

CURRICULUM VITAE

Robert Scott Disselkamp

1818 Valmore Place
Richland, WA 99352
tel.(509) 628-8810

Sr. Research Scientist
Pacific Northwest National Laboratory
ASTG/EMSL; MS K9-30
Richland, WA 99352
(509) 376-8209
e-mail: robert.disselkamp@pnl.gov

Date and Place of Birth: November 30, 1962, St.Paul, Minnesota

Citizenship: U.S.A.

Marital Status: Married, two children

Education

1990 Ph.D. in Physical Chemistry, Indiana University, Bloomington, Indiana.
Minor in solid state physics. Advisor: Professor George E. Ewing
Dissertation Title: Infrared Spectroscopy of CO₂ and H₂O Molecular Clusters.

1985 Bachelor of Science in Chemical Engineering, University of Minnesota,
Minneapolis, Minnesota. Minor in polymer science.

1968 - 81 Elementary and Secondary Education in St. Paul, Minnesota

Employment

2/98 – present Sr. Research Scientist, Atmospheric Sciences Technical Group and
Environmental Molecular Sciences Laboratory, Pacific Northwest
National Laboratory. Laboratory studies of atmospheric heterogeneous
chemistry using static aerosol chamber techniques. Development of field
portable aerosol sampling instruments.

8/95 – 1/98 Assistant Professor, Geophysical Institute & Department of Chemistry,
University of Alaska Fairbanks. Atmospheric heterogeneous chemistry.
Laboratory investigation of atmospheric aerosol chemistry. Laboratory
simulation of the lidar study of aerosols and clouds. Halogen activation in
Polar Stratospheric Clouds and Sea-Salt aerosols.

11/93 - 7/95 Research Associate, CIRES, University of Colorado, Boulder.
Infrared spectroscopy and chemistry of Nitric Acid Hydrate
aerosols. Investigation of aerosol phase and composition change under
simulated stratospheric conditions is currently being performed.

10/90 - 11/93 Research Associate, Chemistry Department, Colorado State University.
Electronic state spectroscopy of radicals and reactive clusters. Performed
ab initio calculations exploring the electronic state dependence of
chemical reactivity (i.e., reactant, product and transition state energies).

6/87 - 8/90 Research Assistant, Chemistry Department, Indiana University.
Experimental and theoretical aspects of energy transfer in cryogenic
liquids, infrared spectroscopy of two-dimensional systems, and infrared
spectroscopy of large molecular clusters.

Societies

1994 - present American Geophysical Union
1995 - present American Chemical Society

Publications

1. *High Vibrational States of Carbon Monoxide in Liquid Argon: Overtone Intensity Enhancement and Reactions with Oxygen*; R. Disselkamp, G.E. Ewing, J. Phys. Chem., **93**, 6334 (1989).
2. *Infrared Spectroscopy of Large Carbon Dioxide Clusters*; R. Disselkamp, G.E. Ewing, J. Chem. Soc. Faraday Trans., **86**, 2369 (1990).
3. *Infrared Spectroscopy of Carbon Monoxide on NaCl (100): IV. Bandshape Analysis*; R. Disselkamp, H.-C. Chang, G.E. Ewing, Surface Science, **240**, 193 (1990).
4. *Conformational Analysis through Selective Isotopic Substitution: Supersonic Jet Spectroscopic Determination of the Minimum Energy Conformation of o-Xylene*, J.I. Seeman, H.V. Secor, R. Disselkamp, E.R. Bernstein, J. Chem. Soc. Chem. Commun., **9**, 713 (1992).
5. *Anharmonic Libration of CO₂ in Domains on NaCl (100)*; O. Berg, R. Disselkamp, G.E. Ewing, Surface Science, **277**, 8 (1992).
6. *The (n,3s) Rydberg Spectra of Diethyl Ether, Diisopropyl Ether, and Methyl Vinyl Ether: Analysis of the Torsional Motion*; Q.Y. Shang, P.O. Moreno, R. Disselkamp, E.R. Bernstein, J. Chem. Phys., **98**, 3703 (1993).
7. *Solvation Effects on Reactive Intermediates: The Benzyl Radical and its Clusters with Ar, N₂, CH₄, C₂H₆, and C₃H₈*; R. Disselkamp, E.R. Bernstein, J. Chem. Phys., **98**, 4339 (1993).
8. *Large Carbon Dioxide Clusters studied by Infrared Spectroscopy and Light Scattering*; R. Disselkamp, G.E. Ewing, J. Chem. Phys., **99**, 2439 (1993).
9. *Potential Energy Surfaces of Substituted Anilines: Conformational Energies, Deuteration Effects, Internal Rotation, and Torsional Motion*; R. Disselkamp, H.S. Im, E.R. Bernstein, J. Chem. Phys., **97**, 7889 (1992).
10. *Minimum Energy Conformation of ortho-Xylene in its Ground and First Excited Electronic States*; R. Disselkamp, E.R. Bernstein, J.I. Seeman, H.V. Secor, J. Chem. Phys., **97**, 8130 (1992).
11. *The Benzyl Radical-Ethylene Molecular Cluster: Electronic State Mediation of Chemical Reactivity*; R. Disselkamp, E.R. Bernstein, J. Phys. Chem., **98**, 7260 (1994).
12. *CASSCF Study of the Lowest Lying 3s Rydberg States of ABCO*; R. Disselkamp, Q.-Y. Shang, E.R. Bernstein, J. Phys. Chem., **99**, 7227 (1995).
13. *FTIR Studies of Low Temperature Sulfuric Acid Aerosols*; S.E. Anthony, R.T. Tisdale, R.S. Disselkamp, M.A. Tolbert, J.C. Wilson, Geophys. Res. Lett., **22**, 1105 (1995).
14. *Crystallization Kinetics of Nitric Acid Dihydrate Aerosols*, R.S. Disselkamp, S.E. Anthony, A.J. Prenni, T.B. Onasch, and M.A. Tolbert, J. Phys. Chem., **100**, 9127 (1996).
15. *A Chamber for Laboratory Studies of Atmospheric Aerosols and Clouds*, M.L. Narus, N.C. Schoenfelder, Y. Na, L.A. Chavasse, R.S. Disselkamp, Rev. Sci. Instr., **67**, 4364 (1996).
16. *Laboratory studies of ternary H₂SO₄/HNO₃/H₂O particles: Implications for polar stratospheric cloud formation*; Anthony, S. E.; Onasch, T. B.; Tisdale, R. T.; Disselkamp, R. S. ; Tolbert, M. A.; J. Geophys. Res. [Atmos.], **102**, 10777, (1997).
17. *Nitrosyl Chloride and Nitryl Chloride Formation from HNO₃/HCl/H₂SO₄/H₂O Solutions at 200 K*, R.W. Heckert, R.G. Woodard, A.W. Lynn, R.S. Disselkamp, J. Atm. Chem., **32**, 315 (1999).

18. *BrCl Production in NaBr/NaCl/HNO₃/O₃ Solutions Representative of Sea-Salt Aerosols in the Marine Boundary Layer*, R.S. Disselkamp, C.D. Howd, E.G. Chapman, W.R. Barchet, S.D. Colson, *Geophys. Res. Lett.*, **26**, 2183, 1999.
19. *A Chamber Investigation of Nitric Acid–Soot Aerosol Chemistry at 298 K*, R.S. Disselkamp, M.A. Carpenter, J.P. Cowin, *J. Atm. Chem.*, submitted July 19, 1999.
20. *Evidence of Nighttime Ozone Depletion through Heterogeneous Chemistry*, C.M. Berkowitz, E.G. Chapman, R.A. Zaveri, N.S. Laulainen, R.S. Disselkamp, X. Bian, *J. Geophys. Res.*, accepted August 24, 1999.
21. *Ozone Loss in Atmospheric Soot Aerosols*, R.S. Disselkamp, M.A. Carpenter, J.P. Cowin, C.M. Berkowitz, E.G. Chapman, R.A. Zaveri, N.S. Laulainen, *J. Geophys. Res.*, submitted September 27, 1999.

Conference Presentations

1. 1987 Ohio State University Spectroscopy Conference, Columbus, Ohio. "Vibrational Energy Transfer in Cryogenic Liquids: Up-pumping of Carbon Monoxide in Liquid Argon"
2. 1989 American Chemical Society National Meeting, Miami, Florida. "Modeling the Infrared Spectrum of Large Carbon Dioxide Clusters"
3. 1989 Ohio State University Spectroscopy Conference, Columbus, Ohio. "Modeling the Infrared Spectrum of Carbon Monoxide on NaCl (100)"
4. 1990 Ohio State University Spectroscopy Conference, Columbus, Ohio. "Infrared Spectroscopy and Light Scattering of Large Carbon Dioxide Clusters"
5. 1993 American Chemical Society National Meeting, Denver, Colorado. "Chemical Reactions in Clusters: Benzyl Radical / Ethylene"
6. 1995 American Chemical Society National Meeting, Chicago, Illinois. "Supercooling versus Crystallization of Nitric Acid Water Aerosols"
7. 1996 American Geophysical Union, San Francisco, California. "Laboratory Studies of Ozone Reactivity on Aluminum Oxide"
8. 1998 American Geophysical Union, San Francisco, California. "BrCl Production in NaBr/NaCl/HNO₃/O₃ Solutions Representative of Sea-Salt Aerosols in the Marine Boundary Layer"
9. 1999 DOE Atmospheric Chemistry Program Meeting, Tysons Corner, VA. "Laboratory Studies of Aerosol-Oxidant Interactions"

Seminars

1. 1993 Los Alamos National Laboratory - CLS 4, (July 29). "The Benzyl Radical - Ethylene Molecular Cluster: Electronic State Mediation in Chemical Reactivity".
2. 1994 University of Wyoming - (December 8). "Laboratory Studies of Polar Stratospheric Clouds".
3. 1995 University of Alaska Fairbanks - (March 30). "Laboratory Studies of Polar Stratospheric Clouds".
4. 1995 Brookhaven National Laboratory - (April 11). "Laboratory Studies of Polar Stratospheric Clouds".
5. 1995 Washington State University - (April 18). "Laboratory Studies of Polar Stratospheric Clouds".
6. 1995 Colorado State University - (July 6). "Laboratory Studies of Polar Stratospheric Clouds".
7. 1996 Geophysical Institute, U.S.-Japan Workshop on Arctic Research (February 7). "Use of Circularly Polarized Lidar".
8. 1997 Ohio State University, Department of Chemistry (February 24). "Stratospheric Heterogeneous Chemistry involving PSCs and Aluminum Oxide".
9. 1997 Colgate University, Department of Chemistry (April 9). "Stratospheric Heterogeneous Chemistry involving PSCs and Aluminum Oxide".
10. 1997 Aerodyne Research, Billerica, MA (May 30). "Laboratory Studies of Stratospheric Heterogeneous Chemistry"

Proposals Funded

1. 1996 Petroleum Research Fund starter grant Type-G. Effective 9/96-9/98.
Award amount: \$10,000/year for two years.
2. 1997 Center for Global Change and Arctic System Research. Effective 5/97-6/98.
Award amount: \$5,000.
3. 1997 TRW - Laboratory Studies of Aluminum Oxide/NO_x Aerosols. Effective 8/97-1/98
Award amount: \$28,000.
4. 1998 DOE Laboratory Directed Research and Development: Laboratory Studies of Atmospheric Heterogeneous Chemistry, Effective 2/98-10/98.
Award amount: \$98,000.
5. 1999 DOE Laboratory Directed Research and Development. Laboratory Studies of Tropospheric Heterogeneous Chemistry, Effective 10/98-10/99.
Award amount: \$98,000.

Conferences/Symposiums Attended

1. 1993 Telluride Workshop on Physical Chemistry and Atmospheric Sciences, August 8-13, Telluride, Colorado.
2. 1993 Challenges in Atmospheric Chemistry and Global Change: Yesterday, Today, and Tomorrow. December 2-4, Boulder, Colorado.
3. 1994 Fourth International Aerosol Conference. Aug. 29-Sept. 2, Los Angeles, CA
4. 1996 The Impact of Rockets on the Stratosphere. May 20, TRW - Space and Technology Division, Los Angeles, California.
5. 1996 International Radiation Symposium. August 19-22, Fairbanks, Alaska.
6. 1997 Spring American Geophysical Union, Baltimore, May 27-29, 1997.
7. 1998 DOE Atmospheric Chemistry Program National Meeting, Tysons Corner, VA, Feb. 16-19.
8. 1998 IGAC National Meeting, Seattle, WA, Aug. 19-21.
9. 1999 Atmospheric Chemistry Gordon Conference, Salve Regina University, June 13-18, Newport, RI.