

PAMELA C. BURNLEY

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EDUCATION

Ph.D., Geology, University of California, Davis. March 1990. Dissertation: *The effect of nonhydrostatic stress on the olivine-spinel transformation in Mg_2GeO_4* . Advisor: Dr. H. W. Green II.
Master of Science, Geology, University of California, Davis. March 1986. Thesis: *Metamorphic petrology, structure and stratigraphy of the Chloride Cliff area, Funeral Mountains, Death Valley, California*. Advisor: Dr. H. W. Day.
Bachelor of Science, Brown University, Providence, Rhode Island. June 1982. Senior thesis: *Tremolite deformation: an experimental study*. Advisor: Dr. J. Tullis

ACADEMIC APPOINTMENTS

École Normale Supérieure, Paris, Département de Géosciences, Professeur Invites	11/18-12/18
High Pressure Science and Engineering Center (HiPSEC), Department of Geoscience and Department of Physics & Astronomy University of Nevada, Las Vegas	
Associate Professor	7/17 - present
Associate Research Professor	8/07 – 7/17
Associate Director, HiPSEC	7/14 - present
Department of Geosciences, Georgia State University	
Adjunct Professor	7/07 -7/09
Associate Professor	8/06 – 7/07
Assistant Professor	1/98 – 8/06
CIRES, University of Colorado at Boulder	
Research Scientist III	5/97-12/97
Research Associate	11/93- 5/97
Department of Geological Sciences, University of Colorado	
Lecturer	9/95-12/95
Department of Geological and Geophysical Sciences, Princeton University	
Research Associate	11/91 - 10/93
Department of Geological Sciences, Cornell University	
Visiting Scientist	4/90 - 3/93
Chemistry Department, Cornell University	
Teaching Associate	9/90-6/91
Tompkins and Tioga Counties, New York	
Substitute Teacher	3/90-6/90

INSTRUCTIONAL ACTIVITIES

Courses Taught at University of Nevada Las Vegas

Geology 101

Introductory Geology: Exploring Planet Earth

Geology 220

Mineralogy

Geology 704X (on-line course: <https://pburnley.faculty.unlv.edu/COMPRESMP101.html>)

Introduction to Mineral Physics

Geology 796

Advanced Topics in Geoscience: Deformation of Crystalline Materials

Geology 642x/442x

Geophysics

Courses Taught at Georgia State University

Geology 1121H

Honors Introductory Geosciences I: Earth's Internal Processes

Geology 1122H

Honors Introductory Geosciences II: Earth's External Processes

Geology 3002

Introduction to Earth Materials

Geology 4097

Readings in Geophysics

Geoscience Learning Community

Geology in the Field

Geology 4500/6500 & 8500

Introduction to Geophysics

Geology 3001/7001

Concepts of Earth Science

Geology 1121K

Introductory Geosciences I: Earth's Internal Processes

Geology 7021

Introductory Geosciences I for Teachers: Earth's Internal Processes

Geology 7022

Introductory Geosciences I for Teachers: Earth's External Processes

Natural Science Sequence 3001 (team taught with Dr. R. Nave)

Integrated Science I: Physics and Astronomy

Natural Science Sequence 3002 (lead instructor)

Integrated Science II: Earth Science

Natural Science Sequence 3003 (team taught with Dr. B. Baumstark)

Integrated Science III: Geology and Biology

Student Research Supervision

Undergraduate senior thesis and independent study:

Katie Davis (2000), Charmel Dozier (2000), Barabara Brocks (2001, 2002), Buffy Chournos (2002), Jamarcus Terrel (2003), Verra Kustori (2003), Beth Lavoie (2006), Amy Cooper (2011), Chris Cline (2011), Katie Peterson (2013), Richard Rowland (2013), Adela Fernandez (2015), Nolan Regis (2015), Jeremiah Smith (2015), Danielle Ottaviano (2015), Alex Goya (2016), Linsdsey Hanes (2018), Andrew Reid (2018)

Atlanta Consortium for Research in the Earth Sciences REU (summer program):

17 students (1999 - 2004)

Undergraduate researchers supervised (University of Nevada Las Vegas):

46 students (2007 - 2016)

Master's non-thesis (Georgia State University):

Deblina Datta (2008)

Andrea Sikora (2000)

Master's thesis (University of Nevada Las Vegas)

Alex Drue (MS, Fall 2011)

Chris Cline (MS, Spring 2014)

Kara Marsac (MS, Spring 2015)

Dan Haber (MS, Fall 2015)

Richard Rowland (MS, Fall 2017)

Nolan Regis (MS, Spring 2018)

Genevieve Kidman (Fall 2017 – present)

Taryn Traylor (January 2018 – present)

Significant Outreach Activities

Montessori Visions Academy, Las Vegas

Science curriculum development and classroom instruction 4-6th grade (spring 2010)

Partnership for Reform in Science and Mathematics (PRISM)

American Association for Future Teachers – Workshop Leader 2004

Atlanta Public Schools/PRISM Summer Institute – Workshop Leader 2004

Natural South Episode #207: “Tale of Two Canyons”, Salt Run Productions

Consultant and on-camera expert – aired April 2003

Eisenhower Project: “Enhancing Web Based Teaching” (PI, Dr. J. Hassard)

Cedar Grove Middle School – Workshop leader 2001, 2002

Grady High School, Atlanta Public Schools

Exploratory course: Geology of Georgia – Spring 2001

American Geological Institute & Georgia State University

Earth Comm workshop – Instructor 1998

SciTrek Workshop for in-service teachers

Model Rivers – Workshop Leader 1998

GRANTS AND CONTRACTS

NSF EAR-9418685 *Absolute Pressure and Temperature Calibration to 6 GPa and 1700 K*, PI: Ivan C. Getting, CoI: Pamela C. Burnley, 2/1/95-1/31/97, \$158,121

NSF EAR-9506710 *Investigation of Martensitic-like Transformation Kinetics for the Olivine to Spinel Transformation at High Pressure*, PI: Pamela C. Burnley, 8/1/95-7/31/97 \$68,096

NSF EAR-9706289 *Collaborative Investigation of Internal Stresses and Strains Induced by the Olivine-Spinel Transformation: Mechanical Models and Microstructural Observations*, PI: Pamela C. Burnley, CoI: Martin L. Dunn, 8/1/97-7/21/99, \$113,000

NSF EAR-9820666 *Collaborative Proposal: Atlanta Consortium for Research in the Earth Sciences (ACRES): Research Experiences for Undergraduates and Science Teachers*, PI: Pamela C. Burnley, CoI: John Yin, 3/1/99-2/28/01, \$189,554

NSF EAR-9706289 *REU Supplement: Collaborative Investigation of Internal Stresses and Strains Induced by the Olivine-Spinel Transformation: Mechanical Models and Microstructural Observations*, PI: Pamela C. Burnley, 8/23/99-9/30/00, \$10,200

NSF EAR-0079721 *Acquisition of a Laser Ablation Single Collector High Resolution Inductively Coupled Plasma Mass Spectrometer*, PI: A. Mohamad Ghazi, Co-I: Pamela Burnley, Seth Rose, W. Crawford Elliott, David Vanko, 08/21/00-07/31/02, \$287,099

NSF EAR-0139539 *Collaborative REU Site Proposal: Atlanta Consortium for Research in the Earth Sciences ACRES: Research Experiences for Undergraduates and Science Teachers*, PI: Pamela C. Burnley, Co-I: Beth A. Christensen, Crawford W. Elliott, Zhi-Yong Yin, 03/01/02-02/28/05, \$326,680

NSF EAR-0136107 *Collaborative Research: COMPRES Grand Challenges for Experimental Study of Plastic Deformation*, PI: Pamela C. Burnley, 02/01/02-01/31/06, \$196,109

NSF EAR-0405796 *REU Supplement COMPRES Grand Challenges for Experimental Study of Plastic Deformation*, PI: Pamela C. Burnley \$10,581

Georgia State University, FY 2005 Student Technology Fee, Proposal #2.1.15 *Computational Facilities for Geology Students*, \$40,872

Georgia State University FY2007-2008 *Improving Retention and Timely Graduation Rates for Geosciences Majors (Geography & Geology)*, \$92,200

NSF EAR-0652894 *CSEDI Collaborative Research: Grand Challenge for Experimental Study of Plastic Deformation Under Deep Earth Conditions*, PI: Pamela C. Burnley, 05/01/07-04/31/10, \$168,142

University of Nevada, Las Vegas FY2008 Research Infrastructure Award Program, *Acquisition of an Electron Backscatter Detector (EBSD)*, PI: Adam Simon, CoI: Pamela Burnley, Jean Cline, Andrew Cornelius, Ken Czerwinski, John Farley, Clemens Heske, Ganqing Jiang, Rod Metcalf, Malcolm Nicol, Michael Pravica, Gene Smith, Wanda Taylor, Oliver Tschauner, Michael Wells. 1/08-6/08, \$97,232

NSF EAR-0838579 *In-situ Synchrotron X-ray Diffraction Study of Quartz Deformation*, PI: Pamela C. Burnley, 09/01/09-08/31/12, \$305,314

COMPRES/University of Illinois (sub contract to NSF award) *Mineral Physics Educational Modules for Advanced Undergraduates and Graduate Students*, PI: Pamela C. Burnley, 01/17/11-05/21/12, \$86,346

COMPRES/University of Illinois (sub contract to NSF award) *Mineral Physics on the World Wide Web – a Comprehensive Approach*, PI: Pamela C. Burnley, Co-I: Sylvia-Monique Thomas 06/1/12-5/31/14, \$86,548

NSF EAR -1220548 *Quantifying Rare Earth (REE) and High Field Strength (HFSE) Element Mobility in Fluids at Conditions Appropriate for Forearc to Subarc Cold and Hot Subduction Zones*, PI: Adam C. Simon, Co-I: Oliver Tschauner and Pamela C. Burnley, 8/15/12 – 7/31/15, \$379,393

DOE SSAA *High Pressure Science and Engineering Center*, PI: Yusheng Zhao, Co-I: Andrew Cornelius, Pamela Burnley, Changfeng Chen, Paul Forster, Michael Pravica, Oliver Tschauner, Barbara Lavina, Ravhi Kumar, Liping Wang, and Valentin Iota, 1/1/13 – 12/31/17, \$13,000,000

DOE SDRD (with National Security Technologies LLC) *Predictive Radiological Background Distributions from Geologic Data*, PI: Pamela C. Burnley, Co-I: Elizabeth Hausrath 10/1/13-09/31/15, \$210,444

NSF EAR - 1361339 *CSEDI Collaborative Research: Grand Challenge for Experimental Study of Plastic Deformation Under Deep Earth Conditions*, PI: Pamela C. Burnley, 08/01/14 – 07/31/17, \$263,998

NSF EAR - 1417218 *Testing Stress Percolation as a Model for Stress Transmission in Rocks* PI: Pamela C. Burnley, 08/01/14 – 07/31/17, \$327,979

Army Research Office, W911NF-15-1-0573 *Understanding the Geologic Causes of Variations in Natural Radiological Background* PI: Pamela C. Burnley, CoI: Elisabeth Hausrath, 9/1/15 – 8/31/18, \$355,768

NASA Space Grant NNX15AI02H *Inclusion Rocks! Introducing Underrepresented Students to the World Around Them Through Geoscience and Remote Sensing*, PI: Pamela C. Burnley, Co-I: Meryn Cole, Joanna Piotrowska-Jezierska, and Joshua Bonde, 7/1/18 -4/9/2019, \$24,888

DOE SSAA *Deformation of Polycrystalline Materials under Extreme Conditions: Stress Percolation, Shear Localization and Grain Boundary Rheology* PI: Pamela C. Burnley, CoI: Ashkan Salamat, 01/15/19 – 12/31/21, \$525,000

ADMINISTRATIVE EXPERIENCE AND COMMITTEE SERVICE

Georgia State University

Atlanta Consortium for Research in the Earth Sciences (ACRES)
Summer Research Experiences for Undergraduates and Teachers
Director 1999-2005
Department of Geosciences
Educational Technology Committee, Chair 1998-2007
Undergraduate Learning Outcomes Assessment, Chair 2005-2007
Department Chair Search Committee, Chair 2007
New Faculty Search Committee, Sedimentology and Stratigraphy Subcommittee Chair 2006
Standards Based Teacher Education Project (STEP)
STEP Science Subcommittee, Member 1998-2007
STEP Taskforce, Member 1999-2000
Professional Education Faculty
Member 1998-2007
Professional Education Council 2005-2007
Diversity Subcommittee, Member 2003-2005
Department of Early Childhood Education
Science Education Faculty Search Committee, Member 2003
Department of Middle Secondary and Instructional Technology
TEEMS Program Admissions Interview Committee, Member 2000-2001

University of Nevada, Las Vegas

Department of Geoscience
Rock Preparation Laboratory, Manager 1/2011 - present
Curriculum Reform, Learning Outcomes Subcommittee, Chair 2010
Scholarship Committee, Member 2008 – present
Education and Outreach Committee, Member 2010- present
High Pressure Science and Engineering Center
Graduate Education Coordinator, 2010 - 2014

PROFESSIONAL SERVICE

Geological Society of America
Young Investigators Award Committee, Member 2016-2018
Consortium for Materials Properties Research in Earth Sciences (COMPRES)
Executive Committee, Chair 2013-2015
Ad hoc Education and Outreach Committee, Member 2012-2013
Infrastructure and Development Committee, Chair 2010-2012
Long Range planning group, Education subcommittee, Chair 2010
Infrastructure and Development Committee, Member 2002-2008, 2013
Executive Committee, Member 2001-2002
Central Office Standing Committee, Chair 2001-2002
Mineralogical Society of America
Distinguished Public Service Medal Committee, Member 2019-2020
Roebbling Medal Committee, Member 2015-2017
Councilor, 2010-2013

Mineralogical Society of America Award Committee, Chair 2013
 Dana Award Committee, Chair 2012
 Kraus Research Award Committee, Chair 2011
 Ad Hoc Committee on Meetings, Member 1998-2000
 Representative to AGU Spring Meeting Program Committee, Member 1997-2000
 NSLS-II 4DE Beamline, Beamline Proposal Writing Team
 Member 2010
 Physics and Chemistry of Minerals, Springer
 North American Editor 2007 - 2010
 National Science Foundation
 Division of Earth Sciences, Panel member 2/96, 2/97, 4/98, 1/00, 11/00, 5/2007 – 11/2009
 University System of Georgia Consortia for Science Teacher Professional Development
 Earth and Space Sciences Subcommittee, Member 2003-2007
 American Geophysical Union
 Bucher Medal Committee, Member 2013-2014
 Paul Silver Award Nomination Committee, Member 2012
 Public Information Committee, Member 1998-2000
 Representative of the Mineral and Rock Physics Committee to the Spring Meeting
 Program Committee 1999-2000
 Volcanology, Petrology and Geochemistry Section,
 Meetings Committee, Member 1998-2000
 Representative of the Mineral and Rock Physics Committee to the Meetings Program
 Committee 1997-1999
 National Association for the Advancement of Colored People
 NAACP ACT-SO National Annual Awards, Earth and Space Science Judge 2014
 St. Vrain Valley School District
 Science Proficiency Writing Committee, Member 1995-1997
 International Association of Seismology and Physics of the Earth's Interior
 Commission on Physical Properties of Materials of the Earth's Interior, Secretary 1995-1999
 Association for Women Geoscientists
 Denver Chapter, Treasurer 1994-1997
 Reviewer for American Mineralogist, Physics and Chemistry of Minerals, Earth and Planetary
 Science Letters, Journal of Geophysical Research, Geophysical Research Letters, Physics of
 Earth and Planetary Interiors, Chemical Physics Letters, Science, Nature, Journal of
 Environmental Radioactivity, Environmental Earth Sciences, W. H. Freeman and Company,
 Wiley and Sons, Prentice Hall, Brooks Cole, Pearson, Columbia University Press, Addison
 Wesley, McGraw-Hill, and the National Science Foundation.

INVITED LECTURES AND COLLOQUIA

Invited speaker

Rock Deformation Gordon Conference, Summer 1997, 2016
 EGU General Assembly Spring 2014 in session: *Mechanical effects during mineral reactions: A departure from lithostatic pressure – a myth or fact?*
 National Science Teachers Association, Annual meeting, Spring 2004 AGU Lecture
 CSEDI Deep Earthquake workshop, Winter 1994
 AGU Spring 1993 meeting in session: *Kinetics and Transport Properties of Minerals*

Invited colloquia

University of Wyoming, Cornell University, Princeton University, State University of New York at Stony Brook, University of Colorado at Boulder, Arizona State University, Los Alamos

National Laboratory (IGPP), University of Northern Colorado, University of Notre Dame, Northwestern University, Georgia Tech, Georgia Southern University, University of Georgia, Florida International University, University of New Mexico, Columbus State University, University of Nevada Las Vegas, Los Alamos National Lab (Geomaterials), University of California, Davis, University of Illinois, Stony Brook University, ETH Zurich, South Dakota School of Mines and Technology, Ecole Normale Supérieure, Paris, Sandia National Lab (Livermore Office)

ACADEMIC HONORS AND AWARDS

Fellow Mineralogical Society of America, 2012

Editor's Citation for Excellence in Refereeing, American Geophysical Union, 1996

Penrose Grant: Awarded with Outstanding Mention, Geological Society of America, 1983

Graduate Fellowship, National Science Foundation, 1982

PUBLICATIONS

Peer reviewed

Kaboli, S. and Burnley P.C., (2019) In-situ X-ray Diffraction Deformation and EPSC Modeling of AZ31 Mg Alloy. *Materials Science & Engineering A*, 739, p. 99-104
<https://doi.org/10.1016/j.msea.2018.10.008>

Burnley P. C. and Kaboli S. (2019) Elastic Plastic Self Consistent (EPSC) Modeling of San Carlos Olivine Deformed in a D-DIA Apparatus. *American Mineralogist*. (in press)

Kaboli, S. and Burnley P.C. (2018) Direct Observations of Crystal Defects in Polycrystalline Diamond. *Materials Characterization* v. 142, p. 154-161
<https://doi.org/10.1016/j.matchar.2018.05.036>

Mazzucchelli, M. L., Burnley, P., Angel, R J., Morganti, S. Domeneghetti, C. M., Nestola F. and Alvaro, M. 2018 Elastic geobarometry: errors arising from the geometry of the host-inclusion system. *Geology*, 46 (3): p.231–234, <https://doi.org/10.1130/G39807.1>

Kaboli, S., Burnley, P.C., Xia, G. and Green H.W. II 2017 Pressure dependence of creep in forsterite olivine: comparison of measurements from the D-DIA and Griggs apparatus. *Geophysical Research Letters*, 44, 10,939–10,947. <https://doi.org/10.1002/2017GL075177>

Kaboli, S. and Burnley P.C., 2017 ECCL, EBSD and EPSC Characterization of Rhombohedral Twinning in Polycrystalline α -Alumina Deformed in the D-DIA Apparatus. *Journal of Applied Crystallography*, 50, 14p. <https://doi.org/10.1107/S1600576717013991>.

Haber, D.A., Burnley, P.C., Adcock, C.T., Malchow, R.L., Marsac, K.E., and Hausrath, E.M., 2017, Modeling Background Radiation in Southern Nevada. *Journal of Environmental Radioactivity*, v. 171, p 41–64, doi:10.1016/j.jenvrad.2017.01.020

Haber, D.A. Malchow, R.L., Burnley, P.C., 2017 Monte Carlo Simulations of the Gamma-Ray Exposure Rates of Common Rocks. *Journal of Environmental Radioactivity*, v. 167 p 20–25, doi: 10.1016/j.jenvrad.2016.11.013

Marsac, K.E., Burnley, P.C., Adcock, C.T., Haber, D.A., Malchow, R.L., Hausrath, E.M., 2016, Modeling background radiation using geochemical data: A case study in and around Cameron, Arizona. *Journal of Environmental Radioactivity*, v.165 p. 68- 85, OSTI ID 1325309, doi: 10.1016/j.jenvrad.2016.07.012

Burnley, P. C., 2015, Elastic Plastic Self Consistent (EPSC) Modeling of Plastic Deformation in Fayalite Olivine. *American Mineralogist*. V. 100, p.1424 – 1433, OSTI ID 1332345, doi: 10.2138/am-2015-5234CCBYNCND

Tanis, E.A., Simon A., Tschauner O., Chow P., Xiao Y., Burnley P., Cline, C., Hanchar, J., Pettke, T., Shen, G., Zhao, Y., 2015, Experimental constraints on the mobility of Nb-rutile in NaCl- and NaF-bearing aqueous fluids during the blueschist to eclogite transition in subduction zones, *American Mineralogist*, V. 100, p.1600 – 1609, doi: 10.2138/am-2015-5031

- Burnley, P. C., 2013, The Importance of Stress Percolation Patterns in Rocks and other Polycrystalline Materials. *Nature Communications*. 4:2117, doi:10.1038/ncomms3117
- Burnley, P.C, Cline, C. and Drue, A., 2013, Kinking in Mg₂GeO₄ olivine: an EBSD study. *American Mineralogist*. V. 98, p. 927–931
- Burnley, P.C. and Getting I.C. 2012 Creating a High Temperature Environment at High Pressure in a Gas Piston Cylinder Apparatus. *Review of Scientific Instruments*, v. 83:1, doi: 10.1063/1.3677844
- Jarrett, O. S. and Burnley, P. C. 2010 Lessons on the role of fun/playfulness from a geology undergraduate summer research program. *Journal of Geoscience Education*, v. 58, n. 2, p. 110-120.
- Burnley, P.C. and Zhang, D. 2008 Interpreting in-situ x-ray diffraction data from high pressure deformation experiments using elastic plastic self consistent models: an example using quartz, *Journal of Physics: Condensed Matter*, v 20, doi:10.1088/0953-8984/20/28/285201, 10pp
- Jarrett, O. S. and Burnley, P.C., 2007, The role of fun, playfulness, and creativity in science: Lessons from geoscientists, in *Play and Culture Studies Volume 7*, D. Sluss and O. Jarrett Eds., University Press of America, New York, 188-202.
- Burnley, P.C. and Schmidt, C., 2006 Finite element modeling of elastic volume changes in fluid inclusions: Comparison with experiment, *American Mineralogist*. v91, no. 11-12, pp. 1807-1814.
- Burnley, P. C., 2005, Investigation of martensitic-like transformation from Mg₂GeO₄ olivine to its spinel structure polymorph. *Am. Min.*, v 90, no. 8-9, pp. 1315-1324.
- Burnley, Pamela C., Davis, Mary K., 2004, Volume Changes in Fluid Inclusions Produced by Heating and Pressurization: A Finite Element Modeling Study. *The Canadian Mineralogist*, v 42, pp. 1369-1382.
- Burnley, P.C., 2004, An Earth Science Scrapbook Project as an Alternative Assessment Tool. *Journal of Geoscience Education*, v 52, n 3, pp. 245-249.
- Jarrett, O. S. and Burnley, P. C. 2003 Engagement in authentic geoscience research: Effects on undergraduates and secondary teachers. *Journal of Geoscience Education*, v 51, n 1, pp. 85-90.
- Burnley, P. C., Jarrett, O. S., and Evans W., 2002, A Comparison of Approaches and Instruments for Evaluating a Geological Sciences Research Experiences Program, *Journal of Geoscience Education*, v. 50, n. 1, pp.15-24.
- Hofmeister, A. Cynn, H., Burnley, P. C. and Meade, C., 1999, Vibrational Spectra of Dense, Hydrous Magnesium Silicates at Pressure: Importance of the Hydrogen Bond Angle. *Am. Min.* v 84, pp. 454-464.
- Getting, I. C., Dutton, S. J., Burnley, P. C., Karato, S.-i., Spetzler, H. A., 1997, Shear attenuation and dispersion in MgO. *Phys. Earth Planet. Lett.* 99, pp. 249-257.
- Phillips, B. L., Burnley, P. C., Worminghaus, K. and Navrotsky A., 1997, ²⁹Si and ¹H NMR Spectroscopy of High-Pressure Hydrous Magnesium Silicates. *Phys. Chem. Minerals*. v 24, pp. 179-190.
- Cynn, H., Hofmeister, A. M., Burnley, P. C., Navrotsky, A., 1996, Thermodynamic properties and hydrogen speciation from vibrational spectra of dense hydrous magnesium silicates. *Phys. Chem. Min.*, v 23, pp. 361-376.
- Burnley, P. C. and Navrotsky, A., 1996, Synthesis of high-pressure hydrous magnesium silicates: observations and analysis. *Am. Min.* v 81, pp. 317-326.
- Burnley, P.C., 1995, The fate of olivine in subducting slabs: a reconnaissance study. *Am. Min.* v 80, pp. 1293-1301.
- Burnley, P.C., Bassett, W.A. and Wu, T. -c., 1995, Diamond anvil study of the transformation mechanism from the olivine to spinel phase in Co₂SiO₄, Ni₂SiO₄ and Mg₂GeO₄. *Jour. Geophys. Res.* v 100, pp. 17,715-17,724.

- Navrotsky, A., Rapp, R. P., Smelik, E., Burnley, P., Circone, S., Chai, L., Bose, K., and Westrich, H. R., 1994, The behavior of H₂O and CO₂ in high-temperature lead borate solution calorimetry of volatile-bearing phases. *Am. Min.*, v 79, pp. 1099-1109.
- Wu, T. -c., Bassett, W.A., Burnley, P.C. and Weathers, M.S., 1993, Shear-promoted phase transformation in Fe₂SiO₄ and Mg₂SiO₄ and the mechanism of deep earthquakes. *Jour. Geophys. Res.* v 98, pp. 19,767-19,776.
- Burnley, P.C., Green, H.W. and Prior, D., 1991, Faulting Associated with the olivine to spinel transformation in Mg₂GeO₄ and its implications for deep-focus earthquakes. *Jour. Geophys. Res.* v. 96, pp. 425-443.
- Green, H.W. and Burnley, P.C., 1990, The failure mechanism for deep-focus earthquakes. In *Deformation Mechanisms, Rheology and Tectonics*, R.J. Knipe and E.H. Rutter eds., Geological Society Special Publication no. 54, Geological Society London. pp. 133-141.
- Burnley, P.C. and Green, H.W., 1989, Stress dependence of the mechanism of the olivine-spinel transformation. *Nature*, v 338, pp. 753-756.
- Green, H.W. and Burnley, P.C., 1989, A new, self-organizing, mechanism for deep-focus earthquakes. *Nature*, v 341, pp. 733-737.

Field Guide Chapters and Other Publications (*reviewed)

- *Kaboli, S., & Burnley, P. (2018). Quantitative Characterization of Crystal Defects in Planetary Materials in a Scanning Electron Microscope (SEM). *Microscopy and Microanalysis*, 24(S1), 2094-2095. [doi:10.1017/S1431927618010954](https://doi.org/10.1017/S1431927618010954)
- *Kaboli, S., & Burnley, P. (2018). Strain Analysis in Polycrystalline Diamond under Extreme Conditions. *Microscopy and Microanalysis*, 24(S1), 980-981. [doi:10.1017/S1431927618005391](https://doi.org/10.1017/S1431927618005391)
- *Burnley, P. C., W.-P. Chen, L. F. Dobrzhinetskaya, Z.-M. Jin, H. Jung, R. Liebermann, M. Martins-Green, A. Schubnel, Y. Wang, and J. Zhang (2018), Harry W. Green II (1940–2017), *Eos*, 99, <https://doi.org/10.1029/2018EO097679>. Published on 02 May 2018
- * Kaboli S. and Burnley P. C. (2017) Applications of electron channeling contrast imaging (ECCI) in failure analysis of in-situ synchrotron X-ray diffraction deformation experiment. *Proceedings of Microscopy & Microanalysis* 23(S1), 568-569 <https://doi.org/10.1017/S143192761700352X>
- *Kaboli, S. Burnley, P. C. Gauvin R. (2016) Deformation analysis of forsterite olivine using electron channeling contrast imaging and electron backscatter diffraction. *Proceedings of Microscopy & Microanalysis* 22(S3), 1792-1793. <https://doi.org/10.1017/S1431927616009806>
- *Wasiolek, P., Malchow R., Burnley, P., Hausrath, E., Marsac K., Haber D., Johnsen, R. and Adcock C., (2015) “Predictive Radiological Background Distributions from Geologic Data,” in *Site-Directed Research and Development*, FY 2015, National Security Technologies, LLC, Las Vegas, Nevada, 2016, 197–204. (http://www.lanl.gov/projects/ldrd-tri-lab/_assets/docs/fy15-nstec-annual-report.pdf)
- *Malchow, R., P. Burnley, E. Hausrath, K. Marsac, D. Haber, and C. Adcock, (2014) “Predictive Radiological Background Distributions from Geologic Data,” in *Site-Directed Research and Development*, FY 2014, National Security Technologies, LLC, Las Vegas, Nevada, 2015, 193–201. (http://www.lanl.gov/projects/ldrd-tri-lab/_assets/docs/sdrd-fy14-apr.pdf)
- Burnley, P. 2012 “*High Pressure Deformation Experiments*” On the Cutting Edge – Professional Development for Geoscience Faculty, Teaching Mineral Physics Collection. http://serc.carleton.edu/NAGTWorkshops/mineralogy/mineral_physics/deformation_mechanisms.html
- Burnley, P. 2012 “*Tensors: Stress, Strain and Elasticity*” On the Cutting Edge – Professional Development for Geoscience Faculty, Teaching Mineral Physics Collection. http://serc.carleton.edu/NAGTWorkshops/mineralogy/mineral_physics/tensors.html

- Burnley, P. 2012 “*Phase Equilibria at High Pressure*” On the Cutting Edge – Professional Development for Geoscience Faculty, Teaching Mineral Physics Collection.
http://serc.carleton.edu/NAGTWorkshops/mineralogy/mineral_physics/phase_equilibria.html
- Burnley, P. 2011 “*The Multi-Anvil Apparatus*” On the Cutting Edge – Professional Development for Geoscience Faculty, Teaching Mineral Physics Collection.
http://serc.carleton.edu/NAGTWorkshops/mineralogy/mineral_physics/multi_anvil.html
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