CURRICULUM VITAE

WILLIAM D. CARLSON
Department of Geological Sciences
University of Texas at Austin
Austin TX 78712-7909

http://www.jsg.utexas.edu/researcher/william_carlson/

Professional Positions:

Department of Geological Sciences, University of Texas at Austin

1989-2014	Professor (Emeritus since 2014)
1986-1989	Associate Professor
1980-1986	Assistant Professor
1994-1996	Chairman, Department of Geological Sciences
1994-1996	Associate Director, Geology Foundation
2000-2014	Peter T. Flawn Chair in Geological Sciences (Emeritus since 2014)
1989-2000	William Stamps Farish Chair in Geological Sciences
1988-1989	Getty Oil Company Centennial Fellow
1984-1989	Joyce Bowman Payne Centennial Teaching Fellow

College of Natural Sciences, University of Texas at Austin

1996-2000	Associate Dean for Academic Affairs

Research Interests:

Field, analytical, experimental and computational studies of metamorphic petrogenesis

Geological applications of high-resolution X-ray computed tomography

Present emphasis: (1) Rates and mechanisms of intracrystalline diffusion in garnet, combining field/analytical, theoretical, and molecular-modeling approaches

(2) Kinetics and mechanisms of metamorphic reactions, including processes of nucleation and growth, intergranular diffusion, and grain coarsening

Education:

1980 Ph. D. (Geology) University of California at Los Angeles
Experimental Studies of Metamorphic Petrogenesis; W. G. Ernst, supervisor

1974 B. S. (Geology) Stanford University

Personal Data: Born 16 August 1952, Grand Junction CO, USA; married, two sons

PROFESSIONAL ACCOMPLISHMENTS AND ACTIVITIES

Awards and Special Recognition:

Recipient of the Dana Medal of the Mineralogical Society of America in 2005, recognizing "*continued outstanding scientific contributions through original research in the mineralogical sciences.*"

Fellow of the American Association for the Advancement of Science; the Geological Society of America; the Mineralogical Society of America; and the Mineralogical Society of Great Britain and Ireland

Recipient of the Regents' Outstanding Teaching Award from the University of Texas System; member of the Academy of Distinguished Teachers of the University of Texas at Austin; and recipient of 15 college-level and department-level awards for outstanding teaching

Keynote, Plenary, and Invited Lectures at National and International Symposia:

Since 1980, presented 27 keynote, plenary, or invited lectures at symposia worldwide. Chronological list available on request.

Invited Lectures at Universities, Government Institutions, and Industrial Facilities:

Since 1980, visited by invitation ~65 institutions, typically making two scientific presentations at each. Chronological list available on request.

Extramural Research Grants: Total = $8.9M ($5.9M as P.I.; $3.0M as co-P.I.)

Principal source of funding is National Science Foundation; additional funding from W. M. Keck Foundation, American Chemical Society, and Texas Advanced Research Program.

Other Professional Accomplishments and Activities:

Co-convener of 7 international symposia since 2000

Member: Geochemical Society, American Geophysical Union, European Geosciences Union, Geological Society of America, Mineralogical Association of Canada, Mineralogical Society of America, American Association of Petroleum Geologists, Sigma Xi, Phi Beta Kappa

Mineralogical Society of America: President (1999-2000); Past-President (2000-01); Vice-President (1998-99); Councilor (1993-96)

PUBLICATIONS

ISI Web of Science *h*-index: 44; Researcher ID: A-5807-2008

Recent Articles in Refereed Journals / Books

Access full listing of such publications via ISI Researcher ID above.

[† indicates student or postdoc under my supervision]

Hatley E R, Stüwe K, Helper M A, **Carlson W D** (2025) Kinematics of the Plattengneis Shear Zone, Koralpe, Eastern Alps. Constraints from Quartz Lattice Preferred Orientations. *Austrian Journal of Earth Sciences* 118:157-174.

Bebout G E, Ota T, Kunihiro T, **Carlson W D**, Nakamura E (2022) Lithium in garnet as a tracer of subduction zone metamorphic reactions: The record in UHP metapelites at Lago di Cignana, Italy. *Geosphere* https;//doi.org/10.1130/GES02473.1.

Carlson W D (2017) Multicomponent diffusion in aluminosilicate garnet: Coupling effects due to charge compensation. *International Geology Review* 59:526-540.

Carlson W D, Wilson C R (2016) Correlation factors for impurity diffusion on the sublattice of dodecahedral sites in garnet. *Physics and Chemistry of Minerals* 43:363-369.

Carlson W D, Pattison D R M, Caddick M J (2015) Beyond the equilibrium paradigm: How consideration of kinetics enhances metamorphic interpretation. [Invited Centennial article] *American Mineralogist* 100:1659-1667.

† Moore S J, **Carlson W D** (2015) Evaluation of a combined HRXCT/EBSD method for detecting epitaxial nucleation of garnet porphyroblasts. *European Journal of Mineralogy* 27:19-29.

† Moore S J, Cesare B, **Carlson W D** (2015) Epitaxial nucleation of garnet on biotite in the polymetamorphic metapelites surrounding the Vedrette di Ries intrusion (Italian Eastern Alps). *European Journal of Mineralogy* 27:5-18.

Carlson W D, † Hixon J D, † Garber J M, Bodnar R J (2015) Controls on metamorphic equilibration: The importance of intergranular solubilities mediated by fluid composition. *Journal of Metamorphic Geology* 33:123-146.

Ashley K T, **Carlson W D**, Law R D, Tracy R J (2014) Ti resetting in quartz during dynamic recrystallization: Mechanisms and significance. *American Mineralogist* 99:2025-2030.

† Cahalan R C, † Kelly E D, **Carlson W D** (2014) Rates of Li diffusion in garnet: Coupled transport of Li and Y+REEs. *American Mineralogist* 99:1676-1682.

Carlson W D, Gale J D, Wright K (2014) Incorporation of Y and REEs in aluminosilicate garnet: Energetics from atomistic simulation. *American Mineralogist* 99:1022-1034.

Ague J, **Carlson W D** (2013) Metamorphism as garnet sees it: The kinetics of nucleation and growth, equilibration, and diffusional relaxation. [Invited article] *Elements* 9:439-445.

†Kelly E D, **Carlson W D**, Ketcham R A (2013) Crystallization kinetics during regional metamorphism of porphyroblastic rocks. *Journal of Metamorphic Geology* 31:963-979.

†Moore S J, **Carlson W D**, Hesse M A (2013) Origins of yttrium and rare-earth-element distributions in metamorphic garnet. *Journal of Metamorphic Geology* 31:663-689.

EDUCATIONAL ACCOMPLISHMENTS AND ACTIVITIES

Teaching Awards:

Selected in 2010 as a recipient of the *University of Texas System Board of Regents Outstanding Teaching Award*.

Selected in 2006 for membership in UT-Austin Academy of Distinguished Teachers, with title of *University Distinguished Teaching Professor*.

Selected in 2010 as *UT Professor of the Month* for January, recognizing "dedication to students and passion for teaching"; awarded by UT Senate of College Councils.

Selected in 2008 as recipient of the *Outstanding Educator Award* of the Jackson School of Geosciences.

Selected eleven times (1981, 1985, 1988, 1991, 1994, 2004, 2005 in two categories, 2009, 2011, 2014) to receive the *Carolyn G. and G. Moses Knebel Distinguished Teaching Award*.

Selected twice (1982, 1989) for the *College of Natural Sciences Teaching Excellence Award*.

Classroom Teaching and Field Instruction:

Undergraduate courses:

Crystallography and Optical Mineralogy; Earth Materials; Sedimentary and Metamorphic Petrology; Igneous and Metamorphic Petrology; Elementary Field Geology, Advanced Field Geology; Research Methods

Graduate courses:

Metamorphic Petrology; Advanced Metamorphic Petrology; Advanced Mineralogy; Phase Transitions; Thermodynamics of Geologic Processes; Kinetics of Geochemical Processes; X-ray Crystallography and Crystal Chemistry; Analytical Techniques; Advanced Analytical Techniques

Student evaluations of teaching available on request.

Student Supervision:

Served as supervisor for 21 undergraduate honors students, 19 Masters students, 9 PhD students, and 3 postdoctoral scholars. Chronological list available on request.