

Jonathan W. Peterson

Lavern and Betty DePree VanKley Professor of Geology & Environmental Science
 Department of Geological and Environmental Science
 Hope College
 Holland, Michigan 49423
 (616)-395-7133
 peterson@hope.edu
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EDUCATION	Ph.D.	Geology	1989	University of Chicago
	B.A.	Geology	1984	Hope College

TEACHING FIELDS	Physical Geology, Mineralogy, Petrology, Geochemistry			
	Environmental Science, Hydrogeology, Petroleum Geology			

EMPLOYMENT & PROFESSIONAL EXPERIENCE

2015-Present Lavern and Betty DePree VanKley Professor of Geology & Environmental Science
 2014,15,16,17 Visiting Summer Professor-AuSable Institute of Environmental Studies
 2014 (Fall) Resident Director-Fall 2014 GLCA/ACM-Oak Ridge Science Semester Program
 2007,08,14 Visiting Scientist-Oak Ridge National Laboratory, Environmental Sci. Div.,
 Environmental Chemistry & Technology Group
 2007 (Fall) Resident Director-Fall 2007 GLCA/ACM-Oak Ridge Science Semester Program
 2001-2007 Chairperson - Department of Geological and Environmental Sciences
 2009-2015 Professor of Geology & Environmental Science, Hope College
 2000-2008 Associate Professor of Geology & Environmental Science, Hope College
 1994-2000 Assistant Professor of Geology & Environmental Science, Hope College
 1992-1994 Remediation Coordinator, Amoco Oil Company
 1990-1992 Development/Exploitation Geologist, Amoco Production Company
 1989-1990 Exploration Geologist, Amoco Production Company

HONORS & SELECTIONS***Honors:***

Sigma Xi	1988	University of Chicago
Phi Beta Kappa	1984	Hope College
Mortar Board National Honors Society	1983	Hope College

Selections:

George F. Baker Scholar	1983-1984	Hope College
Faculty Representative to Technos Intl University, Tokyo, Japan	1999	Hope College
Project Kaleidoscope (PKAL) Faculty for 21st Century	1995	Hope College

COURSES TAUGHT:

First Year Seminar-Petroleum, People and the Hydrocarbon Age (IDS 100)
First Year Seminar-All that Glitters is not Gold: Precious Metals, Rare Earth Elements, and the Geology of Wealth (IDS 100)
Physical Geology (GES 101)
Environmental Geology (GES 108)
Environmental Geology Lab (GES 109)
Planet Earth (GEMS 157/GES 100)
Planet Earth Lab (GEMS 157/GES 100)
How the Earth Works: Introduction to Plate Tectonics (GES 111)
Earth Environmental Systems-I (GES 211)
Laboratory Methods in Environmental Science (GES 220)
Mineralogy & Mineralogy Lab (GES 241)
Field Course in Environmental Geology of the Pacific Northwest (GES 295)
Introduction to Petroleum Geology (GES 320)
Petroleum and People (GEMS 295)
Environmental Public Policy (GES 310)*
Petrology and Petrography Lab (GES 332)
Field Course-Regional Geology of Arizona (GES 341)
Advanced Environmental Research Seminar (GES 401)
Environmental Geochemistry (GES 430)*
Hydrogeology and Lab (GES 450)
Senior Seminar: God, Earth and Ethics (IDS 495)*
Senior Seminar: George Washington and the Presidential Role Model

* indicates a course which is sometimes team-taught.

PUBLICATIONS

Publications: (* indicates undergraduates)

- Peterson, J. W., Petrasky*, L.J., Seymour, M.D., Bergmans*, R.S.,(2016) Laboratory investigation of antibiotic interactions with Fe₂O₃ nanoparticles in water. *Journal of Environmental Engineering*, V.142, Issue 5, May 2016.
- Peterson, J.W., Gu, B., Seymour, M.D., (2015), Surface interactions and degradation of a fluoroquinolone antibiotic in the dark in aqueous TiO₂ suspensions. *Science of the Total Environment*, 532, 398-403.
- Peterson, J.W., O'Meara, T.A., Seymour, M.D., (2014) Effects of added Fe⁰, Fe₃O₄, and Fe₂O₃ on sorption of cephalosporin antibiotic in quartz-rich sands. *Journal of Environmental Engineering* 140, 40-47.
- Van Wieren*, E.M., Seymour, M.D., Peterson, J.W., (2012) Interaction of the fluoroquinolone antibiotic, ofloxacin, with titanium oxide nanoparticles in water: adsorption and breakdown, *Science of the Total Environment*, 441, 1-9.
- Peterson, J.W., Petrasky*, L.J., Seymour, M.D., Burkhardt*, R.S., and Schuiling*, A.B., (2012) Adsorption and breakdown of penicillin antibiotic in the presence of titanium oxide nanoparticles in water, *Chemosphere*, 87, 911-917.

- Peterson, J.W., Burkhart*, R.S., Shaw*, D.C., Schuiling*, A.B., Haserodt*, M.J., and Seymour, M.D., (2010) Experimental determination of ampicillin adsorption to nanometer-size Al₂O₃ in water, *Chemosphere*, 80, 1268-1273.
- Sullivan, T.J.; Dreyer*, A.; and Peterson, J.W., (2009) Genetic variation in a subterranean arthropod (*Folsomia candida*) as a method to identify low-permeability barriers in an aquifer, *Pedobiologia*, 53, 99-105.
- Peterson, J.W., O'Meara*, T.A.; Seymour, M.D.; Wang, W.; and Gu, B., (2009) Sorption mechanisms of cephalixin, a veterinary antibiotic, onto quartz and feldspar minerals as detected by Raman spectroscopy, *Environmental Pollution*, v. 157, 1849-1856.
- Peterson, Jonathan W., O'Meara*, T.A., and Seymour, M.D., (2008), Experimental investigation of cephalixin adsorption to quartz filter sands and dune sands. *Hydrogeology Journal*, vol. 16:879-892.
- Peterson, J.W., Johnson*, E.M., Cencer*, J. L., and Thomason*, C.J.; (2006), Physiochemical conditions of *Folsomia candida* occurrence in a shallow coastal Lake Michigan aquifer, *Environmental Geology*, vol. 49, no. 8, p. 1125-1138 .
- Peterson, J.W.; (2004), "Geology/Earth Science" in *The College Board Book of Majors, 1st Edition*, T. Vandenberg, Edt., Published by College Entrance Examination Board, New York, 1252 pgs.
- Peterson, J.W. and Murray, K.S., (2003), Grain-size heterogeneity and subsurface stratification in air sparging: laboratory experiments-field implications. *Environmental and Engineering Geoscience Journal*, vol IX, No.1, pp.71-82.
- Peterson, J.W., Murray, K.S., Tulu*, Y.E., Peuler*, B.D. and Wilkens*, D.A., (2001), Air-flow geometry in air-sparging of fine-grained sands, *Hydrogeology Journal*, v. 9, p. 168-176.
- Bodenbender, B.E., Hansen, E.C., Peaslee, G.F., and Peterson, J.W., (2000), The environmental science minor: a disciplinary approach to interdisciplinary studies with a grounding in undergraduate research: *Council on Undergraduate Research (CUR) Quarterly*, v .21, n. 2, p. 72-76.
- Peterson, J.W. DeBoer*, M.J. and Lake*, K.L., (2000), A laboratory simulation of toluene cleanup by air sparging of water-saturated sands, *Journal of Hazardous Materials: Special Issue on Air Sparging* 72, 167-178.
- Peterson, J.W., Lepczyk*, P.A., and Lake*, K.L. (1999), Effect of sediment size on area of influence during ground water remediation by air sparging: a laboratory approach: *Environmental Geology*, v. 38, n 1, p.1-6.
- Peterson, J.W., Lepczyk*, P.A., VandenHeuvel*, B.A., Lake*, K.L., and Shull*, K.A. (1999), An experimental look at air-flow geometry in sediments and its role in cleanup of contaminated ground water: *Michigan Academician*, v. 31, n 1, p. 45-57.
- Peterson, J.W., (1999), Numerical stewardship of the environment: *Perspectives: A Journal of Reformed Thought*, v. 14, n. 1, p. 19-20.
- Peterson, J.W. and Bouma-Prediger, S., (1998), Ethical analysis of risk-based environmental cleanup: a distributive justice approach: *Proteus, A Journal of Ideas*, Fall 1998, Humans and the Environment, v. 15, n 2, p. 19-24.
- Hansen, E.C. and Peterson, J.W., (1996), Undergraduate research in environmental science & environmental science education: a reconnaissance survey: *Council on Undergraduate Research (CUR) Quarterly*, v.16, n. 3, p. 150-156.
- Peterson, J.W., Chacko, T. and Kuehner, S.M., (1991), The effects of fluorine on the vapor-absent melting of phlogopite + quartz: implications for deep-crustal processes: *American Mineralogist*, 76, p. 470-476.
- Peterson, J.W. and Newton, R.C., (1991), CO₂-enhanced crustal melting: a possible link among

- porphyritic granite, lamprophyres and gold deposits, in *Greenstone Gold and Crustal Evolution*, Robert, F., Sheahan, P.A., and Green, S.B., eds., *Geological Association of Canada Mineral Deposits Division, NUNA Conference Volume*, p. 67-72.
- Peterson, J.W. and Geiger, C.A., (1990), The Hardwood Gneiss: evidence for high P-T Archean Metamorphism in the Southern Province of the Lake Superior Region: *Journal of Geology*, 98, p. 273-281.
- Goldsmith, J.R. and Peterson, J.W., (1990), Hydrothermal melting behavior of $KAlSi_3O_8$ as microcline and sanidine: *American Mineralogist*, 75, p. 1362-1369.
- Skirius, C.M., Peterson, J.W. and Anderson, A.T., (1990), Homogenizing rhyolitic glass inclusions from the Bishop Tuff: *American Mineralogist*, 75, p. 1381-1398.
- Peterson, J.W. and Newton, R.C., (1990), Experimental biotite-quartz melting in the $KMASH-CO_2$ system and the role of CO_2 in the petrogenesis of granites and related rocks: *American Mineralogist*, 75, p. 1029-1042.
- Peterson, J.W. and Newton, R.C., (1989), Reversed experiments on biotite-quartz-sanidine melting in the system $KMASH$: implications for crustal anatexis: *Journal of Geology*, 97, p. 465-485.
- Peterson, J.W. and Newton, R.C., (1989), CO_2 -enhanced melting of biotite-bearing rocks at deep-crustal pressure and temperature conditions: *Nature*, 340, p. 378-380.
- Chacko, T., Ravindra Kumar, G.R. and Peterson, J.W., (1988), Water activities in the Kerala khondolite belt, in Workshop on the Deep Continental Crust of South India: *Journal of the Geological Society of India*, 31, p. 16-18.

Abstracts (Published & Presented at Scientific Meetings, * indicates undergraduates):

- Cleveland Tarp*, Jonas Peterson*, Owen Donahoe*, Randall Wade, Sarah Brokus, Michael Pikaart, Aaron Best, and Jonathan Peterson (2017), GLOBAL SURVEY OF SUSPENDED LOAD MINERALOGY, HEAVY METAL CONTENT, AND ANTIBIOTIC RESIDUES IN RURAL DRINKING WATER SOURCES USING POINT-OF-USE WATER FILTER KITS: *Annual Meeting of the Geological Society of America, Seattle, WA, October 22-25, 2017*.
- McKenzie Stock* and Jonathan Peterson (2017), DEVELOPING AN EMPIRICAL MODEL TO PREDICT THE SIZE OF VERY-FINE PARTICLES IN NATURAL WATER SUSPENSIONS VIA A LABORATORY SETTLING EXPERIMENT: *Annual Meeting of the Geological Society of America, Seattle, WA, October 22-25, 2017*.
- Owen Donahoe*, Jonas Peterson*, Cleveland Tarp*, Sarah Brokus, Randall Wade, Sarah Brokus, Michael Pikaart, Aaron Best, and Jonathan Peterson (2017), GLOBAL SURVEY OF SUSPENDED LOAD MINERALOGY AND HEAVY METAL CONTENT IN RURAL DRINKING WATER SOURCES USING POINT-OF-USE WATER FILTER KITS: *Annual Meeting of the American Institute of Chemical Engineers (AiChe), Minneapolis, MN, October 27-30, 2017*.
- Peterson, J.W., Brophy, E.E., Mattson, B.D. and Stock, M.L., (2016), Characterization of sub-micron suspended load in a shallow aquifer: correlation to urban land use: *Annual Meeting of the Geological Society of America, Denver, CO, September 24-28, 2016*.
- Van Wieren*, E.M., Seymour, M.D., and Peterson, J. W., Interaction of a Fluoroquinolone Antibiotic with Nanometer-size Soil Oxide Particles: Adsorption and Breakdown: *Annual Meeting of the Geological Society of America, in Denver, CO, October 31-November 3, 2010*
- Adsorption of Pharmaceuticals and Personal Care Products (PPCPs) to Nano-scale Oxides: POWERS*, Nicholas S., WILCOX, Jeffrey D., SEYMOUR, Michael D., and PETERSON, Jonathan W.,

- Annual Meeting of the Geological Society of America, in Denver, CO, October 31-November 3, 2010.*
- Nanoparticle enhanced Degradation of Penicillin Antibiotic in Water: Implications for Fate and Transport of Pharmaceuticals in Groundwater: PETRASKY*, Laura J., SEYMOUR, Michael D., and PETERSON, Jonathan W., *Annual Meeting of the Geological Society of America, in Denver, CO, October 31-November 3, 2010.*
- Textural, Mineralogical, and Infiltration Capacity Analysis of Athletic Field Soils: A Metadisciplinary Study for Turf Management: GARCIA*, Katherine G., PETERSON, Leah Marie, and PETERSON, Jonathan W., *Annual Meeting of the Geological Society of America, in Denver, CO, October 31-November 3, 2010.*
- The Role of "Fines" in the Transport of Pharmaceuticals and Personal-Care Products (PPCPs) through Sediments and Soils: WILCOX, Jeffrey D., KERR*, Katharine A., GARCIA*, Katherine G., SEYMOUR, Michael D., and PETERSON, Jonathan W., *Annual Meeting of the Geological Society of America, in Denver, CO, October 31-November 3, 2010*
- Breakdown of Penicillin Antibiotic in Water by Nano-scale Oxides: Implications for Removal of Pharmaceuticals from Aqueous Systems :Laura L. Petrasky*, Michael D. Seymour, and Jonathan W. Peterson, *Annual Meeting of the American Institute of Chemical Engineers (AIChE), Salt Lake City, UT, November 5-8, 2010.*
- Pharmaceuticals and Personal Care Product (PPCP) Adsorption to Managed Turf Soils: Implications for Waste Water Recycling: Katherine G. Garcia*, Leah Marie Peterson, Katharine A. Kerr*, Jeffrey D. Wilcox, Michael D. Seymour and Jonathan W. Peterson, *Annual Meeting of the American Institute of Chemical Engineers (AIChE), Salt Lake City, UT, November 5-8, 2010.*
- Burkhart*, R S., Shaw*, D.C., Schuiling*, A.B., and Peterson, J.W., (2009) *Ampicillin adsorption to nanometer-size Al₂O₃ in water: macroscopic experiments and mechanistic investigations*: Annual Meeting of the Geological Society of America, Portland, OR, October 17-21, 2009.
- Peterson, J.W., Andresen*, D.E., Seymour, M.D., Wang, W. and Gu, B., (2009), *Raman spectroscopic investigation of cephalosporin antibiotic sorption onto SiO₂, Al₂O₃, and plagioclase feldspar*: Annual Meeting of the Geological Society of America, Portland, OR, October 17-21, 2009.
- Schuiling*, A.B., Burkhart*, R.S., Shaw*, D.C., and Peterson, J.W. (2009) *Antibiotic adsorption to nanometer-size Fe₂O₃ and TiO₂*: Annual Meeting of the Geological Society of America, Portland, OR, October 17-21, 2009.
- Peterson, Jonathan W., O'Meara*, T.A.; Seymour, M.D.; Wang, W.; and Gu, B., (2008), Mechanisms of Cephalosporin Antibiotic Adsorption to Quartz and Feldspar: *Annual Meeting of the Geological Society of America*, Houston, TX, October 5-10, 2008.
- Dreyer*, A., Sullivan, T.J. and Peterson, J.W. (2007), Using Molecular Estimates of Gene Flow in a Groundwater Arthropod as a Method to Identify Cross-gradient Migration Pathways in Aquifers: *ESA/SER Joint Meeting*, San Jose, California, August 5-10, 2007.
- Brisbin*, A.M. and Peterson, J.W., (2006), The Association of Fine-particle Mineralogy and *Folsomia candida* occurrence in a Coastal Lake Michigan Aquifer: *Annual Meeting of the Geological Society of America*, Philadelphia, PA, October 22-25, 2006.
- Omeara*, T.A., Peterson, J.W., and Seymour, M.D., (2006), Cephapirin Adsorption in Sand-Iron Systems: Effects of Hematite, Magnetite and Zero-valent Iron: *Annual Meeting of the Geological Society of America*, Philadelphia, PA, October 22-25, 2006.
- Dreyer*, A. P., Sullivan, T. J., and Peterson, J.W., (2006), Using Genetic Characterization of a Groundwater Arthropod As A Potential Method To Identify Cross-gradient Migration Pathways In Aquifers: *Annual Meeting of the Geological Society of America*, Philadelphia, PA, October 22-

- 25, 2006.
- Johnson*, E.M., Thomason*, C.J., Cencer*, J.L., and Peterson, J.W., (2006), Folsomia candida Occurrence in a Shallow Coastal Michigan Aquifer: *Annual Meeting of the Michigan Academy of Sciences, Arts and Letters*, Oakland University, Rochester, MI, March 3, 2006
- O'Meara*, T.A., Peterson, J.W. and Seymour, M.D., (2006), Experimental Investigation of Antibiotic Adsorption in Sand-Iron Systems: *Annual Meeting of the Michigan Academy of Sciences, Arts and Letters*, Oakland University, Rochester, MI, March 3, 2006,
- O'Meara*, T.A., Seymour, M.D., and Peterson, J.W., (2005), Experimental Investigation of Cephapirin Adsorption to Sands: Implications for Transport of Antibiotics in Groundwater: *Annual Meeting of the Geological Society of America*, Salt Lake City, UT, October 15-19, 2005, Abstracts w/Programs, v. 37, n.7, p. 169.
- Cencer*, J.L., Johnson*, E.M., Thomason*, C.J., and Peterson, J.W., (2005), Physical Conditions of Folsomia candida occurrence in shallow groundwater. *Annual Meeting of the Geological Society of America*, Salt Lake City, UT, October 15-19, 2005.
- Peterson, J.W. (2004), The Savvy Traveler: Learning Language & Customs of Interdisciplinary Research: Invited presentation in a CUR/GSA Special Session-Integrative Interdisciplinary Undergraduate Research in the Earth Sciences, *Annual Meeting of the Geological Society of America*, Denver, Colorado, November 7-10, 2004.
- Peterson, J.W.; Bassman*, J., Cencer*, J.L., and Johnson*, E., (2004), Analysis of Insect Occurrence in Groundwater in a Coastal Lake Michigan Aquifer: Poster presentation at *Geological Society of America Annual Meeting*, Denver, Colorado, November 7-10, 2004.
- Halloran*, D.J. and Peterson, J.W., (2004) Analysis of Onychiuridae Occurrence in Groundwater Beneath the Hope College Campus, *Michigan Academy of Science, Arts and Letters, Annual Meeting*, March 5, 2004.
- Peterson, J.W., Weiss*, W.J., Knapman*, M.Y., and Ingersoll*, E.N., (2003), Research Offspring in Your Own Backyard: The Campus Ground Water Project, Invited presentation in a CUR/GSA Special Session, *Geological Society of America Annual Meeting*, Seattle, Washington, November 2-5, 2003
- Peterson, J.W., (2002), Phase relations in undergraduate research: seeking equilibrium in a 3-component system. (Abstract & Presentation), *Geological Society of America Annual Meeting*, October 27-30, 2002, Denver, Colorado.
- Peterson, J.W. and Northup*, A. (2001), Particle-size heterogeneity and subsurface stratification in air sparging: laboratory experiments-field implications (abstract & presentation): *Geological Society of America Annual Meeting*, Boston, Massachusetts, November 5-8, 2001.
- Murray, K.S. and Peterson, J.W., (2001), Groundwater and transport of phosphorous from an agricultural watershed into Lake Michigan (abstract): *The Shiga-Michigan Joint Symposium: Toward Sustainable Management of Lake-Watershed Ecosystems*, University of Shiga Prefecture, Japan, July 19-20, p. 55.
- Murray, K.S. and Peterson, J.W., (2001), Groundwater and transport of phosphorous from an agricultural watershed into Lake Michigan (abstract): *International Association for Great Lakes Research Annual Meeting*, University of Wisconsin-Green Bay, Green Bay, Wisconsin, June 10-14, 2001, p.99.
- Peterson, J.W., (2001), The role of GIS in undergraduate liberal arts education (presentation): NSF-AIRE Roundtable Workshop, *Using GIS in Earth and Environmental Sciences Curriculum: Who is Doing What*, University of Michigan-Dearborn, April 21, 2001.
- Brondyke*, K.L., Lowe*, C.L., Nash*, D.G., Van Oort*, M., and Peterson, J.W., (2001), Determination

- of the extent and sources of pollution in the Macatawa Watershed through indicator bacteria analysis, *Michigan Academy of Science, Arts and Letters, Annual Meeting*, March 9, 2001.
- Ide*, N.D., Petersen*, A.D., Rypma*, S.J., and Peterson, J.W., (2001), Aqueous phosphate uptake rates in Western Michigan wetland plants, *Michigan Academy of Science, Arts and Letters, Annual Meeting*, March 9, 2001.
- Peterson, J.W., Tulu*, Y.I., Peuler*, B.D., and Murray, K.S., Flow geometry in air sparging of fine-grained sands (abstract): *Geological Society of America Annual Meeting*, Abstracts with Programs, v. 32, n. 7, Reno, Nevada, November 9-18, 2000.
- Bodenbender, B.E., Hansen, E.C., Peaslee, G.F. and Peterson, J.W., (2000), The environmental science minor: a disciplined approach to interdisciplinary studies, *CUR Meeting*, 6/2000
- Peterson, J.W., DeBoer*, M.J., Peuler*, B.D., Tulu*, Y.I., and Roy*, H.R., (1999), An experimental simulation of volatile organic compound remediation by air sparging of water-saturated sands (abstract): *Geological Society of America Annual Meeting*, Denver, Colorado, October 27, 1999.
- Peterson, J.W., Peaslee, G.F., and Hansen, E.C., (1999), Incorporating undergraduate research into an interdisciplinary environmental science program (abstract): *Geological Society of America Annual Meeting*, Denver, Colorado, October 26, 1999.
- Roy*, H.R., Seramur*, E.L., Peterson, J.W., and Bouma-Prediger, S.C., (1999), An undergraduate course in applied environmental ethics: an integrated project between natural sciences and the humanities (abstract): *Geological Society of America Annual Meeting*, Denver, Colorado, October 27, 1999.
- DeBoer*, M.J. and Peterson, J.W., (1999), Toluene diffusion in water-saturated sediments (abstract): *Michigan academy of Sciences, Arts and Letters, Annual Meeting*, March 12, 1999.
- Peterson, J.W., Peaslee, G.F., and Hansen, E.C., (1998), The research seminar: an integrated capstone to an environmental science curriculum (abstract): *Geological Society of America Annual Meeting*, Toronto, Ontario, October 27, 1998.
- Lake*, K.L. and Peterson, J.W. (1998) Experimental determination of the area influenced by sparge air in different grain size sediments, (abstract), *Geological Society of America Annual Meeting*, Toronto, Ontario, October 1998.
- Peterson, J.W. Lepczyk*, P.A., and Shull*, K.A., (1997), Air-flow geometry in sediments: an experimental look at air sparging: *Michigan Academy of Science, Arts and Letters, Annual Meeting*, March 21, 1997.
- Peterson, J.W., Lepczyk*, P.A., and Shull*, K.A., (1996), Laboratory investigation of grain size versus flow geometry & angle of influence during air sparging of saturated sediments: *Geological Society of America Annual Meeting*, Denver, Colorado, October 30, 1996.
- Hansen, E.C., Peterson, J.W., and Peaslee, G.F., (1996), The environmental science minor at HopeCollege: providing an interdisciplinary framework for future specialists: *Geological Society of America Annual Meeting*, October 30, 1996.
- Peterson, J.W. and VandenHeuvel*, B.A., (1996), Laboratory investigation of air sparging: an experimental technique for identifying air flow pathways in a saturated porous medium: *Fourth Symposium of Michigan: Its Geology and Geological Resources, Michigan Department of Environmental Quality, Michigan Geological Survey Division, and Michigan Basin Geological Society Proceedings*, Lansing, Michigan, March 14-15, 1996.
- Chacko, T., Peterson, J.W., and Kuehner, S.M., (1990), Reversed experiments constraining the vapor-absent melting of the assemblage F-OH phlogopite+quartz: *Geological Association of Canada/Mineralogical Association of Canada Annual Meeting*, Vancouver, British Columbia, May 1990.
- Peterson, J.W. and Newton, R.C., (1990), Experimental CO₂-melting of granite and its bearing on the

- Archean gold association: *Geological Association of Canada/ Society of Economic Geologists, Proceedings from NUNA Research Conference on Greenstone Gold and Crustal Evolution*, p. 70-71.
- Irwin, J.J., Bohlke, J.K. and Peterson, J.W., (1989), Microanalysis of halogens (Cl, Br, I) and noble gas isotopes (Ar, Kr, Xe) in synthetic fluid inclusions: *Geological Society of America, Abstracts with Programs*, v. 21, n. 26, p.285.
- Skirius, C.M., Peterson, J.W. and Anderson, A.T., (1989), Pre-eruptive volatile content of Bishop Tuff ash flow magma: results of glass inclusion homogenization experiments: *Geological Society of America, Abstracts with Programs*, v. 21, n. 26, p.270.
- Goldsmith, J.R. and Peterson, J.W., (1989), Water-saturated melting behavior of microcline and sanidine: *Geological Society of America, Abstracts with Programs*, v.21, n. 26, p.157.
- Peterson, J.W. and Newton, R.C., (1989), Melting of phlogopite-quartz-sanidine at reduced activity of water: *EOS, American Geophysical Union Transactions*, 70, n. 15, p.507.
- Peterson, J.W. and Newton, R.C., (1989), Melting of phlogopite-quartz-sanidine in the presence of H₂O-CO₂ fluid: Implications for granites and charnockites: *Geological Society of America, Abstracts with Programs*, v.21, n. 26, p.158.
- Peterson, J.W., Chacko, T. and Kuehner, S.M., (1989), Petrographic and microprobe study of isolated iron-formation lense near Republic, Michigan: a search for high-grade, pre-Penokean metamorphism: *35th Annual Meeting of the Institute on Lake Superior Geology*, Duluth, Minnesota, May 3-6, 1989.
- Peters, M.T., Peterson, J.W. and Geiger, C.A., (1988), High P-T granulite in the Upper Peninsula of Michigan-Lake Superior Region: *Geological Society of America Abstracts with Programs*, 20, p. 7.
- Peterson, J.W. and Newton, R.C., (1988), Experimental constraints on the vapor-absent melting of phlogopite + quartz: *EOS, American Geophysical Union Transactions*, 69, n. 16, p. 498.
- Peterson, J.W. and Newton, R.C., (1988), Experimental P-T constraints on the phlogopite-quartz-sanidine-enstatite-vapor-liquid invariant point: *Geological Society of America Abstracts with Programs*, 20, p. 7.
- Peterson, J.W. and Geiger, C.A., (1988), Two generations of garnet growth in the Hardwood Gneiss, Dickinson County, Michigan: *34th Annual Meeting of the Institute on Lake Superior Geology*, May 1988, Marquette, Michigan.
- Peterson, J.W. and Newton, R.C., (1987), Reversed biotite + quartz melting reactions: *EOS, American Geophysical Union Transactions*, 68, n. 16, p. 451.
- Peterson, J.W. and Geiger, C.A., (1987), The Hardwood Gneiss-a basic two-pyroxene granulite: *33rd Annual Meeting of the Institute on Lake Superior Geology*, 33,1,p.55.