Curriculum Vitae: James Murdoch Brenan

Department of Earth and Environmental Sciences
Dalhousie University
1459 Oxford Street
PO BOX 15000
Halifax, Nova Scotia
Canada, B3H 4R2

e-mail: JBrenan@Dal.ca
website: https://dalhousiehighpressurelaboratory.weebly.com/

Education

Ph.D. (Geology) Rensselaer Polytechnic Institute, Fall 1990
B.Sc. (Geological Sciences, Honours), McGill University, Spring 1985

Appointments

Le Studium Visiting Researcher 2025-26 (University of Orleans), June 2025-May 2026

Associate Dean Research (Acting) Faculty of Science, Dalhousie University, July 2024-December 2025

Full Professor, Department of Earth and Environmental Sciences, Dalhousie University, January 2016-present

Chair, Department of Earth and Environmental Sciences, Dalhousie University, January 2016-December 2023

Full Professor-status only, Department of Earth Sciences, University of Toronto, May-2016-present

Full Professor, Department of Earth Sciences, University of Toronto, July 2013-December, 2015

Visiting Professor, Laboratoire Magmas et Volcans, Université Blaise Pascal, July, 2012

DAAD (German Overseas Exchange) Investigator, Freie Universitat, Berlin, June, 2011

Associate Chair (Undergraduate Studies), Department of Geology, University of Toronto, July 2008-June, 2009

Associate Chair (Graduate Studies), Department of Geology, University of Toronto, July 2003-June 2007

Visiting Investigator, Lawrence Livermore National Laboratory, Jan-Jul, 2004

Associate Professor, Department of Geology, University of Toronto, July 2003-June 2013

Assistant Professor, Department of Geology, University of Toronto, July 1996-June, 2003

Geochemist, Lawrence Livermore National Laboratory, Oct. 1995-June, 1996

Chemistry Instructor, Foothill College, Los Altos, CA, Sept.-Dec. 1995

Post-Doctoral Research Staff, Lawrence Livermore National Laboratory, Oct. 1992-Oct. 1995

Post-Doctoral Fellow, Geophysical Laboratory, Carnegie Institution of Washington, Nov. 1990-Oct. 1992

Teaching Assistant, Rensselaer Polytechnic Institute, Spring, 1990

Research Assistant, Rensselaer Polytechnic Institute, 1985-1990

Summer Intern, Lunar and Planetary Institute, Summer 1985

Field Assistant, McGill University, Summer 1983 and 1984

Honours and awards

Dalhousie Faculty of Science Killam Professor, 2017-2022

Julian Boldy Award for Best Paper in Mineral Deposit Research, 2012

Dean's Outstanding Teaching Award, University of Toronto, 2004

Hawley Medal, Best Paper Award, Mineralogical Association of Canada, 2003

Young Scientist Medal, Mineralogical Association of Canada, 2002

Premier's Research Excellence Award, 2000

Fellow and Life Member of the Mineralogical Society of America, 1998-present

Mineralogical Society of America Award, 1998

Natural Sciences and Engineering Research Council of Canada Postdoctoral Fellowship, location of tenure at the Geophysical Laboratory, Carnegie Institution of Washington. 1990-1992

Natural Sciences and Engineering Research Council of Canada Postgraduate Scholarship, 1985-1989.

Logan Gold Medal, McGill University, Department of Geological Sciences, 1985.

William Henry Howard Scholarship, McGill University, 1984-85

Faculty Scholar, McGill University, Spring 1984

Professional Affiliations and Activities

Scientific Committee Co-Chair, Goldschmidt Conference, Montreal 2026

Chair Theme 14: Policy, Communication, Education, and Inclusion Goldschmidt Conference, Montreal, 2026

External Program Evaluator, Department of Earth and Planetary Sciences, McGill University, March, 2025.

Co-Convener (with B. Moulton, N. Bennett and D. Smythe) session on Structure and Properties of Silicate Melts, in Honour of the Career of G.S. Henderson, GAC-MAC, Ottawa, 2025

NERC-NSERC Alliance Missions – Critical Metals Review Panel, Nov-Dec, 2024

NSERC Alliance Missions – Critical Metals Review Panel, February, 2024

Associate Editor for Geochimica et Cosmochimica Acta, 2022-present

Canada Council of Earth Science Chairs and Directors (Chair 2022-24), 2016-2024

External Program Evaluator, Department of Earth and Environmental Science, St. Francis Xavier University, November, 2024.

Co-Convener (with E. Adlakha, N. Bennett and J. Hanley) session on The Critical metal-magma connection, GAC-MAC, Halifax, 2022

NASA Emerging Worlds Proposal Review Panel, August, 2019

External Evaluator, Steacie Prize, 2019

Member, College of Reviewers, Canada Research Chairs, 2017-present

Co-Convener (with H. Rizzo and J. Mungall) session on Chalcophile and Siderophile elements, Goldschmidt Conference, Boston, 2018

NASA Solar System Workings Proposal Review Panel, July 2017; May, 2018

External Committee Member, Mineral Resources Faculty Search, ETH Zurich, 2017-2018

Co-Editor (with C. Dale, S-J Barnes) Special Issue of Geochimica et Cosmochimica Acta: Papers Presented at the 4th Highly Siderophile Element Workshop, 2016-2017

Co-editor, Geochemical News, 2014-2016
Board Member, Atlantic Science Links Association, 2016-present

Editorial Advisory Board, Chemical Geology, 2001-2018

Convener (with H. Becker) session on HSE Geochemistry, Goldschmidt Conference, Montreal, 2012.

Convener (with S. Dare) session on Oxide Minerals, Goldschmidt Conference, Montreal, 2012.

Co-Editor (with S-J Barnes) Special Issue of Chemical Geology: Papers Presented at the 11th Platinum Symposium, 2010-2012

Convener (with S-J Barnes) session on Geochemistry of Chalcophile and Siderophile Elements, 11th Platinum Symposium, 2009-2010

Co-Editor (Invited, with J. Mungall) Elements Issue on Platinum Group Elements, 2006-2008

Co-Editor (Invited) Special Issue of Chemical Geology: Papers Presented at the 3rd Workshop on Highly Siderophile Elements, 2006-2008

Convener (with P. Jugo), Special Session on Chalcophile and Siderophile Elements, Goldschmidt Conference, Vancouver, 2008

Secretary (elected), Volcanology, Geochemistry, Petrology Section of the American Geophysical Union, 2003-2006

Bowen Award Committee, American Geophysical Union, 2002-2004

Invited Symposium Organiser: Mafic Magmas and Their Ore Deposits, V.M. Goldschmidt Conference, Roanoke, Virginia, Spring, 2001

Associate Editor, Journal of Geophysical reseach - Solid Earth, 1998-2001

Short Course Committee, Mineralogical Society of America, 2001-02

Mid Career Award Committee, Mineralogical Society of America, 1999

Spring Meeting Secretary, Volcanology, Geochemistry and Petrology Section of American Geophysical Union, 1998-2000

International Participant, U.S. National Science Foundation Margins Initiative Workshop, La Jolla, CA, July, 1998.

Local Organising Committee, International Mineralogical Association Meeting, Toronto, 1998

Local Organising Committee, Geological Society of America Meeting, Toronto, 1998

Society Membership: American Geophysical Union, Geological Association of Canada, Mineralogical Society of America, Mineralogical Association of Canada, Society of Economic Geologists, Geochemical Society

Research Awards (held as PI or CoPI)

Title of Proposal	Funding Source/Type	Amount (total)	Duration
Experiments and observations bearing on the origin of highly-fractionated granites and their critical metal endowment (PI)	NRCan Targeted Geoscience Initiative	$87,639	2025-2027
Whole rock major and trace element analysis for Davis Lake Pluton samples (PI)	Nova Scotia DNRR	$7,460	2024-2025
Mineralogical and geochemical mapping of the South Mountain Batholith (NS) coupled with Fe-Ti oxide trace element geochemistry to enhance critical metal exploration and mineralization discovery (PI)	Nova Scotia DNRR	$55,632	2024-2026
Tracking critical metals in felsic igneous systems: Ongoing Development of Tools and Applications (PI)	NRCan Targeted Geoscience Initiative	$68,506	2023-2025
Petrologic tools to understand ore-formation in felsic igneous systems (PI)	NSERC Discovery Grant	$255,000	2022-2027
Development of new mineralization pathfinders for the South Mountain Batholith (NS) using biotite and apatite trace element geochemistry, Part 2 (PI)	Nova Scotia DNRR	$20,580	2021-2022
Tracking critical metals in felsic igneous systems: Tools and Applications (PI)	NRCan Targeted Geoscience Initiative	$85,251	2021-2023
Development of new mineralization pathfinders for the South Mountain Batholith (NS) using biotite and apatite trace element geochemistry (PI)	Nova Scotia DNRR	$27,800	2020-2021
Carbon-coater for the Dalhousie Regional Electron Microprobe Facility (PI)	NSERC Equipment Grant	$58,500	2019-2020
Evaluation of the oxygen fugacity of the South Mountain Batholith (PI)	Nova Scotia DNRR	$9,750	2018-2019

Origin of Chromitites in the Ring Fire Part II: Trace element fingerprinting of contaminants (PI)	NRCan Targeted Geoscience Initiative	$90,000	2018-2020
Deciphering the behaviour of chalcophile and siderophile elements during planetary differentiation (PI)	NSERC Discovery Grant	$200,000	2016-2021
Experimental Investigation of the Role of Magma Contamination in the Genesis of Chromitite in the Ring of Fire (Co-PI with Jim Mungall)	NRCan Targeted Geoscience Initiative	$87,780	2016-2018
Laser ablation sampling system for ICP-MS Analysis (PI)	NSERC Equipment Grant	$150,000	2016-2018
Operations and maintenance support for facilities for materials characterization (Co-PI Joe Zwanziger)	NSERC Equipment Grant	$295,974	2016-2018
Experimental Constraints on the Behaviour of HSE During Planetary Differentiation (PI)	NSERC Discovery Grant	$205,000	2011-2016
Experimental Constraints on the Behaviour of HSE During Planetary Differentiation (PI)	NSERC Accelerator Grant	$120,000	2011-2014
A New Spin on Sulfide-Silicate Partitioning (PI)	DAAD (German Government)	$2,785	2011
Analytical SEM (PI)	NSERC Equipment Grant	$143,000	2010-2012
Lab Upgrade (PI)	NSERC Equipment Grant	$21,600	2007-2009
Nitrogen Cycling (Co-PI with Gray Bebout)	U.S. NSF Grant	$233,266	2007-2010
Enhanced sensitivity upgrade for LA-ICPMS (Co-PI with Don Davis)	NSERC Equipment Grant	$10,831	2006-2008
Magmatic geochemistry of chalcophile and siderophile elements (PI)	NSERC Discovery Grant	$238,500	2006-2011
Compositional diversity in sulphide ores (PI)	Vale-Inco Ltd.	$6,500	2005-2008
LA sample delivery system (PI)	NSERC Equipment Grant	$131,500	2004-2006
SEM upgrade (PI)	NSERC Equipment Grant	$46,500	2003-2005
Magmatic Geochemistry of Rhenium and the PGEs (PI)	NSERC Discovery Grant	$210,000	2001-2006
Installation and Upgrade of Donated Piston-cylinder Apparatus (PI)	NSERC Equipment Grant	$12,500	2001-2003

Premier's Research Excellence Award (PI)	Government of Ontario	$150,000	2000-2004
The effects of microgravity and containerless processing on low thermal expansion glasses (Co-PI with G. Henderson)	Canadian Space Agency	$30,000	2000-2002
Hydrothermal growth techniques for quartz (PI)	Quartec Mineral Developments, Inc	$4,000	1999-2000
Operating system upgrade for the University of Toronto electron microprobe facility (PI)	NSERC Equipment Grant	$99,056	1999-2001
Apparatus for experimentation at elevated pressures and temperatures (PI)	NSERC Equipment Grant	$31,830	1997-1998
Experimental constraints on the geochemistry of the Re-Os isotopic system (PI)	NSERC Discovery Grant	$116,800	1997-2001
Connaught Fund (PI)	University of Toronto	$10,000	until spent

Current Citation Statistics:

Google Scholar H-index: 46

Total number of citations: 10,126 (as of Aug, 2026)

Publications

Published/In Press Journal Articles (*indicates current or former student co-author):

71. *Maciag, B.J., Brenan, J.M. and *Rozenbaks, P. (2026) Arsenic-rich apatite as a recorder of crystallization processes in felsic plutonic systems. *American Mineralogist,* in press.

70. *Keltie, E. and Brenan, J.M. Experiments and models bearing on the role of magma mixing and contamination on chromite crystallization in ultramafic magmas. *Journal of Petrology,* 66, egaf066, 2025.

69. *Rozenbaks, P. and Brenan, J.M. Redox-sensitive partitioning of vanadium and other heterovalent elements between apatite and biotite in high silica magmas, *Geochimica et Cosmochimica Act*, 402, 391-215, 2025.

68. Brenan, J.M., *Maciag, B.J. and Hanley, J.J Geochemical variation in biotite from the Devonian South Mountain Batholith, Nova Scotia: Constraints on emplacement pressure,

temperature, magma redox state and the development of a magmatic vapor phase (MVP). *American Mineralogist*, 108 (11), 2023.

67. *Maciag, B.J., Parsons, M., Kennedy, G. and Brenan, J.M. Sources of geogenic arsenic in well water associated with granitic bedrock from Nova Scotia, Canada. *Science of The Total Environment* 887, 163943, 2023.

66. *Drage, N. and Brenan, J.M. An experimental study of the effect of pressure on the formation of chromite deposits. *Journal of Petrology*, 64, egad031, 2023.

65. Clarke, D.B., Harlov, D., Brenan, J.M., Jahkel, A., Cichy, S.B., Wilke, F.D.H. and Yang, X. Assimilation of xenocrystic apatite in granite magmas. *American Mineralogist*, 108, 1421-1435, 2023.

64. *Zhang, X, *Maciag, B.J., Brenan, J.M. and Mungall, J.E. Experimental study of the partitioning of some platinum group elements (Pd and Ir) between orthopyroxene and silicate melt. *Geochimica et Cosmochimica Acta,* 339, 127-138, 2022

63. *Sullivan, N.A., Zajacz, Z, Brenan, J.M. Mobilization of platinum by magmatic brines, *Geochimica et Cosmochimica Acta,* 316, 253-272, 2022.

62. *Sullivan, N.A., Zajacz, Z, Brenan, J.M. Mobilization of gold and palladium by magmatic brines, *Geochimica et Cosmochimica Acta,* 316, 230-252, 2022.

61. Mungall J.E., Jenkins, M.C., Robb, S.J., Yao, Z. and Brenan, J.M. Upgrading of magmatic sulfides revisited. *Economic Geology, Scientific Communication*, 115 (8), 1827-1833, 2020.

60. Lesher, C.E., Dannberg, J., Barfod, G.H., Glessner, J., *Bennett, N. and Brenan, J.M. Iron isotope fractionation at the core–mantle boundary by thermodiffusion. *Nature Geoscience*, 13, 382-386, 2020.

59. *Maciag, B. and Brenan, J.M. Speciation of arsenic and antimony in basaltic magmas. *Geochimica et Cosmochimica Acta*, 276, 198-218, 2020.

58. Brenan, J.M., Mungall, J.E. and *Bennett, N. Abundance of highly siderophile elements in lunar basalts controlled by iron sulfide melt, *Nature Geoscience*, 12, 701–706, 2019, highlighted in News and Views https://www.nature.com/articles/s41561-019-0445-0.

57. *Sullivan, N.A., Zajacz, Z, Brenan, J.M. The solubility of Pd and Au in hydrous alkaline intermediate melts: The effect of oxygen fugacity and the addition of Cl and S, *Geochimica et Cosmochimica Acta*, 231, 15-29, 2018.

56. Mungall, J.E., Long, K., *Smythe, D., Brenan, J.M. and Naslund, H.R. Role of liquid immiscibility in the generation of magmatic Fe-P-O deposits. *Geology*, 46, 255-258, 2018.

55. *Liu, Y, Brenan, J.M. and Bray, C.J. Synthesis of a chalcogenide glass standard for laser-ablation inductively coupled mass spectrometry (LA-ICPMS). *Economic Geology*, 112, 2005-2021, 2017.

54. *Canali, A.C, Brenan, J.M., *Sullivan, N.A. Solubility of platinum-arsenide melt and sperrylite in synthetic basalt at 0.1 MPa and 1200^{o}C with implications for arsenic speciation and platinum sequestration in mafic igneous systems. *Geochimica et Cosmochimica Acta*, 216, 153-168, 2017.

53. *Smythe, D. and Brenan, J.M. Magmatic oxygen fugacity estimated using zircon-melt partitioning of cerium. *Earth and Planetary Science Letters*, 453, pp 260-266, 2016.

52. *Bennett, N., Brenan, J.M., and Fei, Y. Thermometry of the magma ocean: Controls on the metal-silicate partitioning of gold. *Geochimica et Cosmochimica Acta,* 184, pp 173-192, 2016.

51. *Smythe, D. and Brenan, J.M. The effects of fO_2 and melt composition on cerium speciation in silicate melts. *Geochimica et Cosmochimica Acta*. 170, pp 173-187, 2015

50. *Liu, Y and Brenan, J.M. Partitioning of platinum-group elements (PGE) and chalcogens (Se, Te, As, Sb, Bi) between monosulfide-solid solution (MSS), intermediate solid solution (ISS) and sulfide liquid at controlled fO_2-fS_2 conditions. *Geochimica et Cosmochimica Acta,* 159, pp 139-161, 2015.

49. *Bennett, N., Brenan, J.M. and Fei, Y. Metal-silicate partitioning experiments at high pressures and temperatures: Experimental methods and a protocol for suppressing highly siderophile element inclusions. *Journal of Visualized Experiments*, 100, e52725, doi:10.3791/52725, 2015.

48. Brenan, J.M. Se-Te fractionation by sulfide–silicate melt partitioning: Implications for the composition of mantle-derived magmas and their melting residues. *Earth and Planetary Science Letters*, 422, 45-57, 2015.

47. Mungall, J.E., Brenan, J.M., Godel B., Giallard, F., and Barnes, S. Transport of S, Cu and Au in magmas by flotation of sulfide melt on vapor bubbles. *Nature Geoscience*, 8, pp 216-219, 2015.

46. *Bennett, N., Brenan, J.M. and Koga, K.T. The solubility of platinum in silicate melt under reducing conditions: Results from experiments without metal inclusions. *Geochimica et Cosmochimica Acta*, 133, pp 422-442, 2014.

45. Mungall, J. E, and Brenan, J.M. Partitioning of platinum-group elements and Au between sulfide liquid and basalt and the origins of mantle-crust fractionation of the chalcophile elements. *Geochimica et Cosmochimica Acta*, 125 pp 265-289, 2014.

44. *Smythe, D. and Brenan, J.M, Henderson, G.S. Quantitative determination of cerium oxidation state in alkali-aluminosilicate glasses using Ce M4,5-edge XANES. *Journal of Non-crystalline Solids,* 378, pp 258-264, 2013.

43. Barnes, S.J., Godel, B., Gürer, D., Brenan, J.M., Robertson, J. and Paterson, D., Sulfide-olivine Fe-Ni exchange and the origin of anomalously Ni-rich magmatic sulfides. *Economic Geology*, 108, pp 1971-1982, 2013.

42. *Bennett, N. and Brenan, J.M. Controls on the solubility of rhenium in silicate melt: Implications for the osmium isotopic composition of Earth's mantle. *Earth and Planetary Science Letters*, 361, pp 320-332, 2013.

41. Brenan, J.M., *Finnigan, C.F., McDonough, W.F. and *Homolova, V. Experimental constraints on the partitioning of the Ru, Rh, Ir, Pt and Pd between chromite and silicate melt: The importance of ferric iron. *Chemical Geology*, 302–303, pp 16–32, 2012.

40. *Caciagli-Warman, N.C., Brenan, J.M., McDonough, W.F., and Phinney, W.C. Experimental constraints on Li partitioning and Li isotope fractionation during subduction zone dehydration. *Chemical Geology*, 280, pp 384–398, 2011.

39. Brenan, J.M. and *Bennett, N. Soret separation of highly siderophile elements in Fe-Ni-S melts: Implications for solid metal-liquid metal partitioning. *Earth and Planetary Science Letters*, vol 298, pp 299-305, 2010

38. Brenan, J.M. and McDonough, W.F. Core formation and metal-silicate fractionation of osmium and iridium from gold. *Nature Geoscience*, vol 2, pp 798-801, 2009.

37. *Rose-Weston, L.A., Brenan, J.M., Fei, Y., Secco, R.A. and Frost, D. Perspectives on earth differentitation from metal-silicate partitioning of Te, Se, and S. *Geochimica et Cosmochimica Acta.,* vol 73, 4598-4615, 2009.

36. Brenan, J.M., *Haider, N. and *Andrews, D. Experimental evaluation of liquid immiscibility in a portion of the system Fe-Ni-Cu-S using high gravitational acceleration. *Economic Geology*, vol 103, pp 1563-1570, 2008

35. Brenan, J.M. The platinum-group elements: "Admirably adapted" for science and industry. *Elements*, vol 4, pp 227-232, 2008.

34. *Finnigan, C.S., Brenan, J.M., Mungall, J.E. and McDonough, W.F. Experiments and models bearing on the role of chromite as a collector of platinum group minerals by local reduction. *Journal of Petrology,* vol 49, pp 1647-1665, 2008.

33. Brenan, J.M. Re-Os fractionation by sulfide-silicate partitioning: A new spin. *Chemical Geology, Special Issue on Highly Siderophile Elements*, vol 248, pp 140-165, 2008

32. Brenan, J.M., McDonough, W.F. and Ash, R. An experimental study of the solubility and partitioning of iridium, osmium and gold between olivine and silicate melt. *Earth and Planetary Science Letters*, 237:855-872, 2005.

31. Conly, A.G., Brenan, J.M., Bellon, H. and Scott, S.D. Arc to rift transitional volcansim in the Santa Rosalia region, Baja California Sur, Mexico. *Journal of Volcanology and Geothermal Research*, vol 142, 303-341, 2005.

30. Wang, H.M., Henderson, G.S. and Brenan, J.M. Measuring quartz solubility by in situ weight-loss determination using a hydrothermal diamond anvil cell. *Geochimica et Cosmochimica Acta*, Vol 68, 5197-5204, 2004

29. Schulze, D.J., Harte, B, Valley, J.W., Brenan, J.M. and Channer, D.M.De R. Extreme crustal oxygen isotope signatures preserved in coesite in diamond, *Nature*, 423: 68-70, 2003.

28. Brenan, J.M., McDonough, W.F. and Dalpe, C. Experimental constraints on the partitioning of rhenium and some platinum-group elements between olivine and silicate melt, *Earth and Planetary Science Letters*, 212:135-150, 2003.

27. Mungall, J. E. and Brenan, J.M. Experimental Evidence for the Chalcophile Behaviour of the Halogens, *Canadian Mineralogist*, 41: 207-220, 2003.

26. Brenan, J.M. Effects of fO_2, fS_2, Temperature and Melt Composition on Fe-Ni Exchange Between Olivine and Sulfide Liquid: Implications for Natural Olivine-Sulfide Assemblages, *Geochimica et Cosmochimica Acta*, 67: 2663-2681, 2003.

25. *Andrews, D.R.A. and Brenan, J.M. Phase Equilibrium Constraints on the Magmatic Origin of Laurite + Ru-Os-Ir Alloy, *Canadian Mineralogist*, 40: 1705-1716, 2002.

24. Brenan, J.M. and *Rose, L.A. Experimental Constraints on the Wetting of Chromite by Sulfide Liquid, *Canadian Mineralogist*,40:1113-1126, 2002.

23. Brenan, J.M. Re-Os Fractionation in Magmatic Sulfide Melt by Monosulfide Solid Solution, *Earth and Planetary Science Letters*, 199: 257-268, 2002.

22. *Andrews, D.A. and Brenan, J.M. The Solubility of Ruthenium in Sulphide Liquid: Implications for Platinum-Group Mineral (PGM) Stability and Sulphide Melt/Silicate Melt Partitioning, *Chemical Geology*,192:163-181, 2002.

21. *Sattari, P., Brenan, J.M., Horn, I. and McDonough, W.F. Experimental constraints on the sulfide- and chromite-silicate melt partitioning behavior of rhenium and platinum-group elements, *Economic Geology*, 97: 385-398, 2002.

20. Brenan, J.M. and *Andrews, D. High Temperature Stability of Laurite and Ru-Os-Ir Alloy and Their Role in PGE Fractionation in Mafic Magmas, *Canadian Mineralogist*, 39:573-592, 2001.

19. *Rose, L.A. and Brenan, J.M. Wetting Properties of Fe-Ni-Co-Cu-O-S Melts Against Olivine: Implications for Sulfide Melt Mobility. *Economic Geology*, 96:145-157, 2001.

18. Brenan, J.M., Cherniak, D.J. and *Rose, L.A., Diffusion of Osmium in Pyrrhotite and Pyrite: Implications for Closure of the Re-Os Isotopic System. *Earth and Planetary Science Letters*, 180:399-413, 2000.

17. Brenan, J.M. and Li, C., Constraints on Oxygen Fugacity During Ore Formation in the Voisey's Bay Intrusion, Labrador, Canada. *Economic Geology*, 95:901-915, 2000.

16. Brenan, J.M. and *Caciagli, N. Fe-Ni Exchange between Olivine and Sulphide Liquid: Implications for Oxygen Barometry in Sulphide-Saturated Magmas. *Geochimica et Cosmochimica Acta*, 64:307-320, 2000

15. Brenan, J.M., Shaw, H.F. and Ryerson, F.J. The Role of Aqueous Fluids in the Slab-to-Mantle Transfer of Boron, Beryllium and Lithium During Subduction: Experiments and Models, *Geochimica et Cosmochimica Acta*, 62:3337-3347, 1998.

14. Brenan, J.M., Neroda, E., Lundstrom, C.C., Shaw, H.F., Ryerson, F.J. and Phinney, D.L. Behaviour of Boron, Beryllium and Lithium During Melting and Crystallization: Constraints from Mineral-Melt Partitioning Experiments, *Geochimica et Cosmochimica Acta*, 62:2129-2141, 1998

13. Brenan, C.J.H., Brenan, J.M. and Hunter, I.W., Non-invasive Confocal Raman Imaging of Immiscible Liquids in a Porous Medium, *Journal of Analytical Chemistry*, 69:45-50, 1997.

12. Brenan, J.M., Shaw, H.F. and Ryerson, F.J. Experimental Evidence for the Origin of Lead Enrichment in Convergent Margin Magmas, *Nature*, 378:54-56, 1995

11. Brenan, J.M., Shaw, H.F. Ryerson, F.J. and Phinney, D.L., Experimental Determination of Trace Element Partitioning Between Pargasitic Amphibole and Hydrous Silicate Melt, *Earth and Planetary Science Letters,* 135:1-11, 1995.

10. Brenan, J.M., Shaw, H.F., Ryerson, F.J. and Phinney, D.L., Mineral-Aqueous Fluid Partitioning of Trace Elements at 900 ^{o}C and 2.0 GPa: Constraints on the Trace Element Chemistry of Mantle and Deep Crustal Fluids, *Geochimica et Cosmochimica Acta,* 59:3331-3350, 1995.

9. Brenan, J.M., Shaw, H.F., Phinney, D.L. and Ryerson, F.J., Rutile-Fluid Partitioning of Nb, Ta, Zr, U and Th: Implications for High-Field-Strength Element Depletions in Island-Arc Basalts, *Earth and Planetary Science Letters*, 128:327-339, 1994.

8. Brenan, J.M. Diffusion of Chlorine in Fluid-Bearing Quartzite: Effects of Fluid Composition and Total Porosity, *Contributions to Mineralogy and Petrology* , 115:215-224, 1993.

7. Brenan, J.M., Kinetics of Fluorine, Chlorine and Hydroxyl Exchange in Fluorapatite, *Chemical Geology,* 110:195-210, 1993.

6. Brenan, J.M. Partitioning of Fluorine and Chlorine between Apatite and Aqueous Fluids at High Pressure and Temperature: Implications for the Fluorine and Chlorine Content of High P-T Fluids, *Earth and Planetary Science Letters,* 117:251-263, 1993.

5. Ayers, J.C., Brenan, J.M., Watson, E.B., Wark, D.A. and Minarik, W.G., A New Capsule Technique for Hydrothermal Experiments Using the Piston Cylinder Apparatus, *American Mineralogist*, vol 77, 1080-1086, 1992.

4. Brenan, J.M. and Watson, E.B., Partitioning of Trace Elements Between Olivine and Aqueous Fluids at High P-T Conditions: Implications for the Effect of Fluid Composition on Trace Element Transport, *Earth and Planetary Science Letters*, vol 107, p 672-688, 1991.

3. Brenan J.M. and Watson, E.B., Partitioning of Trace Elements Between Carbonate Melt and Clinopyroxene and Olivine at Mantle P-T Conditions, *Geochimica et Cosmochimica Acta*, vol 55, p 2203-2214, 1991.

2. Brenan, J.M. and Watson, E.B., Fluids in the Lithosphere, 2: Experimental Constraints on CO_2 Transport in Dunite and Quartzite at Elevated P-T Conditions with Implications for Mantle and Crustal Decarbonation Processes, *Earth and Planetary Science Letters*, vol 85, p 497-515, 1987.

1. Watson, E.B. and Brenan, J.M., Fluids in the Lithosphere, 1: Experimentally-Determined Wetting Characteristics of CO_2-H_2O Fluids and Their Implications for Fluid Transport, Host-Rock Physical Properties, and Fluid Inclusion Formation, *Earth and Planetary Science Letters*, vol 85, p 497-515, 1987.

Refereed Reports and Book Chapters

6. Brenan, J.M., Woods, K., Mungall, J.E. and Weston, R. (2021) Origin of chromitites in the Esker Intrusive Complex, Ring of Fire Intrusive Suite, as revealed by chromite trace element chemistry and simple crystallization models; in *Targeted Geoscience Initiative 5: grant program final reports (2018-2020), Geological Survey of Canada, Open File 8755, p. 25–43.*

5. Brenan, J.M. Entries on Pt, Pd and Re for the Encyclopedia of Geochemistry, 2016.

4. Brenan, J.M., Bennett, N. and Zajacz, Z. Chapter 1: Experimental results on fractionation of the highly siderophile elements (HSE) at variable pressures and temperatures during planetary and magmatic differentiation. *Reviews in Mineralogy and Geochemistry*, Vol 81, pp 1-88, 2016.

3. Brenan, J.M. Melts and Fluids: An Overview of Recent Advances, *Reviews of Geophysics, Supplement,* pp 33-40, *U.S. National Report to the IUGG: Properties of the Solid Earth,* 1995.

2. Brenan, J.M. Chapter 6: Development and Maintenance of Metamorphic Permeability: Implications for Fluid Transport Processes, in *Reviews in Mineralogy*, vol 26: Contact Metamorphism, pp 291-315, 1991.

1. Watson, E.B., Brenan, J.M. and Baker, D.R., Chapter 5: Distribution of Fluids, in: Continental Lithospheric Mantle, Menzies, M (ed.), Oxford University Press, 1990.

Other Written Contributions

10. Brenan, J.M., Rose-Koga, E.F. and Koga, K.T. Experiments and observations bearing on the origin of highly fractionated granites and their critical metal endowment. *LE STUDIUM Multidisciplinary Journal 10, 12-15*, 2026.

9. Clark, K. and Brenan, J.M. Whole Rock Geochemical Concentration Contour Maps of the Davis Lake Pluton, South Mountain Batholith, Nova Scotia, Canada. *Nova Scotia Department of Natural Resources and Renewables, Geoscience and Mines Branch, Open File Report,* 2025.

8. Brenan, J.M. and *Rozenbaks, P. and *Clark, K.L. and *Maciag, B.J. Biotite-melt partitioning of critical metals: Empirical measurements on glassy silicic lavas with application to differentiation of the Davis Lake pluton, Nova Scotia. *Report to Natural Resources Canada,* 2023.

7. *Maciag, B.J., Brenan J.M. and Hanley, J.J. Geochemical variation in apatite and biotite from the Devonian South Mountain Batholith, Nova Scotia: Implications for magma evolution and mineralization. *Nova Scotia Department of Natural Resources and Renewables, Geoscience and Mines Branch, Open File Report*, 2021.

6. Brenan, J.M. News and Views: The magmatic forge. *Nature Geoscience*, 13 (11), 716-717, 2020.

5. Brenan, J.M. News and Views: Ubiquitous Late Veneer. *Nature Geoscience*, vol 5, pp 1-2, 2012.

4. Barnes, S-J and Brenan, J. M. Preface: Chemical Geology, Special Issue on Geochemistry of Chalcophile and Siderophile Elements, *Chemical Geology*, vol 302–303, pp 1-2, 2012.

3. Luguet, A., Pearson, D.G., Selby, D., Meisel, T. and Brenan, J. Preface: Highly siderophile element geochemistry. *Chemical Geology, Special Issue on Highly Siderophile Elements*, vol 248, pp 115-118, 2008

2. Brenan, J.M. Basalt, *McGraw-Hill Yearbook of Science and Technology*, 2001

1. Brenan, J.M. Partitioning of fluorine and chlorine between apatite and non-silicate fluids at high pressure and temperature, *Annual Report of the Director, Geophysical Laboratory*, 1991.

Contributions to Conferences (Since Tenure-Track, * indicates current or former student co-author)

115. *Powell, M. and Brenan, J.M. Experimental determination of high field strength element partition coefficients between ilmenite and melt: Implications for ore fertility and metal enrichment in granitic systems, *V.M. Goldschmidt Conference, Montreal,* July 2026.

114. Brenan, J.M., *Powell, M, *Mihailoff, I., Rose-Koga, E.F, Koga, K.T. Experiments and observations bearing on the origin of highly-fractionated granites and their critical metal endowment. *V.M. Goldschmidt Conference, Montreal,* July 2026.

113. Hanley, J.J., Blight, M., Brenan, J.M., *Rozenbaks, P., Boucher, B., Dorado-Troughton, M, Classification of refractory Au-Co-Ni-As-Sb-Bi mineralization associated with the peralkaline Deloro Pluton, Ontario, Canada: a fresh look at the first gold district in the Canadian Shield. *GAC/MAC meeting*, St. Johns, May 2026.

112. *Powell, M. and Brenan, J.M. Mineralogical and geochemical zonation of the South Mountain Batholith, NS, with applications to mineral resource prospectivity by cosine similarity mapping. *Atlantic Geoscience Symposium*, Truro, February 2026.

111. Clark, K. and Brenan, J.M. Magmatic evolution and ore metal enrichment as recorded in apatite and biotite chemistry: Davis Lake Pluton, Nova Scotia, *GAC/MAC meeting*, Ottawa, May 2025.

110. Powell, M. and Brenan, J.M. Experimental determination of high field strength element partition coefficients between ilmenite and peraluminous melts: Consequences for granitoid differentiation. *AGU Fall Meeting*, Washington, D.C., December, 2025.

109. Powell, M. and Brenan, J.M. Experimental determination of partition coefficients for high field strength elements between ilmenite and felsic melts at low temperatures with applications to the enrichment of Nb and Ta in peraluminous granitoids. *Atlantic Geoscience Symposium*, Halifax, February 2025.

108. Rozenbaks, P. and Brenan, J.M. Redox-sensitive trace element partitioning between apatite, biotite, and glass: Implications for oxygen barometry in evolved crustal rocks. *V.M. Goldschmidt Conference, Chicago,* August 2024.

107. Clark, K. and Brenan, J.M. Whole rock and biotite critical metal concentration maps of the South Mountain Batholith, Nova Scotia, Canada. *Atlantic Geoscience Symposium*, Moncton, NB, February 2024.

106. Rozenbaks, P. and Brenan, J.M. Redox-sensitive element partitioning between apatite, biotite, and glass in natural igneous rocks. *Atlantic Geoscience Symposium*, Moncton, NB, Feb 2024.

105. Clark, K. and Brenan, J.M. Trace element geochemistry of biotite from the Scrag

Lake and New Ross Plutons of the South Mountain Batholith, NS, Canada: Implications for critical metal behaviour during magma differentiation. *PDAC*, March 2023.

104. Hilliard, A.E. and Brenan, J.M. Paragenesis of pyrite at the Lone Star Deposit, YT. *Atlantic Geoscience Colloquium*, *Truro, NS*, Feb 2023.

103. Brenan, J.M., Maciag, B.J., Hanley, J.J. Geochemical variations in biotite composition from the Devonian South Mountain Batholith (SMB) with constraints on magma redox state and SMB petrogenesis. *Atlantic Geoscience Colloquium, Truro, NS*, Feb 2023.

102. Rozenbaks, P. and Brenan, J.M. Vanadium partitioning between apatite and biotite in magmatic rocks – potential for a novel oxybarometry method for Fe-poor granitoids. *Atlantic Geoscience Colloquium*, *Truro, NS,* Feb 2023.

101. Rozenbaks, P. and Brenan, J.M. Vanadium partitioning between apatite and biotite in felsic igneous rocks. *Understanding Oxygen fugacity in Geoscience International School*, *Trieste, Italy,* Sept 2022.

100. Kin I Sio, C., Render, J. Wimpenny, J., Labidi, J., Vlastelic, I., Rizo, H. Archer, G., Lesher, C., Brenan, J., and Bennett, N. A search for isotopic evidence of thermodiffusion at the core-mantle boundary. *V.M. Goldschmidt Conference, Hawaii*, July, 2022.

99. Brenan, J.M., Maciag, B., Hanley, J.J. Geochemical variations in biotite composition from the Devonian South Mountain Batholith with constraints on intensive parameters and the development of a magmatic volatile phase (MVP). *GAC/MAC meeting*, *Halifax,* May, 2022.

98. Drage, N. and Brenan, J.M. An experimental study of the effect of pressure on the formation of chromite deposits. *GAC/MAC meeting*, *Halifax*, May, 2022.

97. Maciag, B.M. and Brenan, J.M. Geogenic sources of arsenic in well water related to granites from southwest Nova Scotia. *GAC/MAC meeting*, *Halifax,* May, 2022.

96. Clark, K. and Brenan, J.M. Trace element geochemistry of biotite from the Scrag Lake and New Ross plutons of the South Mountain Batholith, Nova Scotia, Canada: implications for magma differentiation. *GAC/MAC meeting*, *Halifax,* May, 2022.

95. Drage, N. and Brenan, J.M. An experimental study of the effect of pressure on the formation of chromite deposits. *Atlantic Geoscience Society 48th Colloquium*, Virtual, 11-12 Feb, 2022.

94. Clark, K. and Brenan, J.M. Trace element geochemistry of biotite from the Scrag Lake and New Ross plutons of the South Mountain Batholith, Nova Scotia, Canada: implications for magma differentiation. *Atlantic Geoscience Society 48th Colloquium*, Virtual, 11-12 Feb, 2022.

93. Maciag, B.M. and Brenan, J.M. Geogenic sources of arsenic in well water related to granites from southwest Nova Scotia. *Atlantic Geoscience Society 48th Colloquium*, Virtual, 11-12 Feb, 2022.

92. Kin I Sio, C., Render, J. Wimpenny, J., Lesher, C., Brenan, J., and Bennett, N. Nickel Isotope Fractionations in Fe-Ni and Fe-Ni-S Alloys by Thermodiffusion. *AGU Fall Meeting*, 2021.

91. Maciag, B.M. and Brenan, J.M. Identifying Potential Sources of Arsenic Contamination in Groundwater Related to Granites from Southwest Nova Scotia. *GAC/MAC meeting*, *London,* Nov, 2021.

90. Drage, N. and Brenan, J.M. An experimental study of the effect of pressure on the formation of chromite deposits. *V.M. Goldschmidt Conference*, *Lyon,* July, 2021.

89. Drage, N. and Brenan, J.M. Experimental evaluation of the pressure reduction hypothesis for the origin of chromitites. *Atlantic Geoscience Society 47th Colloquium*, Virtual, 5-6 Feb, 2021.

88. Maciag, B.J., Brenan, J.M. and Hanley, J. Variation in the Major and Trace Element Geochemistry of Biotite and Apatite from the South Mountain Batholith, Nova Scotia. *Atlantic Geoscience Society 47th Colloquium*, Virtual, 5-6 Feb, 2021.

87. Maciag, B.J. and Brenan, J.M. Experimental calibration of an apatite oxybarometer for felsic magmas. *Atlantic Geoscience Society 46th Colloquium*, *Truro,* 7-8 Feb, 2020.

86. Koga, K.T., Rouleau, M. and Brenan, J.M. Grain boundary diffusion of Re, Os, Pt, and Pb, in olivine aggregate in presence of sulfide. *V.M. Goldschmidt Conference*, *Barcelona,* August, 2019.

85. Sullivan, N.A., Zajacz, Z. and Brenan, J.M. Mobilization of platinum by NaCl+HCl-bearing orthomagmatic brines. *GAC/MAC meeting*, *Quebec City*, May, 2019. **Best Student Paper Award**

84. Maciag, B.J. and Brenan, J.M. Apatite Accommodating Arsenic: A Potential New Oxybarometer. *GAC/MAC meeting*, *Quebec City*, May, 2019.

83. Woods, K., Keltie, E., Brenan, J.M. and Mungall, J.E., Weston, R. The role of country rock assimilation on chromite crystallization in the Ring of Fire, James Bay Lowlands, Ontario. *GAC/MAC meeting*, *Quebec City*, May, 2019.

82. Woods, K., Keltie, E., Brenan, J.M. and Mungall, J.E., Weston, R. The role of country rock assimilation on chromite crystallization in the Ring of Fire, James Bay Lowlands, Ontario. *Atlantic Geoscience Society 45th Colloquium*, *Fredricton*, 8-9 Feb, 2019.

81. Chavez, J, Brenan, J.M. and MacHattie, T.G. Redox state of the South Mountain batholith: A reconnaissance study using zircon geochemistry. *Atlantic Geoscience Society 45th Colloquium*, *Fredricton*, 8-9 Feb, 2019.

80. Keltie, E., Brenan, J.M. and Mungall, J.E., Weston, R. The role of contamination in the formation of chromitites in the Ring of Fire Intrusive Suite, James Bay Lowlands, Ontario *V.M. Goldschmidt Conference*, *Boston*, August, 2018.

79. Maciag, B., Brenan, J.M. and Keltie, E. Speaking Septic Speciation: An Experimental Study of Arsenic and Antimony in Basalts. *V.M. Goldschmidt Conference*, *Boston,* August, 2018.

78. Zhang, X, Brenan, J.M., Mungall, J.E. Controls on orthopyroxene-melt partitioning of palladium. *V.M. Goldschmidt Conference*, *Boston,* August, 2018.

77. Keltie, E., Brenan, J.M. and Mungall, J.E., Weston, R. An experimental investigation of the effect of country rock assimilation on chromite crystallization in the Ring of Fire, James Bay lowlands, Ontario. *Atlantic Geoscience Society 44th Colloquium*, *Truro*, 2-3 Feb, 2018.

76. Maciag, B., Brenan, J.M. and Keltie, E. Valence State of Arsenic and Antimony in Basalts: An Experimental and Synchrotron Study. *Atlantic Geoscience Society 44th Colloquium*, *Truro*, 2-3 Feb, 2018.

75. Woods, K. and Brenan, J.M. An experimental study of the effect of water on chromite saturation in komatiite. *Atlantic Geoscience Society 44th Colloquium, Truro*, 2-3 Feb, 2018. **Best Student Paper Award**

74. Keltie, E., Brenan, J.M. and Mungall, J.E., Weston, R. An experimental investigation of the effect of country rock assimilation on chromite crystallization in the Ring of Fire, James Bay lowlands, Ontario. *PDAC-SEG Student Research Colloquium*, March 2018. **Best Student Paper Award**

73. Brenan, J.M. and Mungall, J.E. A sulfide-saturated Lunar mantle? *EGU General Assembly*, *Vienna,* 23-28 April, 2017

72. Brenan, J.M. Sulphur solubility of reduced, iron-rich melts. *Atlantic Geoscience Society 43rd Colloquium, Fredricton,* 10-11 Feb, 2017.

71. Jorgenson C. and Brenan, J.M. Sulphur solubility of carbonatites, with implications for mass transfer in Earth's mantle. *Atlantic Geoscience Society 43rd Colloquium, Fredricton*, 10-11 Feb, 2017. **Best Student Paper Award**

70. Keltie, E., Brenan, J.M. and Mungall, J.E. Experimental investigation of the role of contamination on chromite crystallization in the Ring of Fire deposit, Ontario. *Atlantic Geoscience Society 43rd Colloquium, Fredricton,* 10-11 Feb, 2017.

69. Maciag, B., and Brenan, J.M. Apatite for reduction: A potential new oxybarometer for felsic magmatic systems. *Atlantic Geoscience Society 43rd Colloquium*, *Fredricton,* 10-11 Feb, 2017.

68. Sullivan, N.A., Brenan, J.M. and Canali, A.C. Solubility of the assemblage Pt-PtAs(melt) in basalt with implications for As speciation and Pt sequestration. *Highly Siderophile Elements Workshop*, *Durham, UK*, July, 2016.

67. Brenan, J.M. and Fowler-Gerace, N.A. Partitioning of Se and Te in mantle melting residues: Implications for the upper mantle Se-Te array. *Highly Siderophile Elements Workshop*, *Durham, UK*, July, 2016.

66. Brenan, J.M. and Fowler-Gerace, N. Se-Te fractionation by sulfide-silicate partitioning: Implications for the late accretion history of Earth. *Joint Assembly, Montreal* May, 2015.

65. Canali A. and Brenan, J.M. Solubility of the assemblage Pt-PtAs(melt) in basalt with implications for Pt-As complexing and As speciation. *Joint Assembly, Montreal* May, 2015.

64. Mungall, J.E., Long, K., Smythe, D., Brenan, J.M. and Naslund, H.R. Role of liquid immiscibility in the generation of magmatic Fe-P-O deposits. *Joint Assembly, Montreal* May, 2015.

63. Mungall, J.E., Brenan, J.M., Godel, B., Barnes, S.J. Transfer of S, Cu and Au to felsic magmas by flotation of sulfide melt on vapor bubbles. *V.M. Goldschmidt Conference, Sacramento,* June, 2014.

62. Mungall, J.E., Long, K., Smythe, D., Brenan, J.M. and Naslund, H.R. Genesis of a magmatic end-member IOCG deposit at El Laco. *V.M. Goldschmidt Conference, Sacramento,* June, 2014.

61. Mungall, J.E., Long, K., Smythe, D., Brenan, J.M. and Naslund, H.R. Genesis of a magmatic end-member IOCG deposit at El Laco. *V.M. Goldschmidt Conference, Sacramento,* June, 2014.

60. Mungall, J.E. and Brenan, J.M. Mantle-Crust Fractionation of the Platinum-Group Elements. *V.M. Goldschmidt Conference, Florence,* August, 2013.

59. Brenan, J.M. Effect of sulfur on the solubility of platinum in molten silicate: Preliminary results. *GAC/MAC meeting, Winnipeg,* May, 2013

58. Turchario, F. and Brenan, J.M. Experimental investigation of Pt and Rh solubility in basalt-rhyolite mixtures. *GAC/MAC meeting, Winnipeg,* May, 2013
Jerome H. Remick Poster Award*

57. Barnes, S.J., Godel, B. and Brenan, J.M. Sulfide-olivine Fe-Ni exchange and the origin of anomalously Ni-rich magmatic sulfides. *12th International Ni-Cu-(PGE) Symposium, Guiyang, China,* June, 2012.

56. Liu, Y and Brenan, J.M. Experimental measurement of PGE and semi-metal partitioning during sulfide melt crystallization at controlled fO_2-fS_2 conditions. *12th International Ni-Cu-(PGE) Symposium, Guiyang, China,* June, 2012.

55. Lesher, C.E., Brenan, J.M., Barfod, G.H. and Glessner, J. Experimental constraints on Fe-isotope fractionation at the core-mantle boundary. *V.M. Goldschmidt Conference, Montreal*, June, 2012.

54. Bennett, N. and Brenan, J.M. Equilibrium core formation loses its lustre: High pressure and temperature partitioning of gold. *V.M. Goldschmidt Conference, Montreal*, June, 2012

53. Brenan, J.M. Sulfide-silicate partitioning of PGEs (and Au): Implications for noble metal behaviour in magmatic systems. *V.M. Goldschmidt Conference, Montreal*, June, 2012

52. Liu, Y and Brenan, J.M. MSS-sulfide melt partitioning of PGE and semi metal at controlled fO_2-fS_2 conditions. *V.M. Goldschmidt Conference, Montreal*, June, 2012

51. Smythe, D.J. and Brenan, J.M. Ce Speciation in Silicate Melts: Application to Ce-in-Zircon Oxybarometry. *V.M. Goldschmidt Conference, Montreal*, June, 2012

50. Brenan, J.M. Sulfide-silicate partitioning of PGEs (and Au): Implications for noble metal behaviour in magmatic systems. *GAC/MAC meeting, St. John's,* May, 2012.

49. Lesher, C.E., Brenan, J.M., Glessner, J. and Barfod, G.H. Soret fractionation of Fe isotopes in pure Fe and iron alloy melts at high pressure. *AGU Fall meeting, San Francisco,* December, 2011.

48. Smythe, D.J. and Brenan, J.M. Ce Speciation in Silicate Melts: Application to Ce-in-Zircon Oxybarometry. *AGU Fall meeting, San Francisco,* December, 2011.

47. Bennett, N. and Brenan, J.M. Suppression of Metal Inclusions and The Effect of Carbon on Pt Solubility in Haplobasalt at High Pressure and Temperature. *AGU Fall meeting, San Francisco,* December, 2011.

46. Smythe, D.J. and Brenan, J.M. Determination of cerium speciation in silicate melts and its application to the Ce-in-zircon oxybarometer. *GAC/MAC meeting, Ottawa,* May, 2011.

45. Brenan, J.M., Finnigan, C.F., McDonough, W.F., and Homolova, V. Ferric iron control on the partitioning of Ru, Rh, Ir, Pt and Pd between chromite and silicate melt. *GAC/MAC meeting, Ottawa,* May, 2011.

44. Bennett, N. and Brenan, J.M. The metal-silicate partitioning of Re and Pt: Constraining Os isotope systematics in the upper mantle. *GAC/MAC meeting, Ottawa,* May, 2011.

43. Brenan, J.M. and Homolova, V. An Experimental Study of Spinel- and Chromite-Melt Partitioning of Platinum Group Elements. *11th International Platinum Symposium, Sudbury*, June, 2010.

42. Bennett, N.R and Brenan, J.M. Metal-Silicate Partitioning of Rhenium: Implications for Terrestrial Accretion. *11th International Platinum Symposium, Sudbury*, June, 2010.

41. Bennett, N.R and Brenan, J.M. Metal-Silicate Partitioning of Rhenium. *V.M. Goldschmidt Conference, Knoxville,* June, 2010.

40. Smythe, D.J., Brenan, J.M., Bennett, N.R., Henderson, G.S. and Regier, T. Ce speciation in silicate melts. *V.M. Goldschmidt Conference, Knoxville*, June, 2010.

39. McKenzie, V. and Brenan, J.M. Solubility of Pt and Rh in Basalt-Rhyolite Mixtures: Implications for PGE Saturation During Crustal Contamination. *GAC/MAC/AGU Joint Assembly, Toronto,* May, 2009.

38. Brenan, J.M. and McDonough, W.F., Core Formation and Extreme Fractionation of Highly Siderophile Elements (HSE). *GAC/MAC/AGU Joint Assembly, Toronto,* May, 2009.

37. Caciagli, N., Brenan, J.M., McDonough, W.F. and Phinney, D. Experimental Constraints on Lithium Exchange Between Clinopyroxene, Olivine and Aqueous Fluids at Elevated P and T. *GAC/MAC/AGU Joint Assembly, Toronto,* May, 2009.

36. Smythe, D., Brenan, J.M., Henderson, G.S. M-Edge XANES Study of Ce^{3+}/Ce^{4+} in Synthetic Andesitic Glasses. *GAC/MAC/AGU Joint Assembly, Toronto,* May, 2009.

35. McDonough, W.F. and Brenan, J.M. Core formation, HSE partitioning and non-equilibrium processes. *40th Lunar and Planetary Science Conference, Houston,* March, 2009.

34. Smythe, D., Schulze, D and Brenan, J.M. Rutile as a kimberlite indicator mineral: Minor and trace element geochemistry. *9th International Kimberlite Conference, Frankfurt, Germany*, August, 2008

33. Brenan, J.M. and McDonough, W.F., Solubility of Os, Ir and Au in molten silicate at high P-T, low fO_2 conditions. *V.M. Goldschmidt Conference, Vancouver*, July, 2008

32. Brenan, J.M. and McDonough, W.F. Solubility of osmium, iridium and gold in molten silicate at high P-T conditions: Implications for upper mantle abundances. *GAC/MAC meeting, Quebec City,* May, 2008.

31. Homolova, V., Brenan, J.M., McDonough, W.F. and Ash, R. Olivine- and spinel-melt partitioning of platinum group elements (PGEs) as a function of oxugen fugacity. *GAC/MAC meeting, Quebec City,* May, 2008.

30. Rose-Weston, L.A., Rubie, D.C. and Brenan, J.M. Late-stage removal of chalcophile elements from the mantle by sulfide extraction to the core. *V.M. Goldschmidt Conference, Cologne*, 2007

29. Rose-Weston, L.A. and Brenan, J.M. The Behaviour of Te, Se, and S During Terrestrial Accretion and Differentiation: The Necessity of a 'Late Veneer'. DFG Colloquium, Berlin, Germany, 2007.

28. Rose, L.A. and Brenan, J.M. Is a 'Late Veneer' Necessary? Clues from Metal-Silicate Partitioning of Te, Se, and S, *Spring AGU Meeting, Baltimore*, 2006

27. Brenan, J.M. and McDonough, W.F. Sulfide phase equilibrium and HSE partitioning near the mantle solidus. *3rd Workshop on Highly Siderophile Elements*, Durham, UK, July, 2006

26. Brenan, J.M. and McDonough, W.F. Sulfide-silicate partitioning of Mo, Sb, Pb, Se and Te: Initial results. *GAC/MAC meeting, Montreal,* May, 2006.

25. Brenan, J.M. and McDonough, W.F. Fractionation of Highly Siderophile Elements (HSEs) by Sulfide-Silicate Partitioning: A New Spin. *AGU Fall Meeting, San Francisco*, 2005.

24. Ryerson, F.J., Brenan, J.M. and Phinney, D.L. Experimental Determination of Li, Be and B Partitioning During CAI Crystallization. *36th Lunar and Planetary Science Conference, Houston,* March, 2005.

23. Rose, L.A. and Brenan, J.M. Testing the Magma Ocean Hypothesis using Metal-Silicate Partitioning of Te, Se and S. *Oxygen in the Terrestrial Planets, Santa Fe, NM,* August, 2004.

22. Finnigan, C.S. and Brenan, J.M. Experimental Evidence for the Co-precipitation of PGE Alloys and Chromite as a Result of Local Reduction in the Melt Caused by Chromite Crystallization. *Geoscience Africa,* July, 2004

21. Finnigan, C.S. and Brenan, J.M. Experimental evidence for the formation of PGE alloy inclusions in chromite by local reduction. *Experimental Mineralogy and Petrology, Frankfurt,* April, 2004

20. Brenan, J.M. and McDonough, W.F. Olivine-silicate melt partitioning of iridium. *35th Lunar and Planetary Science Conference, Houston,* March, 2004.

19. Finnigan, C.S., Brenan, J.M. and McDonough, W.F. Chromian spinel-silicate melt partitioning of ruthenium and palladium. *GAC/MAC meeting, Vancouver,* May, 2003.

18. Conly, A.G., Brenan, J.M., Bellon, H. and Scott, S.D. Arc-to-rift transitional volcanism in the Santa Rosalia Basin, Baja California Sur, Mexico: Melt genesis from a fluid-melt(?) metasomatized mantle. *GAC/MAC meeting, Vancouver,* May, 2003.

17. Andrews, D. and Brenan, J.M. Phase equilibrium constraints on the conditions of formation of laurite and IPGE alloy. *Highly siderophile elements in terrestrial and meteoritic samples: implications for planetary differentiation and igneous processes, Nancy, France*, 2002

16. Andrews, D. and Brenan, J.M. Are IPGE Alloys Stable in the Presence of Immiscible Sulfide Liquid? *GSA Meeting, Boston,* Nov. 2001

15. Andrews, D. and Brenan, J.M. Solubility of Ruthenium in Sulphide Melt: Implications for IPGE Alloy Stability. *V.M. Goldschmidt Conference, Virginia*, 2001

14. Mungall, J.E., Brenan, J.M. and Hanley, J., Halogens are Moderately Chalcophile Elements. *V.M. Goldschmidt Conference, Virginia*, 2001

13. Wang, H.M, Henderson, G.S., and Brenan, J.M. Characterization of Silica Species in Water using Micro-Raman Spectroscopy. *GAC/MAC St. John's*, 2001

12.Hall, S.M., Henderson, G.S., and Brenan, J.M. Containerless Melting in Microgravity. *GAC/MAC St. John's*, 2001

11. Andrews, D. and Brenan, J.M. High Temperature Stability of Laurite and Re-Os-Ir Alloy and their Possible Role in IPGE/PPGE Fractionation in Magmatic Systems. *AGU Spring Meeting, Washington, D.C.*, 2000

10. Rose, L.A. and Brenan, J.M. Wetting Properties of Fe-Ni-Co-Cu-O-S Melts Against Olivine: Implications for Sulphide Melt Mobility. *AGU Spring Meeting, Washington, D.C.*, 2000 Best Student Paper Award, VGP Section

9. Brenan, J.M. and Caciagli, N. Olivine-Sulphide Liquid Fe-Ni exchange: A New Oxygen Barometer. *GAC/MAC Sudbury*, 1999.

8. Rose, L. and Brenan, J.M. The Effect of Minor Elements on Mineral-Sulphide Liquid Wetting Properties. *GAC/MAC Sudbury*, 1999.

7. Sattari, P., Brenan, J.M., McDonough, W.F. and Horn, I. Chromite-Melt Partitioning of Re and the PGEs. *GAC/MAC Sudbury*, 1999

6. Rudnick, R.L., McDonough, W.F., Horn, I, Lee, C.-T., Brenan, J.M. and Sattari, P. In Situ Studies of PGEs: Natural and Synthetic Sulfides and Silicates. *AGU Fall Meeting, San Francisco*, 1998.

5. Brenan, J.M., Cherniak, D.J. and Rose, L. Diffusion of Re and Os in Pyrite and Molybdenite: Implications for Closure of the Re-Os Isotope System. *GSA Toronto*, 1998.

4. Minarik, W.M., Brenan, J.M., Marchildon, N. and Normand, J. Jadeite Radiolarians from the Franciscan: Preservation of Spheres to Blueschist Facies and Possible Controls on Strain Partitioning. *GSA Toronto*, 1998.

3. Sattari, P., Brenan, J.M., Horn, I. and McDonough, W.F. The Relative Significance of Sulphide Liquid and Chromite on Re and PGE Fractionation During Melting and Solidification, *GSA Toronto*, 1998.

2. Caciagli, N and Brenan, J.M. Fe-Ni Exchange Between Olivine and Sulphide Melt: Implications for Magmatic Ni-Sulphide Deposits, *I.M.A Toronto*, 1998.

1. Caciagli, N and Brenan, J.M. The Effect of Temperature on Fe-Ni Exchange between Olivine and Sulphide Melt: Implications for Magmatic Ni-Sulphide Deposits. *EOS, Trans. American Geophysical Union*, 1998.

Invited Lectures and Conference Presentations (Sincere Tenure-Track)

54. Brenan, J.M. Experimental results bearing on the origin of stratiform chromitites. Institut des Sciences de la Terre d'Orléans, 11 February, 2026.

53. Brenan, J.M., Keltie, E., and Woods, K. The role of contamination in the formation of chromitites: Further evaluation of Irvine's hypothesis. *V.M. Goldschmidt Conference,* August 2024 (invited).

52. Brenan, J.M. Experimental results bearing on chromite saturation in magmas. Chromite Workshop, *International Platinum Symposium*, July 2023 (invited).

51. Mungall, J.E., Yao, Z.-S., and Brenan, J.M. Role of compound drops in magmas. *14th International Ni-Cu-PGE and Naldrett Memorial Symposium*, November 2020 (keynote).

50. Maciag, B.J. and Brenan, J.M. Experimental Calibration of an Arsenic-in-Apatite Oxybarometer. *V.M. Goldschmidt Conference, On-line,* June, 2020 (invited).

49. Brenan, J.M. Soret separation of iron isotopes in metallic liquids: Evidence for a leaky core? *Geological Association of Canada, Volcanology-Igneous Petrology Section National Webinar*, April, 2020.

48. Brenan, J.M. Experiments and observations on the behavior of siderophile elements in magmas. Washington University. St. Louis, 9 November, 2017.

47. Brenan, J.M. A new oxygen barometer for felsic magmas with application to the Early Earth. AGS-Science Atlantic Speaker, University of New Brunswick, 24 March, 2017.

46. Brenan, J.M., Mungall, J.E., Homolova, V. and Luo, D. A sulfide-saturated lunar mantle? *Highly Siderophile Elements Workshop*, Durham, UK, July, 2016.

45. Brenan, J.M. Ce in zircon oxygen barometry. Bedford Institute of Oceanography, 18 May, 2016.

44. Deciphering the formation of the Earth and Moon using the highly siderophile elements (HSE). Dept of Chemical and Physical Sciences, U of Toronto, Mississauga, 24 November, 2015.

43. Brenan, J.M. Late accretion to the Earth –Moon system. Rensselaer Polytechnic Institute, Troy, NY, November 10, 2015.

42. Brenan, J.M., Canali A.C. and Sullivan, N.A. Solubility of the assemblage Pt-PtAs(melt) in basalt with implications for Pt-As complexing and As speciation (invited). *V.M. Goldschmidt Conference, Prague,* August, 2015.

41. Mungall, J.E., Brenan, J.M., Godel, B., Barnes, S.J. and Gaillard, F. Upward transport of S, Cu and Au in magmas by flotation of sulphide melt on vapour bubbles (keynote). *V.M. Goldschmidt Conference, Prague,* August, 2015.

40. Brenan, J.M. Ce in zircon oxygen barometry. Dalhousie University, 13 April, 2015.

39. Brenan, J.M. Experiments and observations bearing on the behaviour of the HSEs in magmatic systems. Dalhousie University, 14 April, 2015.

38. Brenan, J.M. Experimental Constraints on HSE Fractionation during Basalt Genesis (keynote). *V.M. Goldschmidt Conference, Florence,* August, 2013.

37. Brenan, J.M. Experimental constraints on late accretion of the Earth and Moon. Penn. State University, 19 March, 2013.

36. Brenan, J.M. Experimental calibration of a Ce in zircon oxygen barometer: results so far. Universite Blaise Pascal, 17 July, 2012.

35. Brenan, J.M. Soret separation of siderophile elements and iron isotopes in metallic liquids at very high temperature: Implications for the core-mantle boundary. Universite Blaise Pascal, 10 July, 2012.

34. Brenan, J.M. Geochemical Constraints on the Great Terrestrial Smelting Event. Queen's University, 23 March, 2012.

33. Brenan, J.M. Experiments and observations bearing on the behaviour of siderophile elements during terrestrial accretion and magmatic differentiation. American Museum of Natural History, New York, USA, 1 December, 2011.

32. Brenan, J.M. Experimental Constraints on The Curious Behaviour of Rhenium in Terrestrial and Lunar Magmas. Frei Universitat, Berlin, Germany, 7 June, 2011.

31. Brenan, J.M. Experimental Constraints on The Curious Behaviour of Rhenium in Terrestrial and Lunar Magmas. Geophysical Laboratory, Washington, D.C., 7 February, 2011.

30. Brenan, J.M. Highly siderophile elements: Admirably adapted for use by the philosophical geochemist. Memorial University, St. John's, Noember, 2010.

39. Brenan, J.M. The Eruption of Eyjafjallajokull. General Meeting of the Travel Health Insurance Association of Canada. Markham, Ontario, 21 September, 2010.

28. Brenan, J.M. Highly siderophile elements: Admirably adapted for use by the philosophical geochemist. McGill University, Montreal, 31 March, 2010.

27. Brenan, J.M. Highly siderophile elements: Admirably adapted for use by the philosophical geochemist. ETH Zurich, 6 March, 2009.

26. Brenan, J.M. A tale of platinum: "Admirably adapted for science and industry". University Lecture Series, U ot T School of Continuing Studies. Oakville Public Library, 3 December, 2008 and Markham Civic Centre, 5 February, 2009.

25. Brenan, J.M. Highly siderophile element fractionation in igneous systems: Insights from experiments. University of Maryland, 12 February, 2008.

24. Brenan, J.M. A method to estimate mineral-melt partitioning of PGEs in reduced magmatic systems. *Frontiers in Mineral Sciences, Cambridge*, June, 2007.

23. Brenan, J.M. Experiments and Observations Bearing on the Behaviour of Highly Siderophile Elements in Magmatic Systems. Boston University, 23 September, 2006

22. Brenan, J.M. Factionation of highly siderophile elements by sulfide-silicate partitioning: A new spin. Bayreuth Geoinstitut, Germany, 7 September, 2006

21. Brenan, J.M. Experiments and observations bearing on the behaviour of HSEs in magmatic systems. University of California, Los Angeles, 5 May, 2005

20. Brenan, J.M. Experiments and observations bearing on the behaviour of HSEs in magmatic systems. Rensselaer Polytechnic Institute, 13 April, 2005

19. Brenan, J.M. PGE behaviour in magmatic systems: Insights from experiments. University of Bristol, 18 February, 2005

18. McDonough, W.F., Brenan, J.M. and Ash, R.D. Siderophile and chalcophile elements in synthetic and natural materials. *AGU Spring Meeting, Montreal*, 2004.

17. Brenan, J.M., Finnigan, C.S. and McDonough, W.F. Concentration of the PGEs in olivine and chromite by solid solution and textural entrapment. *AGU Spring Meeting, Montreal*, 2004.

16. Brenan, J.M., Finnigan, C.S. and McDonough, W.F. Fractionation of the platinum group elements by olivine and chromite partitioning. *GAC/MAC meeting, St. Catherine's, May,* 2004.

15. Brenan, J.M. What do experiments tell us about the behaviour of PGEs in igneous rocks? Queen's University, 26 March, 2004.

14. Brenan, J.M. Experiments and observations bearing on the behaviour of platinum group elements in igneous rocks. Geophysical Laboratory, 14 April, 2003.

13. Brenan, J.M. What do experiments tell us about the behaviour of PGEs in igneous rocks? University of Western Ontario, 10 October, 2002.

12. Brenan, J.M. The mineralogy of the inaccessible Earth. Walker Mineralogy Club, Toronto, 11 September, 2002.

11. Brenan, J.M., Dalpe, C. and McDonough, W.F. The PGEs are fractionated by olivine-melt partitioning. *V.M. Goldschmidt Conference, Davos, Switzerland,* 2002

10. Brenan, J.M. Acceptance speech for the 2002 Mineralogical Association of Canada Young Scientist Award, GAC/MAC Meeting, Saskatoon, May, 2002.

9. Brenan, J.M. What do laboratory experiments tell us about the behaviour of the PGEs in igneous rocks? University of Windsor, 26 March, 2002.

8. Brenan, J.M. Current volcanic activity on Mt. Etna. Live interview on CBC Newsworld, 27 July, 2001.

7. Brenan, J.M. Introduction to rocks, minerals and the geology of southern Ontario. Caledon East Public School, 13 June, 2001.

6. Brenan, J.M. What do laboratory experiments tell us about the behaviour of the PGEs in igneous rocks? Okanagan University College, 19 February, 2001

5. Brenan, J.M., Horn, I., McDonough, W.F., and Sattari, P. Olivine-Melt Partitioning of Re and the PGEs: Experimental Constraints. *AGU Spring Meeting, Washington, D.C.*, 2000

4. Brenan, J.M. and Caciagli, N. Constraints on the Oxygen Fugacity of Olivine and Sulphide-Saturated Igneous Rocks, *AGU Spring Meeting, Boston*, 1999.

3. Brenan, J.M. Acceptance speech for the 1998 Mineralogical Society of America Award, GSA Meeting, Toronto, October, 1998.

2. Brenan, J.M. The importance of sulphide liquid composition. Seminar, Geophysical Laboratory, Washington, D.C., September, 1998.

1. Brenan, J.M. Element recycling at convergent margins: Constraints from experiments. Seminar, Department of Geology, University of Toronto, March, 1998.

Theses Supervised/In Progress

B.Sc.

Natalie Caciagli, B.Sc. thesis title:"An experimental study of Fe-Ni exchange between olivine and sulphide melt: Implications for Ni-Cu deposits and oxygen barometry", Completed April, 1998. Current General Manager Geochemistry, North America at ALS Geochemistry.

David Andrews, B.A.Sc. thesis title: "An experimental study of the solubility of iridium in sulphide liquid: Implications for high temperature alloy phase stability", Completed April, 1999. Current Principal Mining Innovation, Idoba Software Development.

Vivian Schatz, B.Sc. thesis title:"Do melt inclusions in olivine preserve primary liquid compositions?", Completed April, 1999. Current Senior Trade Policy Officer at Global Affairs Canada.

Andrew Stewart, B.Sc. thesis title:"Hydrothermal growth of quartz single crystals", Completed April, 2000. Completed Ph.D. at ETH. Current Senior Vice President @ Amrize Canada.

Lisa Tomory, B.Sc. thesis title:"Diffusion of sulphur in a basaltic melt", Completed April, 2000. Current status unknown.

Christine Kwan, B.Sc. thesis title:"Characterisation of PGE mineralisation at East Bull Lake", Completed April, 2001. Current status unknown.

Peter Gower, B.A.Sc. thesis title: "An experimental study of the solubility of ruthenium and stability of laurite in a basaltic system", Completed June, 2002, Current Principal, Mining and Technology at Waterton Global Resource Management, Inc.

Mike Wood, B.A.Sc. thesis title: "Arsenic in igneous systems: An experimental investigation" Completed April, 2003. Current Freelance busker and beekeeper.

Seth Ninaviggi, B.Sc. thesis title: "The geology and origin of the Essonville Carbonatite", Completed April, 2003. Current status unknown.

Ashley Harrett, B.Sc. thesis title: "Zircon-melt partitioning of Ce and Eu as a function of oxygen fugacity", Completed April, 2005. Current status unknown.

Veronika Homolova, B.Sc. thesis title: " Spinel-silicate melt partitioning of platinum group elements (PGEs) as a function of oxygen fugacity", Completed April, 2008. Completed a Ph.D. at Rensselaer Polytechnic Institute.

Victoria Mackenzie, B.Sc. thesis title: "Chromite and PGE precipitation induced by magma mixing", Completed April, 2009. Went to medical school.

Caitlin Beland, B.Sc. thesis title "Petrology of Li pegmatites east of James Bay, Quebec", completed April, 2011. Completed a Ph.D. at McGill University. Current Senior Project Geologist at IAMGOLD Corporation.

Danica Pascua, B.Sc. thesis title: "Stability of copper rich sulfide minerals at high temperature: Implications for Au-PGE fractionation in felsic magmas", completed, April, 2012. Current 3D Modelling Geologist at Agnico Eagle Mines.

Alex Pernin, B.Sc. thesis title: "Evidence for shallow level degassing at Mt. St. Gregoire, QC", completed, April, 2013. Current Chief Executive Officer and Director at Star Royalties Ltd.

Mark Lawrence, B.Sc. thesis title: "Investigation of ash layers, Ordovician Table Point Formation, Newfoundland", completed, April, 2013. Current Manager, Commodity Management & Strategic Sourcing at Collins Aerospace.

Dennis Luo B.Sc. thesis title: "Is there Fe metal in the source regions of lunar magmas?", completed, April, 2014. Current GIS Analyst at Skeena Resources.

Andrew Canali, B.Sc. thesis title: "Solubility of the assemblage Pt-PtAs in basalt with implications for Pt complexing and As speciation", completed, April, 2014. Current Hydrogeologist at SRK Consulting.

Kristyna Buchan, B.Sc. thesis title: "Origin of amphibole in the Skinner Cove Formation, Newfoundland, Canada", completed, April, 2015. Current Letter Carrier for Canada Post.

Robin Wolf, B.Sc. thesis title: "Solubility of precious metals in carbonate melt, with implications for mantle metasomatism", completed, April, 2015. Current PhD candidate at University of Bern.

Stephanie Vaughn, B.Sc. thesis title: "Oxidation state of manganese in igneous systems", completed, April, 2016. Went to medical school.

Corin Jorgenson, B.Sc. thesis title: "Solubility of sulfur in molten carbonate with implications for mantle metasomatism", completed April, 2017. **Leopold Gelinas Bronze Medal for Best Undergraduate Thesis, VGP Division of Geological Association of Canada**, Completed a Ph.D. at University of Geneva. Current Post-doc at University of Strathclyde.

Kate Woods, B.Sc. thesis title: "An experimental study of the effect of water on chromite saturation in komatiite", completed April, 2018. Current status professional dog trainer.

Juan Chavez, B.Sc. thesis title: "Investigation of the redox state of the South Mountain Batholith using Ce-in-zircon oxygen barometry", completed April, 2019. Current Physical Science Officer at Environment and Climate Change Canada.

Kathleen Clark, B.Sc. thesis title: "Magmatic evolution of the Scrag Lake and New Ross Plutons (Nova Scotia) as revealed by trace element mapping of biotite", completed April, 2022. **Leopold Gelinas Bronze Medal for Best Undergraduate Thesis, VGP Division of Geological Association of Canada**, Current M.Sc. student Dalhousie.

Erin Hilliard, B.Sc. thesis title "Examining pyrite zonation and trace element indicators to identify auriferous fluid phases within the Lone Star Deposit, Yukon Territory, Canada", completed April, 2023. Current geologist for Klondike Gold Corp.

Isaiah Mailhoff, B.Sc. thesis title "The origin of highly fractionated granites related to the South Mountain Batholith, completed April, 2026.

M.Sc.

Parisa Sattari, M.Sc. thesis title: "Experimental constraints on the role of chromite in PGE fractionation in magmatic systems", Completed May, 2000. Financial Advisor, Candian Imperial Bank of Commerce.

Lesley Rose, M.Sc. thesis title: "Wetting properties of Fe-Ni-Co-Cu-O-S melts against olivine: Implications for sulphide melt mobility", Completed Sept, 2000. Current Senior Geologist at Fladgate Exploration Consulting Corporation.

David Andrews, M.Sc. thesis title: "The effects of intensive parameters on the geochemical behaviour of ruthenium, osmium and iridium in sulfide saturated and undersaturated systems: Implications for IPGE alloy stability in mafic magmas", Completed Sept, 2002. Current Principal Mining Innovation, Idoba Software Development.

Fransesco Turchario, M.Sc. thesis title: "The effect of melt composition on the behaviour of platinum in magmatic systems", completed August, 2013. Current status unknown.

Caitlin Beland M.A.Sc. thesis title: "Phase Equilibria in Peralkaline melts", completed January, 2013 (co-supervised with J. Mungall). Finished a Ph.D. at McGill University. Current Senior Project Geologist at IAMGOLD Corporation

Shawn Vandekerkhove M.Sc. thesis title: "Wetting properties of sulfide liquids in crustal lithologies", completed August, 2014 (co-supervised with J. Mungall). Current Director - New Opportunities at Ivanhoe Electric.

Neal Sullivan M.Sc. thesis title: "The role of tellurium as a complexing agent for precious metals in porphyry deposits", completed August, 2015 (co-supervised with Z. Zajacz). Current founder and principal of Vision Geochemistry, Ltd.

Erin Keltie M.Sc. thesis title: "An experimental study of factors that affect chromitite formation in the Ring of Fire, James Bay Lowland, Ontario", completed December, 2018 (co-supervised with J. Mungall). Current Analytical Lab Manager, Novonix.

Natashia Drage, M.Sc. thesis title: "The effect of pressure on the solubility of chromite with applications to the origin of stratiform chromitites", completed May, 2022. **Leopold Gelinas Silver Medal for Best M.Sc. Thesis, VGP Division of Geological Association of Canada**. Current Environmental Geoscientist, Core Geoscience Services, Inc.

Kathleen Clark, M.Sc. thesis title: "Constraints on the crystallization history of the Davis Lake Pluton, Nova Scotia using the chemistry of biotite and apatite", began May, 2022.

Ph.D.

Craig Finnigan, Ph.D. thesis title: "The role of chromite in PGE fractionation in mafic igneous systems", Completed June, 2006. Deceased.

Lesley Rose, Ph.D. thesis title: "Solution behaviour of the siderophile elements during Earth differentiation: An experimental study", Completed April, 2007. Current Senior Geologist at Fladgate Exploration Consulting Corporation.

Natalie Caciagli, Ph.D thesis title: "Experimental constraints on Li isotope fractionation during subduction zone dehydration", Completed December, 2009. Current General Manager Geochemistry, North America at ALS Geochemistry.

Duane Smythe, Ph.D. thesis title: "An experimental study of zircon-silicate melt partitioning with geochemical applications", completed August, 2013. **Gelinas Gold Medal for Best Ph.D. Thesis, VGP Division of Geological Association of Canada **. Current Lab Administrator & Senior Instrument Specialist at University of Toronto.

Neil Bennett, Ph.D. thesis title: "The behaviour of siderophile elements in high temperature geochemical systems", completed August, 2013. Current Assistant Professor at University of Toronto.

Yanan Liu, Ph.D. thesis title: "Arsenic and other semi-metals in igneous ore-forming systems", completed September, 2015. Current microbeam specialist at University of Toronto.

Neal Sullivan, Ph.D. thesis title: "Mobilization of Platinum, Palladium and Gold by Magmatic Brines: An Experimental Study", completed Sept, 2020. (co-supervised with Zoltan Zajacz). Current founder and principal of Vision Geochemistry, Ltd.

Xueni Zhang, Ph.D. co-supervised as a visiting scholar, China Scholarship Council. Project title: "Controls on the orthopyroxene-melt partitioning of palladium". Feb 2018-Feb 2020, PhD completed 2022. Current researcher at China University of Geosciences, Bejing.

Bryan Maciag, Ph.D. thesis title: "Behaviour of arsenic in magmatic systems", completed August, 2022. Current post-doctoral fellow University of Brighton, UK.

Peteris Rozenbaks, Ph.D. provisional title: "Biotite-melt partitioning of trace elements and the development of a biotite-apatite oxygen barometer", began Fall 2021.

Michael Powell, Ph.D. provisional title: “An experimental evaluation of the role of fluids in the transport of critical metals in felsic igneous systems”, began Fall 2022.

Deng Yang He, Ph.D. co-supervised as a visiting scholar, China Scholarship Council. Project title: “How sulfides decompose during mantle metasomatism”, June 2025-present.