CURRICULUM VITAE

RANDALL T. CYGAN

Geochemistry Department
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RESEARCH INTERESTS

Mineralogy and geochemistry, specializing in applications of chemical kinetics and equilibria to mineralogical, geochemical, and materials research problems; particular emphasis on the use of molecular simulation and various spectroscopies to understand mineral behavior

EDUCATION

University of Illinois, Chicago, IL 60680
Date: September 1973 to June 1977
Degree: B.S. in Chemistry, with Honors; minor in Geology, June 1977

The Pennsylvania State University, University Park, PA 16802
Date: September 1977 to December 1983
Degree: M.S. in Geochemistry and Mineralogy, November 1980
Thesis: Crystal Growth and the Formation of Chemical Zoning in Natural Garnets
Degree: Ph.D. in Geochemistry and Mineralogy, December 1983
Thesis: Chemical Diffusion and Dielectric Polarization Processes in Silicate Minerals

PROFESSIONAL EXPERIENCE

Sandia National Laboratories
Geochemistry Department 6316
Albuquerque, NM 87185
Position: Distinguished Member of Technical Staff, October 2000 to present
Position: Principal Member of Technical Staff, October 1997 to September 2000
Position: Senior Member of Technical Staff, October 1983 to April 1987, December 1988 to September 1997
Supervisor: Dr. Mark J. Rigali

University of Illinois
Department of Geology
Urbana, IL 61801
Position: Assistant Professor
Date: April 1987 to November 1988
Department Chair: Dr. R. James Kirkpatrick

The Pennsylvania State University
Department of Geosciences
University Park, PA 16802
Position: Graduate Research Assistant
Date: September 1977 to August 1983
Supervisor: Dr. Antonio C. Lasaga

U.S. Geological Survey
Water Resources Division
Denver Federal Center
Denver, CO 80225
Position: Research Assistant
Date: June 1980 to September 1980
Supervisor: Dr. Hans C. Claassen

University of Illinois
Department of Geological Sciences
Chicago, IL 60680
Position: Undergraduate Research Assistant
Date: September 1976 to August 1977
Supervisor: Dr. August F. Koster van Groos

University of Illinois
Department of Chemistry
Chicago, IL 60680
Position: Undergraduate Chemistry Instructor
Date: September 1974 to August 1976
Supervisor: Dr. C. F. Liu

PROFESSIONAL SOCIETIES

American Chemical Society
American Geophysical Union
Clay Minerals Society
Geochemical Society
Materials Research Society
Mineralogical Society of America

PROFESSIONAL ACTIVITIES

Coauthor of National Workshop on Computational Geoscience report: The Emergence of Computational Earth Science, 1987
Member of Lecture Committee of Mineralogical Society of America, 1994
Member of review panel for Institute of Geophysics and Planetary Physics, Lawrence Livermore National Laboratory, 1994
Chair of Lecture Committee of Mineralogical Society of America, 1995
Organizer of special symposium Planetary Impact Events: Materials Response to Dynamic High Pressure at International Conference on Advanced Materials, Cancun, Mexico, 1995
Member of MSA Award Committee of Mineralogical Society of America, 1998
Associate Editor, Clays and Clay Minerals, 1999-2005
Organizer of Geochemical Society short course, Molecular Modeling Theory and Applications in the Geosciences, Roanoke, 2001
Editor and contributor to Reviews in Mineralogy and Geochemistry volume on Molecular Modeling Theory: Applications in the Geosciences, 2001
Member of Clay Minerals Society Council, 2002-2006
Chair of Publications Committee for Clay Minerals Society, 2002-2005
Member of Executive Advisory Council for Environmental Molecular Science Institute at University of Notre Dame, 2002-2006
Organizer of advanced workshop, Chemical Reactivity of Aqueous Species at Mineral Surfaces, Telluride, 2003
Organizer of interagency workshop, Conceptual Model Development for Subsurface Reactive Transport Modeling of Inorganic Contaminants, Radionuclides, and Nutrients, Albuquerque, 2004
Lecturer for American Chemical Society short course, Molecular Modeling Applied to Environmental Geochemistry, Pennsylvania State University, 2004

Member of Clarke Medal Committee of Geochemical Society, 2004-2006
Member of Advisory Council for Elements, 2004-2007
Organizer of advanced workshop, Frontiers of Interfacial Water Research, Santa Fe, 2005
Special associate editor for Vadose Zone Journal, 2005-2006
Member of external advisory board, University of Illinois WaterCAMPWS, 2006-2008
Member of review panel for Environmental Remediation Science Program, Department of Energy, 2006
Chair of organizing committee for annual meeting of the Clay Minerals Society, Santa Fe, 2007
Organizer of American Chemical Society special symposium, Mechanisms of Metal Binding onto Microbial Cell Walls, Chicago, 2007
Organizer of Materials Research Society special symposium, Materials Science of Water Purification, Boston, 2007
Member of review committee for Office of Biological and Environmental Research, Department of Energy, 2008
Member of review committee for Office of Basic Energy Sciences, Department of Energy, 2008

Organizer and chair for numerous sessions and special symposia at society meetings, including American Chemical Society, American Geophysical Union, Clay Minerals Society, Geochemical Society, and Geological Society of America, Materials Research Society, and Mineralogical Society of America

Reviewer of research proposals for American Chemical Society, U.S. Department of Energy Office of Basic Energy Sciences, National Science Foundation, National Aeronautics and Space Administration, Sandia National Laboratories, and United Kingdom Research Council

Reviewer of technical manuscripts for Angewandte Chemie, American Mineralogist, Applied Geochemistry, Bulletin of the Geological Society of America, Canadian Mineralogist, Chemistry of Materials, Clays and Clay Minerals, Colloids and Surfaces, Environmental Science and Technology, Geochimica et Cosmochimica Acta, Inorganic Chemistry, Journal of the American Chemical Society, Journal of Applied Physics, Journal of Geophysical Research, Journal of Colloid and Interface Science, Journal of Molecular Modeling, Journal of Non-Crystalline Solids, Journal of Physical Chemistry, Journal of Physics and Chemistry of Solids, Journal of Sedimentary Petrology, Langmuir, Materials Science and Technology, Meteoritics and Planetary Science, Molecular Simulation, Physics and Chemistry of Minerals, Science, Proceedings of the Materials Research Society, and Soil Science Society of America Journal, Vadose Zone Journal

Supervisor and/or co-advisor to graduate students (Igor F. de Vasconcelos, University of Notre Dame; Owen W. Duckworth, Harvard University; Kelly J. Johnson, University of Notre Dame; Angela A. McLain; University of New Mexico; Eric C. Moloy; University of California at Davis; Tod D. Perry; Harvard University; Victor Sletten, Yale University; Brad C. Tischendorf, Iowa State University)

Supervisor to post-doctoral researchers (Louise J. Criscenti, Sandia National Laboratories; Diana K. Fisler, Johns Manville Technical Center; J. David Hobbs, Montana Tech University; James P. Larentzos, Stoller Corporation; Jian-Jie Liang, Accelrys Inc.; Nathan W. Ockwig, Sandia National Laboratories; Craig S. Schwandt, McCrone Associates, Inc.)

AWARDS AND RECOGNITIONS

Illinois State Scholar, 1973
James Scholar, 1973-1977
University of Illinois Dean's List, 1973-1977
Phi Eta Sigma Honor Society, 1974
Phi Kappa Phi Honor Society, 1976
National Science Foundation Energy-Related Traineeship, 1978-1979
Mining and Mineral and Mineral Fuel Fellowship, 1979-1981
Centennial Fellow, Pennsylvania State University, College of Earth and Mineral Sciences, 1996
Presidential Quality Turquoise Award, Sandia National Laboratories, 1997
Employee Recognition Award, Sandia National Laboratories, 1998
Honorary Distinguished Alumnus, Pennsylvania State University, Materials Research Laboratory, 1999
Distinguished Member of Technical Staff, Sandia National Laboratories, 2000
Weeks Distinguished Lecturer, University of Wisconsin, 2001
Fellow, Mineralogical Society of America, 2005
LDRD Award for Excellence, Sandia National Laboratories, 2008

Research grants and contracts from U.S. Department of Energy Office of Basic Energy Sciences, U.S. Nuclear Regulatory Commission, National Aeronautics and Space Administration, National Science Foundation, and Defense Nuclear Agency, 1983-2009

PUBLICATIONS

Author and coauthor of over a hundred research journal articles and professional reports (not listed)
Author and coauthor of several hundred abstracts of technical meeting papers (not listed)
Several dozen invited lectures for university and laboratory seminars (not listed)

See web pages for listings:
www.sandia.gov/cygan