

MICHAEL B. WOLF

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EDUCATION:

- Ph.D., Geology;** California Institute of Technology (Caltech), Pasadena, CA June 1992
Thesis Title: Amphibolite-Tonalite Relationships: Part I. Experimental Investigation of the Phase Relationships and Textural Development of Amphibolite Dehydration-Melting; pgs. 1-246.
Part II. The Geology, Petrology and Geochronology of a Tonalitic and Mafic Dike Swarm (Southwestern Foothills Terrane, CA); pgs. 247-357.
Advisors: Drs. Peter J. Wyllie & Jason B. Saleeby
- M.S., Geology;** Caltech, Pasadena, CA June 1988
- A.B. (cum laude), Geology (with honors);** Hamilton College, Clinton, NY May 1985

POSITIONS HELD:

- Professor of Geology, Augustana College, Rock Island, IL Aug. 2009 to present
Fritioff M. Fryxell Endowed Chair in Geology June 2017 to present
Director of the Fryxell Geology Museum, Augustana College June 2017 to present
Curator of the Fryxell Geology Museum, Augustana College March 2002 to present
Chair of the Natural Sciences Division, Augustana College June 2016 to June 2022
Associate Professor of Geology, Augustana College Sept. 2002 to July 2009
Chair of the Department of Geology, Augustana College June 2002 to May 2016
Assistant Professor of Geology, Augustana College Sept. 1995 to Feb. 2002
Post-doctoral Research Associate, The University of Oklahoma, Norman, OK Aug. 1992 to Aug. 1995
Research Scientist, California Institute of Technology, Pasadena, CA Dec. 1991 to July 1992

COURSES TAUGHT AT AUGUSTANA:

- The Geology of Myths and Legends (LS111 or FYI102 or HONR201):*** taught six times as part of the college's First-Year Liberal Studies general education or Honors programs (~24 students/course).
- The Geology of Myths and Legends (GEOL100):*** taught twice as an "Interpreting Natural and Religious Worlds" Learning Community (with Prof. Williams' RELG 373: Interpreting the Bible) and once as a stand-alone general education course (~24 students).
- Introduction to Physical Geology (GEOL101):*** taught twenty three times as an open enrollment course (enrollment ~30-50 students); 2 laboratory sections in addition to the 3 lecture periods.
- Gemology (GEOL104):*** developed this course with a local professional gem appraiser, and mentored and informally co-instructed with her throughout her first teaching experience (~24 students).
- Introductory Physical Geology in the Rocky Mountains (GEOL105):*** this summer fieldtrip course is for incoming first-year students (~16 students); taught twenty times, with Dr. Jeff Strasser; 2-½ - week-long fieldtrip through South Dakota and Wyoming.
Though listed above as a formal geology course, GEOL105 is special. I co-developed and, for nineteen years, have co-led this introductory geology fieldtrip course to the Rocky Mountains. This experience is unique to Augustana and enhances the desirability and reputation of not only the geology department, but the College as a whole (the admissions office uses it as a recruitment tool for highly motivated, scientifically and environmentally focused prospective students).
- Earthquakes, Tsunamis and Eruptions in Asia (GEOL106):*** taught in Japan and Taiwan to >50 Augustana students as part of the 2013 and 2016 Asian Term semesters abroad.
- Environmental Geology (GEOL115):*** taught once as an open enrollment introductory course that surveyed a wide variety of environmental issues (30 students); 2 lab sections.

COURSES TAUGHT AT AUGUSTANA (cont.):

Environmental Geology: Mineral & Energy Resources and the Environment (GEOL115): taught five times as part of the four-course Nature and Environment First-Year Sequence (~15-20 students); 1 laboratory section + lecture periods; with Profs. Mahaffey, Peters, and Quinn.

Environmental Geology: Energy Resources and Environmental Issues (renumbered now as GEOL116; converted to LSFY103 course for Spring 2009): taught five times; an evolved course focusing on the science/technology/environmental/ public policy issues surrounding the current U.S. energy policy decisions. 1 lab section + lecture periods (~20 students). Team-taught with ENVR once.

Caribbean Geology (GEOL123): taught twice; January-term field course to the Netherland Antilles island of Bonaire (10 students); paired with GEOL321 course taught by Prof. K. Arkle.

Environmental Sustainability: Problems and Solutions (ENVR300): taught once as a combined course, team-taught with Profs. Reisner and Lashley. 1 lab section + lecture periods (~24 students).

Mineralogy I (GEOL301/205 — Crystallography and Optical Mineralogy): taught twenty six times as a required second-year course for majors (4-14 students); 1 3-hr laboratory + lecture periods

Mineralogy II (GEOL302 — Silicate Mineralogy and Geochemistry): taught nine times as a required second-year course for majors (~10 students); 1 laboratory section + lecture periods. No longer offered as a separate course (folded into a revised GEOL301).

Structural Geology (GEOL306): taught seven times as a required upper-level course for majors (15-20 students); 1 laboratory section + lecture periods; optional field trips during breaks.

Special Topics (GEOL370): taught fourteen 1-credit seminars on topics pertaining to spring break field trips (~8-21 students); e.g., Geology of the Grand Canyon, of Death Valley, of Hawai'i...

Igneous and Metamorphic Petrology (GEOL403/360): taught sixteen times as a required upper-level course for majors (10-20 students); 1 laboratory section + lecture periods.

Research Methods (GEOL450): taught eleven times as a required upper-level course for juniors preparing for their senior inquiry research (3-12 students).

Senior Inquiry Research (GEOL451): advisor/mentor for geology majors working on mineralogy, petrology, geochemistry, environmental, and other types of research projects; shared geology faculty responsibility (now includes GEOL452).

OTHER TEACHING EXPERIENCE:

Instructor for Introductory Physical Geology course; The University of Oklahoma summer 1995

NON-CLASSROOM COLLEGE TEACHING ACTIVITIES:

during acad. yr. starting with:

Co-led numerous Saturday morning (~4-6 hrs) fieldtrips to local geology sites 1995-present

Participated in annual Tri-State Geological Conferences/Fieldtrips (2-3-day trips) 1995-2005, 2017

Led Geology Dept. spring break fieldtrips to:	Grand Canyon	1995, '02, '05, '08, '11, '14, '17
(these are 7-12-day fieldtrips)	Sedona, AZ	1997
	Death Valley, CA	1998, '06, '12
	Sierra Nevada, CA	1999
	Hawai'i	2004, '07, '10, '13, '16
	Colorado (in May)	2009
Co-led Geology Dept. trips to:	Northern Wisconsin	1995
(these are 4-5-day fieldtrips	Southern Wisconsin (Baraboo)	1996, '00, '19
or 2-3-day meeting trips)	Missouri (St. Francois Mtns.)	1997, 2002, 2012
	Northern Minnesota	1999
	Geological Society of America	
	yearly regional meetings	2003-present
	Tucson Gem & Mineral Show	2007-2019

NON-CLASSROOM COLLEGE TEACHING ACTIVITIES (continued):

Mentor: Augustana 4-6-wk summer research internships at The University of Oklahoma 1995-1997
 Augustana 4-6-wk summer research internships at Augustana College 1998-2001
 I tutored 1-4 students/summer in the theory and practice of experimental petrology (~30 contact hours per week + weekend fieldtrips), followed by an additional year of student research on the Augustana College campus, culminating in the presentation of SI theses.

Advisor for Honors SI theses: Travis Holland, 2018; Richard (Joey) Padula, 2019

SIGNIFICANT CAMPUS-WIDE COMMITTEESduring acad. yr. starting with:

Faculty Handbook Task Force (rewrote the Handbook)	1997-2001
Student Ratings of Instruction Committee (Chair) (wrote the SRI form)	1998-2001
Geifman Committee (now Center for the Study of Judaism and Judaic Culture)	1998-present
Senate member	1998-2000, 2002-2004, 2006-2008, 2010-12
Interdisciplinarity Think Force (convener)	1999-2000
Self-Study Committee (Criterion 2 Chair: HLC NCA accreditation for the College)	2004-2005
Addendum to the College's Strategic Plan – planning committee member	2010
Addendum's Strategic Imperative Team #8 – co-leader	2010
Educational Policies Committee (EPC) science division representative	2007-2012
Chair of EPC	2009-2012
Governance Preparatory Group (GPG)	2009-2012
Academic Initiatives Fund (AIF) co-chair (for internal grant funding)	2015-2022
Chair of the Natural Sciences Division	2016-2022
Faculty Welfare Committee (FWC) – tenure/promotion	2016-2022
Chair of FWC	2019-2020

OTHER ON-CAMPUS SERVICE AND ACTIVITIESduring acad. yr. starting with:

Co-advisor/participant for weekly Udden Geology Club (speaker series)	1995-present
Organized the implementation of the New Science Division ACE evaluation form	1995-1996
Geology Dept. Alumni Advisory Council organizer/participant (every 2-3 years)	1995-present
Participated in the Admissions Visit Day Events (weekends & summer days)	1996-present
Sigma Gamma Epsilon co-advisor (National Earth Science Honors Society)	1996-present
First-year student advisor	1996-2001
Fryxell Geology Museum curator: Supervised overhaul and upgrade of the Museum's rock and mineral teaching collections. Included specimen cabinet design and installation; total reorganization and proper identification of >15,000 specimens; design, construction & contracting of new equipment/exhibits	1996-present
Departmental & Building Safety Officer & Geochemistry Laboratory Manager	1996-present
Geology Dept. Committees on Curricular Changes & Assessment Planning (as Chair, I instigated and oversaw dept. adoption of S.I. in 2006)	1996-present
Geologic Society of America (GSA) campus representative	1996-present
Faculty Liaison for Swenson Hall of Geosciences building renovations	1997-2001
Co-developed the Fryxell Museum's outreach program's "geology learning kit"	1997-2001
Editor for the Geology Dept. Alumni Newsletter	1999-2008, 2014
Co-advisor for all geology majors & minors (~30 students at any one time)	2002-2015
Faculty participant in the "Building Bridges" Freeman program to Asia	2002-2004
Mentor for new faculty members for CSTL program	2003-2008
Alumni development efforts: promoted dept. activities/programs to geology alumni which resulted in over \$1,000,000 added to dept. endowments	2003-present
First responder training for campus emergency system (CPR, first aid, AED)	2006-present
Wrote the MAGMA (Manual for Augustana Geology Major Advising)	2006

RESEARCH EXPERIENCE:

Graduate Research Assistant (Caltech) July 1985 to December 1991
Investigated the phase, kinetic, and textural relationships of a natural amphibolite during dehydration-melting using a piston-cylinder apparatus and an electron microprobe. Also investigated the field, structural, petrological, chemical, and geochronological relationships of a tonalitic/mafic dike swarm and shear zone in the Sierra Nevada Foothills terrane, CA.

RESEARCH EXPERIENCE (continued):

Research Scientist (Caltech) January 1992 to August 1992
Completed and extended projects based on previous experimental work on amphibolites and syenites. Studied a deep-crustal felsic xenolith suite from the Sierra Nevada batholith.

Post-Doctoral Research Associate with Dr. David London (OU) August 1992 to August 1995
Experimentally investigated trace element behaviors in evolved magmatic systems to elucidate the processes controlling the distribution of economically important elements.

Principal Investigator on NSF-funded equipment grant (Augustana) 1996-1998
Built an experimental petrology laboratory at Augustana for me and my students to conduct research throughout the year. Construction took ~5-10 hrs/week of my time for two years.

Principal Investigator on NSF-funded research grant (Augustana) and Visiting Scientist; collaboration with Dr. David London (OU) Summers of 1996-1998
As principal investigator on NSF-funded research, studied the effects of volatile components on the stability of tourmaline, cordierite, apatite, and biotite. I also investigated the distribution of fluorine and chlorine between melt and various minerals to determine whether the halogen contents can be used as a monitor of halogen content within active magmatic systems.

Principal Investigator on NSF-funded research grant (Augustana) 1999-2001
Continued prior research and mentoring of undergraduate geology students. Students investigated the possible effects of sulfur on volcanic eruption mechanisms such as those responsible for Mount Pinatubo.

Sabbatical Leave at University of Oregon (Augustana) Fall of 2002
Experimental petrology research, with Dr. Dana Johnston from UO and Dr. Jason Saleeby from Caltech, studying rocks associated with the formation of the Sierra Nevada Batholith.

X-ray Fluorescence spectrometer research 2006-present
Obtained a donated XRF spectrometer (a ~\$50,000 machine) and spent ~hundreds of hours attempting to get it operational. XRFs have great interdisciplinary potential, suited to material science analyses of environmental (solid & aqueous), biological, chemical, physical, and art materials. Even though the old machine never became operational, those efforts spurred me to write a \$190,000 NSF instrument grant. I am convinced of the potential of XRF analyses for student research across many disciplines at Augustana. Even without the NSF funds, I was able to raise \$130,000 to purchase a new, desktop Rigaku Supermini XRF spectrometer (with tremendous alumni support). From 2006 - '11, much time was spent calibrating and running this machine.

Sabbatical Leave Fall of 2009
Presentation of experimental petrology research at Goldschmidt Conference, Davos, Switzerland. Wrote NSF instrument grant for XRF.

Sabbatical Leave Spring of 2017
Research on heat-treatment of spinel gemstones

RESEARCH FUNDING:

NSF Research Grant, Petrology & Geochemistry Program (\$65,550)	1995-1999
NSF Equipment Grant, IF Program (\$40,000): for experimental petrology lab	1995-1997
Augustana College New Faculty Research Award (\$16,350)	1995-1998
Matching funds for research lab from the Kresge Endowment (\$3,650)	1995
Augustana Research Foundation (ARF): Research Support Award (\$3,500)	1996
NSF Research Grant, Petrology & Geochemistry Program (\$78,946)	1999-2003
Augustana College Faculty Research Award (\$900)	2002
Augustana College Student-Faculty Summer Research Award (\$1000) – with Kyle Brill (Ecuadoran volcanism)	2004
Presidential Faculty Research Award (\$4000)	2006
MARCO research award (local mineral abrasives company) (\$5000)	2007
Augustana College Student-Faculty Summer Research Award (\$1000) – with Toph Orton and Annette Zapolis (Canary Island volcanism)	2008

PUBLICATIONS (peer-reviewd):

- Malone J.E., Gifford, J.N., Craddock, J.P., Arkle, J.C., and Wolf, M.B. (2019) Geochronology of the southern margin of the Bighorn batholith, Wyoming. *Mountain Geologist*, 56.
- Wolf, M.B. (2011) Review of William Henry Jackson's Teton Range from the East, 1882, albumen print photograph. *Liberal Arts through the AGES*, C. Goebel (ed), Augustana College.
- London, D., Morgan, G.B. VI, and Wolf, M.B. (2001) Amblygonite-montebasite solid solutions as monitors of fluorine in evolved granitic and pegmatitic melts. *American Mineralogist*, 86, 225-233.
- Clemens-Knott, D., Wolf, M.B., and Saleeby, J.B. (2000) Middle Mesozoic plutonism and deformation in the western Sierra Nevada foothills, CA. *In: Great Basin and Sierra Nevada*, Lageson, D.R., Peters, S.G., and Lahren, M.M., (eds.), GSA Field Guide 002, ch. 10, 205-221.
- London, D., Wolf, M.B., Morgan, G.B. VI, and Gallego, M. (1999) Experimental silicate-phosphate equilibria in peraluminous granitic magmas, with a case study of the Albuquerque batholith at Tres Arroyos, Badajoz, Spain. *Journal of Petrology*, 40, 215-240.
- Wolf, M.B. and London, D. (1997) Boron in granitic magmas: stability of tourmaline in equilibrium with biotite and cordierite. *Contributions to Mineralogy & Petrology*, 130, 12-30.
- Wyllie, P.J., Wolf, M.B., and van der Laan, S.R. (1997) Conditions for formation of tonalites and trondhjemites: magmatic sources and products. *In: Greenstone Belts*, de Wit, M.J. and Ashwal, L.D. (eds.), Oxford University Press, Monograph 35, ch. 3.3.1, 256-266.
- London, D., Morgan, G.B. VI and Wolf, M.B. (1996) Boron in granitic rocks and their contact aureoles. *Mineralogical Society of America, Reviews in Mineralogy*, 33, 299-330.
- Wolf, M.B. and London, D. (1995) Incongruent melting of REE-rich apatite in peraluminous granitic melts: differential apatite & monazite solubilities. *American Mineralogist* 80, 765-775
- Wolf, M.B. and Wyllie, P.J. (1995) Liquid segregation parameters from amphibolite dehydration-melting experiments. *Journal of Geophysical Research, Solid Earth Special Publication*, invited contribution, 100, B8, 15,611-15,621.
- Wolf, M.B. and Saleeby, J.B. (1995) Late Jurassic dike swarms in the southwestern Sierra Nevada Foothills terrane, California: implications for the Nevadan orogeny and North American plate motion. *In: Jurassic Magmatism and Tectonics of the North American Cordillera*, Miller, D.M. and Busby, C. (eds.), Geological Society of America, Special Paper 299, ch 10, 203-228.
- Wolf, M.B. and Wyllie, P.J. (1994) Dehydration-melting of amphibolite at 10 kbar: effects of temperature and time. *Contributions to Mineralogy and Petrology*, 115, 369-383.
- Wolf, M.B. and London, D. (1994) Apatite dissolution into peraluminous haplogranitic melts: an experimental study of solubilities and mechanisms. *Geochimica et Cosmochimica Acta*, 58.4127-4145.

PUBLICATIONS (continued):

- Wyllie, P.J. and Wolf, M.B. (1993) Amphibolite dehydration-melting: sorting out the solidus. *In: Magmatic Processes and Plate Tectonics*, Prichard, H.M., Alabaster, T., Harris, N.B.W., and Neary, C.R. (eds.), Geological Society of London, Special Publication 76, 405-416.
- Wolf, M.B. and Wyllie, P.J. (1993) Garnet growth during amphibolite anatexis: implications of a garnetiferous restite. *Journal of Geology*, 101, 357-373.
- Wolf, M.B. and Wyllie, P.J. (1993) Some products of experimental dehydration-melting of amphibolite at 10 kbar. *Geologiya i Geofizika*, 34, 100-115 (in Russian), Russian Academy of Science, Siberian Branch; or *Russian Geology and Geophysics*, 34, 90-102 (in English).
- Wolf, M.B. and Saleeby, J.B. (1992) Jurassic Cordilleran dike swarm/shear zones: implications for the Nevadan orogeny and North American plate motion. *Geology*, 20, 745-748.
- Wolf, M.B. and Wyllie, P.J. (1991) Dehydration-melting of solid amphibolite at 10 kbar: textural development, liquid interconnectivity and applications to the segregation of magmas. *Mineralogy and Petrology*, 44, 151-179.

Abstracts of talks and posters presented at regional and national meetings

(underlined names denote mentored undergraduate students):

- Baxter, A. and Wolf, M.B. (2022) Point cloud modeling of shatter cones from Wells Creek Crater, northwestern Tennessee, Geological Society of America, Abstracts with Programs, 54.
- Napiwocki, S., Arkle, J.C., Wolf, M.B., and Weber J.C. (2022) Provenance and geochemical analysis of the Northern Range, Trinidad, Geological Society of America, Abstracts with Programs, 54.
- Schneider, A.N. and Wolf, M.B. (2022) Experimental investigation of crystallization textures: interpreting the Juwa Pass rhyolites and the Salina Matijs basaltic trachyandesites, from Bonaire, Leeward Antilles, Geological Society of America, Abstracts with Programs, 54.
- Wolf, M.B., Arkle, K.M. and Arkle, J.C. (2020) Using research projects to engage students in a combined introductory and advanced geology field program, Geological Society of America, Abstracts with Programs, 52.
- Arkle, K.M, Wolf, M.B. and Arkle, J.C. (2020) Reconstructing the paleogeography of a mock world: a progressive lab series designed to engage geology 101 students, Geological Society of America, Abstracts with Programs, 52.
- Karuza, L., Konecke, B.A. and Wolf, M.B. (2020) Geochemical analysis and heat-treatment of natural sapphires from Mozambique and Tanzania in oxidizing and reducing conditions, Geological Society of America, Abstracts with Programs, 52.
- Sell, M., Arkle, J.C. and Wolf, M.B. (2020) Heavy mineralogy of bedload sediment in the upper Mississippi River and the influence of tributaries, Geological Society of America, Abstracts with Programs, 52.
- Hobart, B.M. and Wolf, M.B. (2019) Scanning electron microscopy of lithophysae and 3-D visualization of the internal structure of banded agate nodules. Geological Society of America, Abstracts with Programs, 51.
- Reale, J. and Wolf, M.B. (2019) Effects of heat treatment on spinels as determined by VIS/NIR and Raman spectroscopy. Geological Society of America, Abstracts with Programs, 51.
- Malone, J.E., Malone, D.H., and Wolf, M.B. (2018) MesoArchean U-Pb geochronology of the southern margin of the Bighorn batholith, Wyoming. Geological Society of America, Abstracts with Programs, 50.
- Malone, J.E. and Wolf, M.B. (2017) Archean geochronological and deformational framework of the southern margin of the Bighorn batholith, Wyoming: successive synplutonic shearing between 2960 and 2840 Ma: Geological Society of America Abstracts with Programs, 49.
- Blodgett, E., Konecke, B. and Wolf, M.B. (2015) Analysis of color and clarity change in heat treated gem spinel. Geological Society of America, Abstracts with Programs, 47.
- Kirik, L.E. and Wolf, M.B. (2014) Characterizing hydrothermal fluid flow of post-variscan ore deposits in Nebida, SW Sardinia. Geological Society of America, Abstracts with Programs, 46.

PUBLICATIONS (continued):

Abstracts of talks and posters presented at regional and national meetings

(underlined names denote mentored undergraduate students):

- Konecke, B. and Wolf, M.B. (2014) Solubility and stability of beryllium-silicates in haplogranitic melts. Geological Society of America, Abstracts with Programs, 46.
- Trent, S.R.A. and Wolf, M.B. (2014) Hydrothermal alteration of the Butler Hill granite, St. Francois Mountains, SE Missouri. Geological Society of America, Abstracts with Programs, 46.
- Wick, G. and Wolf, M.B. (2014) A forensic geoscience approach of comparing evidence and field samples in connection with a 23-year-old missing persons/murder cold case. Geological Society of America, Abstracts with Programs, 46.
- Cacciatore, L. and Wolf, M.B. (2011) Willemite nucleation and growth in crystalline glazes. Geological Society of America, Abstracts with Programs, 43.
- Hoeffle, P.M., Wolf, M.B. and Strasser, J.C. (2011) Chemistry of drinking water of Northern Thailand. Geological Society of America, Abstracts with Programs, 43.
- Rizzo, A.J. and Wolf, M.B. (2011) Experimental formation of experimental igneous orbicular textures. Geological Society of America, Abstracts with Programs, 43.
- Stauffenberg, H., IV and Wolf, M.B. (2010) Another step toward answering the dolomite question. Geological Society of America, Abstracts with Programs, 42.
- Orton, K., Zapolis, A.T. and Wolf, M.B. (2009) Petrology and geochemistry of Montana Guaza; assimilation and fractional crystallization of the magma chamber, Tenerife (Canary Islands). Geological Society of America, Abstracts with Programs, 41.
- Wolf, M.B. (2009) Experimental Constraints on Protolith Contributions to Sierra Nevadan Granitoids, California, USA. Goldschmidt Conference, Davos, Switzerland.
- Zapolis, A.T., Orton, K. and Wolf, M.B. (2009) Geochemistry and petrology of scoria cones Montana Amarilla and Montana de Malpasito, Bandas del Sur Formation, Tenerife (Canary Islands). Geological Society of America, Abstracts with Programs, 41.
- Saunders, R.M., Swanson, M., and Wolf, M.B. (2008) The granites of Damariscove Island, Maine: a microscale characterization. Geological Society of America, Abstracts with Programs, 40.
- Emry, E. and Wolf, M.B. (2005) Textural development of experimental granites as a function of fluorine content & cooling rates, Geological Society of America, Abstracts with Programs, 37.
- Sheehan, M.R. and Wolf, M.B. (2005) Jarosite stability and its implications for Martian mineralogical studies, Geological Society of America, Abstracts with Programs, 37.
- Bluemle, S.R. and Wolf, M.B. (2001) The stability of igneous anhydrite in experimental andesitic melts. Geological Society of America, Abstracts with Programs, 33.
- McCann, V.E. and Wolf, M.B. (2001) The role of anhydrite and pyrite in igneous systems. Geological Society of America, Abstracts with Programs, 33.
- Kifer, J.A. and Wolf, M.B. (2000) Fluorine partitioning between apatite and granitic melts. Geological Society of America, Abstracts with Programs, 32.
- Wolf, M.B. (2000) Apatite solubility in granitic melts as a function of temperature and melt composition. Geological Society of America, Abstracts with Programs, 32.
- Anderson, E.S. and Wolf, M.B. (1999) Fluorine partitioning between granitic melt and biotite. Geological Society of America, Abstracts with Programs, 31.
- London, D., Morgan, G.B. VI, and Wolf, M.B. (1999) Amblygonite-montebrazite solid solutions as monitors of fluorine in evolved granitic and pegmatitic melts. Geological Society of America, Abstracts with Programs, 31.
- Norris, T.B. and Wolf, M.B. (1999) Nucleation and growth of feldspar in granitic melts as a function of cooling rates and fluorine content of melt. Geological Society of America, Abstr. with Progs., 31.
- Pugh, J.P. and Wolf, M.B. (1999) The influences of temperature and melt fluorine content on phosphorus and calcium diffusion through granitic melt away from dissolving apatite crystals. Geological Society of America, Abstracts with Programs, 31.
- Strasser, J.C., Kornreich Wolf, S., and Wolf, M.B. (1999) "Let's rock" – a geology short-course for elementary students. Geological Society of America, Abstracts with Programs, 31.

PUBLICATIONS (continued):

Abstracts of talks and posters presented at regional and national meetings

(underlined names denote mentored undergraduate students):

- Wolf, M.B., Kornreich Wolf, S., and Strasser, J.C. (1999) A rock, mineral, and fossil learning kit for K-12 classrooms. Geological Society of America, Abstracts with Programs, 31.
- Wolf, M.B. and London, D. (1998) Experimental study of tourmaline stability in granitic magmas. International Mineralogical Association, 17th general meeting, Toronto, Canada, A152.
- Hervig, R.L., London, D., Morgan, G.B., and Wolf, M.B. (1997) Large boron isotope fractionation between hydrous vapor and silicate melt at igneous temperatures. Goldschmidt Conference abstract (invited), 93-94.
- London, D. and Wolf, M.B. (1997) The boron cycle in metasedimentary-peraluminous granite systems. International Symposium on Tourmaline, Czech Republic, 47-48.
- Wilson, M.J., Wolf, M.B., and Morgan, G.B. VI (1997) Experimental partial melting of a boron-rich clay and schist couple. Geological Society of America, Abstracts with Programs, 29.
- Wolf, M.B. and London, D. (1997) The effect of boron in granitic magmas on tourmaline-biotite-cordierite equilibria. Geological Society of America, Abstracts with Programs, 29.
- London, D., Wolf, M.B., and Morgan, G.B. VI (1995) Silicate-phosphate equilibria in peraluminous granites and pegmatites: monitors and buffers of P₂O₅ in melt. Geological Society of America, Abstracts with Programs, 27.
- London, D., Wolf, M.B., Morgan, G.B. VI, and Gallego, M. (1995) The phosphorus cycle in peraluminous granitic magmas. Third International Hutton Symposium, University of Maryland, August, U.S.G.S. Circular 1129, 90.
- Wolf, M.B., London, D., and Hervig, R. (1995) Boron isotope fractionation between haplogranitic melt and vapor at 750°C and 200 MPa(H₂O). Goldschmidt Conference abstract (invited), 98.
- London, D., Wolf, M.B., and Morgan, G.B. VI (1994) Boron saturation in granitic magmas: tourmaline-biotite-cordierite equilibria. Geological Society of America, Abstracts with Programs, 26.
- Wolf, M.B. and London, D. (1994) Incongruent melting of REE-rich apatite in peraluminous granitic melts: differential apatite & monazite solubilities. Transactions of the American Geophysical Union (EOS) 75.
- Wolf, M.B., London, D., and Morgan, G.B. VI (1994) Effects of boron on the solubility of cassiterite and tantalite in granitic liquids. Geological Society of America, Abstracts with Programs, 26.
- Wolf, M.B. and Wyllie, P.J. (1994) Liquid fractions, water contents and segregation during experimental amphibolite dehydration-melting at 10 kbar. Transactions of the American Geophysical Union (EOS) 75 (invited).
- Wyllie, P.J., Wolf, M.B., and van der Laan, S.R. (1994) Dehydration-melting of amphibolite and H₂O-undersaturated liquidus surfaces of granitoid magmas: Archean crust formation. International Mineralogical Association, 16th meeting, in Pisa, Italy.
- London, D., Gallego, M., and Wolf, M.B. (1993) Phosphorus in S-type felsic magmas: a case history from the Albuquerque batholith, Badajoz, Spain. Transactions of the American Geophysical Union (EOS) 74.
- Wolf, M.B. (1993) Dehydration-melting and liquid fraction evolution of amphibolites. Geological Society of America, Abstracts with Programs, 25.
- Wolf, M.B. and London, D. (1993) Apatite solubility in the peraluminous haplogranite system – not déjà vu all over again. Transactions of the American Geophysical Union (EOS) 74 (invited).
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- Gerhart, P. (2019) Spectroscopic fingerprinting of fluorescent gems, Geological Society of America, Abstracts with Programs, 51.
- Ludwig, K. (2019) Geochronology of the Chinchin Formation in southern Ecuador, Geological Society of America, Abstracts with Programs, 51.
- Cross II, J.S.D. (2018) Geochemical and thin section analysis of Ring Mountain serpentinite, Geological Society of America, Abstracts with Programs, 50.
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