Curriculum Vitae of Barbara Lee Dutrow

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Education

Doctorate of Philosophy: (1980-1985); Ph.D. 1985; Geological Sciences, Metamorphic Petrology, Mineralogy, Experimental Petrology; Southern Methodist University, Dallas, Texas, U.S.A; performed under the guidance of Prof. Michael J. Holdaway
Ph.D. Thesis: *A Staurolite Trilogy: I. Lithium in staurolite and its petrologic significance, II. An experimental determination of the upper stability of staurolite plus quartz at low pressures, III. Evidence for multiple metamorphic episodes in the Farmington Quadrangle, Maine, U.S.A.*

Master of Science: (1977-1980); M.S. 1980; Geological Sciences, Vertebrate Paleontology, Mineralogy; Southern Methodist University, Dallas, Texas, U.S.A.; preformed under the guidance of Prof. Robert Slaughter
M.S. Thesis: *Metric analysis of a Late Pleistocene mammoth assemblage, Hot Springs, South Dakota, U.S.A.*

Bachelor of Science: (1974-1977); B.S. 1977; Earth Sciences, Mineralogy, Vertebrate Paleontology, Chadron State College, Chadron, Nebraska, GPA (3.98/4.00)

Post-Doctorate (1985-1987); Alexander von Humboldt Fellowship, Ruhr-Universitat, Bochum, (West) Germany; invited by Prof. Werner Schreyer; High temperature-pressure experimental mineralogy, crystal chemical studies and synthesis of materials; X-ray diffraction of new materials.

Professional Education:

Harvard Business School Executive Education Program, GIA Global Leadership Program; 2018
Applied Jewelry Professional (AJP) Diploma, Gemological Institute of America (GIA); 2021

Professorships, Professional Experience

2024 *Visiting Scientist*, Goethe University, FIERCE Lab (Frankfurt Isotope and Element Research Center), Frankfurt, Germany.

2018 - present *Gerald Cire & Lena Grand Williams Distinguished Alumni Professor*, Louisiana State University, Baton Rouge, Louisiana, U.S.A.; 2018-present

2017 *Visiting Professor*, University of Lausanne, Lausanne, Switzerland (sabbatical)

2008 - present *Gerald Cire & Lena Grand Williams Distinguished Alumni Professor*, Louisiana State University

2008 *Visiting Professor*, University of Arizona, Tucson (sabbatical)

2002 - present *Adolphe G. Gueymard Professorship of Geology & Geophysics* , LSU

2002 - present *Professor*, Louisiana State University

1995-2002 *Associate Professor*, Louisiana State University

1992-1995 *Assistant Professor*, Louisiana State University

1993 - 2021 *Affiliate or Visiting Scientist*, Los Alamos National Laboratory, Los Alamos, New Mexico, U.S.A.

1990 - 1992 *Visiting Assistant Professor*, University of Iowa, Iowa City, Iowa, U.S.A.

1985 - 1990 *Assistant Professor-Research*, Louisiana State University, Baton Rouge, Louisiana

1989 - 1991 *Research Associate*, University of Arizona, Tucson, Arizona, U.S.A.

1988 *Visiting Scientist*, University of Arizona, Tucson, Arizona, U.S.A. (fluid flow and chemical transport)

1985 - 1987 *Alexander von Humboldt Fellow*, Institut fu¨r Mineralogie, Ruhr-Universit¨at, Bochum, West Germany; Sept. 1985 - Oct. 1987. (High P - high T experimental mineral stability and phase relations)

1982 - 1984 *Instructor*, Southern Methodist University, Dallas, Texas (taught Mineralogy)

1981 - 1984 *Research Assistant*, Southern Methodist University, Dallas, Texas

1978 - 1981 *Teaching Assistant*, Southern Methodist University; 1978-81 of asbestiform silicates.)

2001 - 2009 *Expert Witness*, Taylor, Porter, LLP, Baton Rouge, LA, (Chemical composition and structure

1997 - 1998 *Expert Witness*: Akin, Gump, Hauer, Strauss and Feld, LLP, Washington, D.C. and Horsehead Industries, New York City, New York (Microanalyses and chemical characterization of slags).

1980 - 1985 *Consulting Geologist*, Mobil Exploration and Producing Services, Inc., Dallas, Texas (Fulltime geologist, 1980. Focus on hydrocarbon potential for carbonates, sandstones, volcaniclastics from the North Slope, Alaska; North Sea; Monteray Formation, California.)

1978 - 1982 *Field Assistant*: Beartooth Mountains, Montana; *Assistant supervisor and cartographer*, Hot Springs Mammoth Site, South Dakota; National Geographic Expeditions to Panama, Canal Zone and Balboa, Panama; Excavation of vertebrates at Trolinger Springs Mastadon Site, Missouri, Illinois State Museum; Excavation of Brewer Pueblo, Dove Creek, Colorado, Northern Arizona University; *Cartographer*, Hudson Meng Bison Kill Site, Nebraska; Lehner Ranch Mammoth Kill Site, Arizona; Geologic mapping of Pleistocene terraces, Grand Gulch, Utah.

Scientific Directorships and Boards

Governor, Gemological Institute of America (GIA), Board of Governors (Directors), 2016- 2025 (Chair, Goverance Committee, 2018-2022; Chair, Education Committee, 2022-2025; Committee Member: Executive, Laboratory and Research, Governance, Finance)

President, 2021, Geological Society of America (GSA), President-elect (2020), Past President (2022). Oversaw a 20,000 member international organization; publications, annual meeting,

committees, divisions and sections, finance; headed the executive committee and 16 member council, direct strategic initiatives and provided oversight and guidance to all aspects of the organization. *Member*, GSA Council (Chair), Executive Committee (Chair), Education Committee, Government and Public Policy Committee, Annual Program Committee, Outstanding Field Camp Committee, Halbouty Award Committee.

Executive Committee, Continental Scientific Drilling (CDSCO); 2015 - 2018.

Board Member, Geological Society of America Foundation, 2014 - 2019; Executive Committee 2018-2020.

Councillor, Geological Society of America; 2010-2014

Chair, Penrose Committee (2013,2014); Chair, Day Medal Committee (2012); Chair, Nominating Committee (2012, member 2013); Member, Outstanding Woman in Geoscience Committee (2012, 2013); Member, External Awards Committee (2012, 2013); Introduction of M.T. Halbouty Distinguished Lecturers; John F.J. Thompson (2011), Sally Benson (2009).

Chair, Geochemical Society, Fellowship committee, 2009-2010

President, 2007, Mineralogical Society of America, Vice-President (2006), Past President (2008). Oversaw international committee, council, publications, outreach; served on several committees.

Chair, Executive Committee, *Elements*; 2009-2015. *Member*, 2008-present. Elected position of 17 international society representatives from seven countries. Elements is a collaborative venture of societies in the fields of mineralogy, petrology and geochemistry. EC is responsible for e.g. financial oversight, society interactions, approve/appoint all Editors.

Member, 2001-2002; U.S. National Academy of Sciences - National Research Council Study *Principles and Design Strategies of a Staged Repository System*, Board on Radioactive Waste Management. co-authored: *One Step at a Time: The Staged Development of Geologic Repositories for High-Level Radioactive Waste*

Member, Board on Earth Sciences and Resources, National Research Council of the U.S. National Academy of Sciences, 1999 - 2002.

Editorships

Associate Editor, *Mineralogical Magazine*, special issue in honor of Ed Grew's 80th birthday, 2024-2025 Associate Editor, *American Journal of Science*, 2003-present

Associate Editor, *Reviews of Geophysics*, 1995-2001

Guest Associate Editor, *American Mineralogist*, Special issue in honor of M.J. Holdaway Issue, 2001-2002. Associate Editor, *American Mineralogist*, 1992-1996

Member, International Commission for Tourmaline Nomenclature, International Mineralogical Association, 2002-present

Awards and Honors

2021 Carnegie Mineralogical Award, Carneige Museum of Natural History and Hillman Foundation. Awarded Feb. 2022 (first female academic to receive the award, for contributions to teaching, research, mentoring and service in the mineral sciences).

Mineral species named in my honor - Dutrowite; a member of the tourmaline supergroup. IMA approval - Dec. 2019; *magnesio-dutrowite*, approved 2022. Eur. J. Mineral., 35, 81-94, 2023.

Gerald Cire & Lena Grand Williams Alumni Professor, 2018, LSU. Second highest professorship rank in the University.

Elected *Fellow*, Geological Society of America, 2007

American Federation Scholarship Foundation - 2017 Honorary Award for "Distinguished Achievement in the Field of Earth Sciences" presented by the South Central Federation of Mineral Societies

Association of Women Geoscientists - Outstanding Educator Award, 2016. Their highest honor for teaching, mentoring and professional service to women and students.

Friends of Mineralogy, Best Educational Exhibit by an Institution; Tucson Gem and Mineral Show, 2011 *Distinguished Alumni Award*, Chadron State College, NE, 2009

Distinguished Achievement, Honorary Award, 2006-2007, South Central Federation of Mineralogical Societies, American Federation Scholarship Foundation.

Distinguished Faculty Member, University-wide award, LSU, 2002

Distinguished Young Alumni Award, Chadron State College, NE, 1997

Nontenured Faculty Award for Natural and Physical Sciences, Phi Kappa Phi, LSU, 1995.

Elected as *Fellow*, Mineralogical Society of America, 1995

Nontenured Faculty Research Award, College of Basic Sciences, LSU, 1994.

Outstanding Service Award, Mineralogical Society of America, 1993.

Alexander von Humboldt Stiftung Fellowship, Alexander von Humboldt Foundation, Bonn, West Germany, 1985-1987.

Distinguished Lectureships

Distinguished Lecturer, Association for Women Geoscientists, 1998-present

Sigma Xi Distinguished National Lecturer, 1996-1998

Distinguished Lecturer, Mineralogical Society of America, 1991- 1992

Select Contributions to Profession

Tourmaline 2025, Scientific Organizating Committee, Antsiriba, Madagascar, July 2025

Mineralogical Society of America representative to the *Elements'* Executive Committee, 2008-present

Tourmaline 2021, Scientific Organizating Committee, Elba Island, Italy, Sept. 2021

International Program Committee, Goldschimdt Conference 2020 Hawaii USA; 2018 - 2020.

Geochemical Society Grants Committee, 2017 - 2021.

Member, Goldschmidt Meeting Assistance Program, Chair 2020-2021; Ingersoll Lecture nominating Committee, 2018 - 2021

Member, Goldschmidt 2020 Science Planning Committee, 2018 - 2020

Member, MSA Finance Committee, 2013-2017

Member, Ringwood Medal Committee, European Association of Geochemistry, 2015

Member, Integrated Earth Data Applications (IEDA), Policy Committee, 2013 - 2016

Member, Geochemical Society, Committee on the Future of Publications, 2012 - 2013.

Executive Committee, Geological Society of America; 2011-2012

Member, MSA Nominating Committee for Officers, 2012, 2013

Member, American Geophysical Union, Kuno Award Committee, 2010-2014

Member, American Geophysical Union, Nominating Committee for Officers, VGP secion, 2008-2012

Member, International Mineralogical Association, IMA Award Committee (career award), 2007-2011.

Member, Geochemical Society, Fellows Selection Committee, 2007-2009, Chair - 2009; Publications Committee, 2012-2013

Member, Cyberinfrastructure for Integrated Solid Earth Sciences, NSF, Metamorphic Petrology Databases, 2003-2010.

Member, Geological Society of America Ad-Hoc Committee for Overarching Themes, 2009

Member, Annual Program Committee, Geological Society of America, 2005-2009; oversee all aspects of the annual meeting

Member, Advisory Committee, 2009 Gemological Research Conference, Gemological Institute of America (2008-2009)

Invited Participant, Integrated Solid Earth Sciences, NSF workshop for Earthscope, 2003-2007

Ad-hoc Committee Member, NAS/NRC Committee on Research Priorities in Earth Science and Public Health, 2004

Member, International Program Committee, Goldschimdt Conferences, 2010 Knoxville, TN, USA (convene overarching sessions for Metamorphic Processes); 2005 Moscow, ID, USA (convenor for sessions on Fluid Flow and Metamorphic Petrology)

Co-author, Manual of Mineral Sciences, 23rd Edition, with C. Klein, J.C. Wiley and Sons, selected to coauthor the longest continuously published book by Wiley, since 1848; a textbook for the Mineralogy.

President, Mineralogical Society of America; 2007. Oversee operation of the society; publications - American Mineralogist and Reviews in Mineralogy and Geochemistry; committees and finances. Vice-President, 2006; Past-President, 2008-2009; Chair, Executive Committee; Chair, Committee on Committees (oversee nominations of members to fill 150 positions); Chair, Publications Committee; Board of Directors, Edward Kraus Family Trust Fund

Councillor, Mineralogical Society of America; 2002-2005 Chair, Benefactors Committee 1999-present; Chair, Nominating Committee for Officers, 2003; Chair, Roebling Medal Committee, 2004; Chair, Dana Medal Committee, 2005.

Member, National Research Council, Board on Earth Sciences and Resources, 1999-2002

Member, International Program Committee, 1998 International Mineralogical Assocation meeting, Toronto, Canada

Secretary and Board of Directors, Mineralogical Society of America, 1995-1999
Executive Committee; Management Committee; Committee on Committees; Board of Directors, Edward Kraus Family Trust Fund; 1995-1999

Chair, F.D. Clarke Award Committee, Geochemical Society, 1996; Committee member, 1995-1998

Review Committees and Panelist

Member, The American Museum of Natural History, Curator of Gems and Minerals Search Committee, 2023

Member, The National Museum of Natural History (Smithsonian), Search Committee for the Coralyn
Whitney Endowed Curator of Gems and Minerals, 2019

Panelist, U.S. National Science Foundation, Tectonics Review Panel, 2013 (Spring, Fall)

External reviewer, The Natural History Museum (London), Ten-year Review, Committee for Department of Mineral Sciences, 2008-2009

External reviewer, University of Minnesota, Duluth, review of the Department of Geology, 2005

Panel Member, U.S. Department of Energy (DoE) Office of Geothermal Energy; review panel for "Enhanced Geothermal Technologies" 2011; Geothermal Energy, 2012; 2013.

Panel Member, U.S. DoE Office of Geothermal Energy; review panel for "Site Characterization", 2010

Panel Member, U.S. DoE Office of Civilian Radioactive Waste Management Source Term and Natural Barriers Review; panel for "Near Field Processes", 2005

Panel Member, U.S. DoE, Environmental Management Science Program, Hydrogeology, 2002

Program Review Council, LSU, 1999-2004 (Chair, Marketing Review, March 2001; Food Science Review, 2002; Chemical Engineering, 2003)

External Reviewer, Institute for Geophysics and Planetary Physics, Los Alamos National Lab, 1995.

Research Activities

Dutrow's research spans from continental scale tectnometamorphism to micrometer scal crystallochemical interactions in minerals. Primary themes in her research are:

- the critical role of minerals in sustainability, technology and society
- computational modeling of heat and mass transport in fluid-rock systems
- crystal chemical, isotopic and mineral textural studies to decipher crustal processes, and formation conditions and how formation conditions affect chemistry, particulary of the tourmaline supergroup minerals
- feedback of thermal-chemical-mechanical processes related to hydrothermal and geothermal systems in the crust and the affects on mineral stability and chemistry;
- scientific visualization for developing spatial and penetrative thinking skills

Invited Keynote Lectures

2025 Geological Society of Oregon, Portland, Oregon, (March 2025.)

2024 Carneige Museum of Natural History, Moriarty Seminar, *Minerals as the bedrock of the energy transition*, Pittsburg, PA (Feb. 2024)

2022 A.E. Seaman Mineral Museum, Edith D. and W. Wm. Heinrich Lecturer, *The many faces of tourmaline: From gemstone to geologic DVD*. Houghton, Michigan. (Sept. 2022).

2021 Tourmaline Conference *Petrogenetic utility of magnesian tourmaline: extraordinary origin of everyday tourmaline. Natura, 111, 29-30.* Elba, Italy (Sept. 2021)

2019 Gem-A conference *The many facets of tourmaline*, London, England (Oct. 2019)

2019 MSA Centennial session at the 2019 GSA Meeting: *The complexity of teaching mineralogy*, Phoenix, AZ (Sept. 2019)

2018 Gemological Institute of America Symposium. *Tourmaline: A Gemstones Guide to Geologic Evolution of the Earths Crust.* Invited Keynote for the Colored Stones session. Carlsbad, CA (Sept. 2018).

2017 Goldschmidt Geochemistry meeting, invited keynote: *Developing spatial and penetrative thinking skills through technology*, session on Teaching with Technology; Paris, France. (August, 2017).

Tourmaline 2017, invited keynote: *Tourmaline compositions and textures: Reflections of the Fluid Phase*. Nove Mesto, Czech Republic, (June 2017).

Yale University, Opening of David Friend Mineralogical Hall, Peabody Museum. *The many faces of tourmaline: A mieneral of extremes*. Invited Keynote. Celebrating the opening of the new hall on the 150th anniversary of Peabody Museum. New Haven, CT (October, 2016)

2014 GSA Annual Meeting, session on Gemstones in the 21st Century, Vancouver, B.C. Canada. (Nov. 2014) *Gemstones with Tourmaline as an Accessory*.

Keynote in the Union session Elements: Ten Years. 2014 Goldschmidt Geochemistry Meeting, Sacramento (June 2014) *Tourmaline: The Perfect Accessory*

GSA Annual meeting, Session honoring the MSA Roebling Medalist F.C. Hawthorne (Oct. 2013) *Making Minerals in Contact Aureoles*.

Batholith Formation in 4-D: The Adamello Conference 2012. Bagolino, Italy. (Sept. 2012) *Impact of flow flow on the Development of Contact Metamorphic Aureoles: 4-D Numerical Experiments of Heat and Mass Transport*

Opening Keynote for the Cutting Edge Workshop on "Teaching Mineralogy, Petrology and Geochemistry in the 21st Century". My presentation: *Teaching MPG in Context: the Earth, Rocks, and Society*. Accessible at: http://serc.carleton.edu/NAGTWorkshops/mpg/workshop2011/program.html (August 2011)

Presentation for Session on MPG and Society at "Teaching Mineralogy, Petrology and Geochemistry in the 21st Century". My presentation: *Earth Materials and Society*. Accessible at: http://serc.carleton.edu/NAGTWorkshops/mpg/workshop2011/program.html (August 2011)

Mineral in Context: The Earth, Rocks, and Society. Keynote presentation for Teaching Mineralogy Session at the 2010 International Mineralogical Association meeting, Budapest, Hungary. (August 2010)

On the Cutting Edge Workshop on Complex Systems, Carleton College, MN (04-2010). Invited presentation or *Developing Student Understanding of Complex Systems in the Geosciences*; my presentation: *Developing visual intepretation of complex geosystems*

MSA Presidential Address: *Modeling Metamorphism: Energy, Fluids and Feedbacks* Geological Society of America Annual Meeting, MSA Awards Lectures, October 30, 2007.

Keynote 7th V.M. Goldschmidt Geochemistry conference, Cologne, Germany. *From field observations to experimental petrology and back, in memory of Werner Schreyer - A US Perspective*.

The Impact of fluid flow on mineral development: Three-dimensional modeling as a predictor of spatial distribution patterns. Fifth IMA Conference on Modelling Permeable Rocks. Edinburgh, Scotland, March 2007.

Geological Society of America, Topical Session on Metamorphic Petrology, *Evolution of thermal, mechanical, and chemical processes during contact metamorphism.* Oct. 2005.

GSA Penrose Conference on Mass Redistribution in Continental Magmatic-Hydrothermal Systems. *Aspects of 3D heat transfer and fluid flow on mineral growth surrounding plutons.* Sept. 2004.

Mineralogical Society Winter Meeting, Bath, England, 2004. *Thermal and mineral textural modeling of contact metamorphism as a guide to fluid-rock interactions and hydrothermal activity.*

Expanding your Horizons, Science, Math and Technology Workshop for 5th-12th grade girls. Chadron State College, Chadron, NE, March 2002

Inaugural Carroll C. Hall Lecture Series for Science Education, Illinois State Museum, Springfield, IL *100 Mammoths in a Hot Tub*; April 2000

Kongsbergseminar, Kongsberg, Norway, May 1996. *Evolution of fluid pressure and fracture propagation in contact metamorphic aureoles.*

200 additional invited presentations