 46, FL40.
- Seitz J. C. Pasteris J. D. (1989) Oxide and sulfide mineralization at the base of the Duluth Complex – Skibo Tower, MN. Abstract. State of Minnesota Fifth Annual Current Minerals Activities Forum, *Proceedings*, NRRI-8.
- Seitz J. C. Pasteris J. D. (1989) Theoretical and practical aspects of differential partitioning of gases by clathrate hydrates in fluids inclusions. Abstract. Second Biennial Pan-American Conference Research on Fluids Inclusions. *Program and Abstracts*, 58.
- Seitz J. C. Pasteris J. D. (1995) Raman spectroscopic characterizations of gas mixtures for the quantitative determination of gas composition and pressure. 36<sup>th</sup> ORNL/DEO Conference on analytical chemistry in Energy Technology, *Abstracts of Papers*, 64.
- Seitz J. C. Pasteris J. D., and Chou I-M (1989) Quantitative composition and density determination of CH<sub>4</sub>-N<sub>2</sub> bearing fluid inclusions by Raman micro-spectroscopy. Abstract. Geological Society of American Annual Meeting, *Abstracts with Program*, A385.
- Seitz J. C. Pasteris J. D., and Chou I-M (1990) Raman spectroscopy of CH<sub>4</sub>-N<sub>2</sub> fluids with applications to the quantitative analysis of fluids inclusions. Abstract. Third Pan-American Conference of Fluids Inclusions. *Program and Abstracts*, 80.
- Seitz J. C. Pasteris J. D., and Chou I-M (1994) Raman spectroscopy characterization of CO<sub>2</sub>, CH<sub>4</sub> and their mixtures with applications for the quantitative determination of pressure and composition of fluids inclusions. Abstract. American Geophysical Union 1994 Spring Meeting. *EOS*, **75**, no. 16 suppl., 71.
- Seitz J. C. Pasteris J. D., and Morgan G. B. (1992) Cautionary note on analytical methodology for quantitative analysis of CO<sub>2</sub>-CH<sub>4</sub>-N<sub>2</sub>-H<sub>2</sub> fluids by microsampling Raman spectroscopy.

- Abstract. Fourth Biennial Pan-American Conference on Research on Fluids Inclusions. *Program and Abstracts*, 72.
- Seitz J. C. Pasteris J. D., and Wopenka B. (1987) Determination of CO<sub>2</sub>: CH<sub>4</sub> ratios in CO<sub>2</sub>-CH<sub>4</sub>-H<sub>2</sub>O fluid inclusions by combined application of microthermometry and laser Raman microprobe analysis. Abstract. Meeting of American Current Research of Fluids Inclusions. *Program and Abstracts*.
- Seitz J. C. Pasteris J. D., Wopenka B., Bodnar R. J., and Sterner S. M. (1986) Using laser Raman microprobe (LRM) spectroscopy to bridge the gaps in microthermometric (MT) composition data in the CO<sub>2</sub>-CH<sub>4</sub>-N<sub>2</sub> system. Abstract. Geological Society of America Annual Meeting, *Abstracts with Program*, **18**, 774.
- Singh J., Blencoe J. G., and Seitz J. C. (1998) Experimentally determined excess molar volumes for H<sub>2</sub>O-N<sub>2</sub> fluids at 300°C, 75-1000 bars. Abstract. Geological Society of America Annual Meeting. *Abstracts with Program*, A319.
- Seitz J. C., D'Antoni H., and Skiles J. W. (1999) Correlation of TOMS ozone and ground-based UV-B measurements for Ushuaia, Argentina. American Geophysical Union Fall Meeting. *EOS*, Transactions AGU Volume 80, No. 46, F140.
- Seitz J. C., Schulte M. D., Hall A. S., and Rhett G. W. (2010) Determination of the Volumetric Properties of Dilute D-glucose solutions to 50.0 MPa and 433.15 K. Astrobiology Science Conference, April 26-29, 2010. Extended Abstract.
- Seitz J. C. Schulte M. D., Rhett G. W., and Hall A. S. (2011) Volumetric properties of dilute l-cysteine solutions to 50 MPa and 393.15 K toward a better understanding of the origin of life. American Chemical Society National Meeting, March 27-31, 2011. Abstract.
- Singh J., Blencoe J. G., and Seitz J. C. (1998) Experimentally determined excess molar volumes for H<sub>2</sub>O-N<sub>2</sub> fluids at 300°C, 75-1000 bars. Abstract. Geological Society of America Annual Meeting. *Abstracts with Program*, A319.
- Skiles J. W., D'Antoni H. L., Condon E. P., and Seitz J. C. (1998) Using an ongoing study of terrestrial plant response to ultraviolet radiation in Project ALERT. Abstract. American Geophysical Union Fall Meeting. *EOS*.