CURRICULUM VITAE

1 Richard M. Stratt
Newport Rogers Professor in Chemistry
Professor of Chemistry and Professor of Physics
Chemistry Department, Brown University

2. Home Address:
10 Hayden Lane
Franklin, MA 02038

3. Education:
SB., Chemistry, Massachusetts Institute of Technology, 1975
Ph.D., Chemistry, University of California at Berkeley, 1979

Dissertation Topic: Equilibrium Semiclassical Statistical Mechanics

4. Professional Appointments:
University of Illinois, Postdoctoral Research Associate, 1979-1980
University of Illinois, National Science Foundation Postdoctoral Fellow, 1980
Brown University: Assistant Professor of Chemistry 1981-1985
Brown University: Associate Professor of Chemistry 1986-1988
*Brown University: Professor of Chemistry 1988-
*Brown University: Professor of Physics 2006-
Oxford University, Balliol College: Fulbright Scholar and Senior Research Associate 91-92
Brown University: Chair, Department of Chemistry 1996-1999
Brown University: Harrison S. Kravis University Professor 1999-2000
*Brown University: Newport Rogers Professor in Chemistry 2004-

5. Publications:

1. R. M. Stratt and W. H. Miller, J. Chem. Phys. **67**, 5894 (1977). A phase space sampling approach to equilibrium semiclassical statistical mechanics

2 R. M. Stratt, J. Chem. Phys. **70**, 187 (1979). Semiclassical statistical mechanics of hard wall potentials via the transformed potential approach.

3. R. M. Stratt, J. Chem. Phys. **70**, 3630 (1979). Semiclassical statistical mechanics of fluids: Nonperturbative incorporation of quantum effects in classical many-body models.

4. R. M. Stratt, N. C. Handy and W. H. Miller, J. Chem. Phys. **71**, 3311 (1979). On the quantum mechanical implications of classical ergodicity.

5 R. M. Stratt, J. Chem. Phys. **72**, 1685 (1980). Semiclassical statistical mechanics of fluids. II. An improved mean field effective pair potential.

6 R. M. Stratt, S. L. Holmgren and D. Chandler, Mol. Phys. **42**, 1233 (1981). Constrained impulsive molecular dynamics.

7. K. S. Schweizer, R. M. Stratt, D. Chandler, and P. G. Wolynes, J. Chem. Phys. **75**, 1347 (1981). Convenient and accurate discretized path integral methods for equilibrium quantum mechanical calculations.

8. R. M. Stratt and S. G. Desjardins, J. Chem. Phys. **76**, 5134 (1982). Quantum effects on conformational equilibria.

9. R. M. Stratt, J. Chem. Phys. **77**, 2108 (1982). Monte Carlo evaluation of path integrals: quantal intramolecular degrees of freedom in solution.

10. R. M. Stratt and J. E. Adams, J. Chem. Phys. **78**, 2368 (1983). The thermal analogue of state-selected unimolecular reactions.

11. R. M. Stratt and S. J. Smithline, J. Chem. Phys. **79**, 3928 (1983). The equilibrium statistical mechanics of cooperative intramolecular behavior in molecules with coupled conformational/electronic transitions.

12. R. M. Stratt and S. G. Desjardins, J. Amer. Chem. Soc. **106**, 256 (1984). The solvation of the methyl radical and its implications.

13. R. M. Stratt, J. Chem. Phys. **80**, 5764 (1984). The statistical mechanics of a liquid of two-state molecules.

14. R. M. Stratt, Phys. Rev. Lett. **53**, 1305 (1984). The quantal Ising liquid.

15. J.-M. Y. Ha, R. M. Stratt, and W. M. Risen, Jr., J. Chem. Phys. **81**, 2855 (1984). Observation of glass-like behavior in conjugated polymer molecules.

16. S. G. Desjardins and R. M. Stratt, J. Chem. Phys. **81**, 6232 (1984). The statistical mechanics of a liquid of two-state molecules. II. The competition between quantum mechanics and a condensed phase.

17. T. DeSimone and R. M. Stratt, Phys. Rev. B **32**, 1537 (1985). Some developments in the theory of modulated order: I. The role of fluctuations in the ANNNI model and the relevance of the TAP equation.

18. T. DeSimone, R. M. Stratt, and J. Tobochnik, Phys. Rev. B **32**, 1549 (1985). Some developments in the theory of modulated order: II. Deformable lattice models and the ANNNI model as a random magnet.

19. R. M. Stratt, Phys. Rev. Lett. **55**, 1443 (1985). Does coupling to a condensed phase increase or decrease tunneling?

20. R. M. Stratt, Phys. Rev. B **33**, 1921 (1986). Path integral methods for treating quantal behavior in solids: Mean-field theory and the effect of fluctuations

21. R. M. Stratt, J. Chem. Phys. **84**, 2315 (1986). Tunneling-induced disorder in solids.

22. T. DeSimone, R. M. Stratt, and S. Demoulini, Phys. Rev. Lett. **56**, 1140 (1986). Continuum percolation in an interacting system: Exact solution of the Percus-Yevick equation for connectivity in liquids.

23. T. De Simone, S. Demoulini, and R. M. Stratt, J. Chem. Phys. **85**, 391 (1986). A theory of percolation in liquids.

24. V. Dobrosavljevic and R. M. Stratt, Phys. Rev. B. **35**, 2781 (1987). The role of conformational disorder in conjugated polymers: Substituted polydiacetylenes.

25. V. Dobrosavljevic and R. M. Stratt, Phys. Rev. B **36**, 8484 (1987). Mean field theory of the proton glass.

26. R. M. Stratt and S. H. Adachi, J. Chem. Phys. **86**, 7156 (1987). On the origin of the phase transitions in a class of mixed valence compounds.

27. V. Dobrosavljevic, S. H. Adachi, and R. M. Stratt, Phys. Rev. B **37**, 3703 (1988). The behavior of an Ising model with randomly mixed classical and quantal spins.

28. Y. Song, R. M. Stratt, and E. A. Mason, J. Chem. Phys. **88**, 1126 (1988). The equation of state of hard spheres and the approach to random closest packing.

29. S. H. Adachi, A. E. Panson, and R. M. Stratt, J. Chem. Phys. **88**, 1134 (1988). The effect of an unusual type of quenched disorder on phase transitions: Illustration in a mixed valence system.

30. R. M. Stratt, Orientational Disorder in Crystals **6**, No. 4, 1 (1988). Interacting tunneling systems in solids.

31. V. Dobrosavljevic, C. W. Henebry, and R. M. Stratt, J. Chem. Phys. **88**, 5781 (1988). Simple models for the electronic structure of a molecule dissolved in a hard-sphere liquid

32. B. C. Xu and R. M. Stratt, J. Chem. Phys. **89**, 7388 (1988). The electronic structure of a liquid of interacting hydrogenic atoms: A prototype for expanded liquid metals.

33. S. G. Desjardins and R. M. Stratt, J. Chem. Phys. **90**, 6809 (1989). The statistical mechanics of a liquid of breathing hard spheres.

34. R. M. Stratt and B.-C. Xu, Phys. Rev. Lett. **62**, 1675 (1989). Band structure in a liquid.

35. Y. Song, E. A. Mason, and R. M. Stratt, J. Phys. Chem. **93**, 6916 (1989). Why does the Carnahan-Starling equation work so well?

36 V. Dobrosavljevic, C. W. Henebry, and R. M. Stratt, J. Chem. Phys. **91**, 2470 (1989). Simulation of the electronic structure of an atom dissolved in a hard-sphere liquid.

37. B.-C. Xu and R. M. Stratt, J. Chem. Phys. **91**, 5613 (1989). Liquid theory for band structure in a liquid.

38. R. M. Stratt, Adv. Chem. Phys. **78**, 1 (1990). Internal excitations in liquids.

39. B.-C. Xu and R. M. Stratt, J. Chem. Phys. **92**, 1923 (1990) Liquid theory for band structure in a liquid. II. p-orbitals and phonons.

40. J. E. Adams and R. M. Stratt, J. Chem. Phys. **93**, 1332 (1990) . Instantaneous normal mode analysis as a probe of cluster dynamics.

41. R.M. Stratt, Ann. Rev. Phys. Chem. **41**, 175 (1990). The electronic structure of liquids.

42. J.E. Adams and R.M. Stratt, J. Chem. Phys. **93**, 1358 (1990). New insight into experimental probes of cluster melting.

43. S.H. Simon, V. Dobrosavljevic, and R.M. Stratt, J. Chem. Phys. **93**, 2640 (1990). The local field distribution in a fluid.

44. J.E. Adams and R.M. Stratt, J. Chem. Phys. **93**, 1632 (1990). Extensions to the instantaneous and normal mode analysis of cluster dynamics: Diffusion constants and the role of rotation in clusters.

45. S.H. Simon, V. Dobrosavljevic, and R.M. Stratt, Phys. Rev. A **42**, 6278 (1990) . A semiclassical percolation approach to electronic states in simple fluids.

46. S.H. Simon, V. Dobrosavljevic, and R.M. Stratt, J. Chem. Phys. **94**, 7360 (1991). The mobility of electrons in simple insulating fluids as a percolation problem.

47. Z. Chen and R. M. Stratt, J. Chem. Phys. **94**, 1426 (1991). Liquid theory for band structure in a liquid. III. The mean spherical approximation for p bands and the numerical solution of the mean spherical approximation for both s and p bands.

48. J.F. Annett, M.W. Cole, P.B. Shaw and R.M. Stratt, J. Low Temp. Phys. **84**, 1 (1991). Zero point vibrational energy of an absorbed film.

49. Z. Chen and R.M. Stratt, J. Chem. Phys. **95**, 2669 (1991). The spectrum of polarization fluctuations in an atomic liquid.

50. K. Ganguly and R.M. Stratt, J. Chem. Phys. **95**, 4418 (1991). Simulation of the band structure of liquids: Some calculation considerations and a test of the mean spherical approximation.

51. K. Ganguly and R.M. Stratt, J. Chem. Phys. **97**, 1980 (1992). Simulation of the band structure of liquids: A correction and some further developments.

52. Z. Chen and R.M. Stratt, J. Chem. Phys. **97**, 5687 (1992). Nonlinear aspects of band structure in liquids I. Neat liquids.

53. Z. Chen and R.M. Stratt, J. Chem. Phys. **97**, 5696 (1992). Nonlinear aspects of band structure in liquids. II. Solute spectra.

54. M. Buchner, B.M. Ladanyi, and R.M. Stratt, J. Chem. Phys. **97**, 8522 (1992). The short-time dynamics of molecular liquids: Instantaneous normal mode theory.

55. Y. Wan and R.M. Stratt, J. Chem. Phys. **98**, 3224 (1993). Collective fluctuations of conserved variables in liquids.

56. J.E. Adams and R.M. Stratt, Z. Phys. D. **26**, S323 (1993). Solvent-induced electronic spectral shifts: Benzene-Ar_n revisited.

57. R.M. Stratt and J.E. Adams, J. Chem. Phys. **99**, 775 (1993). Solvation by nonpolar solvents: Shifts of solute electronic spectra.

58. J.E. Adams and R.M. Stratt, J. Chem. Phys. **99**, 789 (1993). Optical properties of a chromophore embedded in a rare-gas cluster: Cluster size dependence and the approach to bulk properties.

59. G. Goodyear and R.M. Stratt, J. Am. Chem. Soc. **115**, 10452 (1993). What determines the spin states of polynuclear transition metal complexes?

60. T.C. Kavanaugh and R.M. Stratt, J. Chem. Phys. **100**, 3028 (1994) The role of electron-electron interactions in liquids.

61. Y. Wan and R.M. Stratt, J. Chem. Phys. **100**, 5123 (1994). Liquid theory for the instantaneous normal modes of a liquid.

62. M. Cho, G.R. Fleming, S. Saito, I. Ohmine, and R.M. Stratt, J. Chem. Phys. **100**, 6672 (1994). Instantaneous-normal-mode analysis of liquid water.

63. R.M. Stratt and M. Cho, J. Chem. Phys. **100**, 6700 (1994). The short-time dynamics of solvation.

64. B.M. Ladanyi and R.M. Stratt, J. Phys. Chem. **99**, 2502 (1995). The short-time dynamics of solvation: Linear solvation theory for polar solvents.

65. R.M. Stratt, Accts. Chem. Res. **28**, 201 (1995). The instantaneous normal modes of liquids.

66. B.M. Ladanyi and R.M. Stratt, J. Phys. Chem. **100**, 1266 (1996). The short-time dynamics of solvation: The relationship between polar and nonpolar solvation.

67. G. Goodyear, R.E. Larsen and R.M. Stratt, Phys. Rev. Lett. **76**, 243 (1966). On the molecular origin of friction in liquids.

68. R.E. Larsen, G. Goodyear, and R.M. Stratt, J. Chem. Phys. **104**, 2987 (1966). Liquid theory for the instantaneous normal modes of a liquid. II. Solutions.

69. J. E. Adams and R. M. Stratt, J. Chem. Phys. **105**, 1743 (1996). Solvation and melting in large benzene·$(Ar)_n$ clusters: Electronic spectral shifts and linewidths.

70. R. M. Stratt and M. Maroncelli, J. Phys. Chem. **100**, 12981 (1996). Nonreactive dynamics in solution: The emerging view of solvation dynamics and vibrational relaxation.

71. R. M. Stratt, Int. J. Thermophys. **18**, 899 (1997). The relationship between the elastic constants and instantaneous normal modes of liquids.

72. G. Goodyear and R. M. Stratt, J. Chem. Phys. **105**, 10050 (1996). The short-time intramolecular dynamics of solutes in liquids. I. An instantaneous-normal-mode theory for friction.

73. G. Goodyear and R. M. Stratt, J. Chem. Phys. **107**, 3098 (1997). The short-time intramolecular dynamics of solutes in liquids. II. Vibrational population relaxation.

74. R. E. Larsen, E. F. David, G. Goodyear, and R. M. Stratt, J. Chem. Phys. **107**, 524 (1997). Instantaneous perspectives on solute relaxation in fluids: The common origins of solvation dynamics and vibrational population relaxation.

75. B. M. Ladanyi and R. M. Stratt, J. Phys. Chem. A **102**, 1068 (1998). The short-time dynamics of vibrational relaxation in molecular fluids.

76. E. F. David and R. M. Stratt, J. Chem. Phys. **109**, 1375 (1998). The anharmonic features of the short-time dynamics of fluids: The time evolution and mixing of instantaneous normal modes.

77. R. E. Larsen and R. M. Stratt, J. Chem. Phys. **110**, 1036 (1999). Instantaneous-pair theory for high-frequency vibrational energy relaxation in fluids.

78. R. E. Larsen and R. M. Stratt, Chem. Phys. Lett. **297**, 211 (1998). Mutual-nearest-neighbor-pairs in fluids.

79. B. M. Ladanyi and R. M. Stratt, J. Chem. Phys. **111**, 2008 (1999). On the role of dielectric friction in vibrational energy relaxation.

80. S. Ryu, P. M. Weber, and R. M. Stratt, J. Chem. Phys. **112**, 1260 (2000). The diffraction signatures of individual vibrational modes in polyatomic molecules.

81. R. M. Stratt, The molecular mechanisms behind the vibrational population relaxation of small molecules in liquids, in Ultrafast Infrared and Raman Spectroscopy, edited by M. D. Fayer (Marcel Dekker, New York, 2001).

82. J. Jang and R. M. Stratt, J. Chem. Phys. **112**, 7524 (2000). The short-time dynamics of molecular reorientation in liquids. I. The instantaneous generalized Langevin equation.

83. J. Jang and R. M. Stratt, J. Chem. Phys. **112**, 7538 (2000). The short-time dynamics of molecular reorientation in liquids. II. The microscopic mechanism of rotational friction.

84. A. Ma and R. M. Stratt, Phys. Rev. Lett. **85**, 1004 (2000). The fifth-order Raman spectrum of an atomic liquid: Simulation and instantaneous-normal-mode calculation.

85. J. Jang and R. M. Stratt, J. Chem. Phys. **113**, 5901 (2000). Rotational energy relaxation of individual rotational states in liquids.

86. J. Jang and R. M. Stratt, J. Chem. Phys. **113**, 11212 (2000). Dephasing of individual rotational states in liquids.

87. A. Ma and R. M. Stratt, J. Chem. Phys. **116**, 4962 (2002). The molecular origins of the two-dimensional Raman spectrum of an atomic liquid. I. Molecular dynamics simulation.

88. A. Ma and R. M. Stratt, J. Chem. Phys. **116**, 4972 (2002). The molecular origins of the two-dimensional Raman spectrum of an atomic liquid. II. Instantaneous-normal-mode theory.

89. Y. Deng and R. M. Stratt, J. Chem. Phys. **117**, 1735 (2002). Vibrational energy relaxation of polyatomic molecules: The solvent's perspective.

90. Y. Deng, B. M. Ladanyi, and R. M. Stratt, J. Chem. Phys. **117**, 10752 (2002). High-frequency vibrational energy relaxation in liquids: The foundations of instantaneous-pair theory and some generalizations.

91. A. Ma and R. M. Stratt, Bull. Kor. Chem. Soc. **24**, 1126 (2003) (Special Issue on Multidimensional Vibrational Spectroscopy). What do we learn from two-dimensional Raman spectra by varying the polarization conditions?

92. S. Ryu, R. M. Stratt, and P. M. Weber, J. Phys. Chem. A **107**, 6622 (2003). Diffraction signals of aligned molecules in the gas phase: Tetrazine in intense laser fields.

93. A. Ma and R. M. Stratt, J. Chem. Phys. **119**, 6709 (2003). Multiphonon vibrational relaxation in liquids: An exploration of the idea and of the problems it causes for molecular dynamics algorithms.

94. A. Ma and R. M. Stratt, J. Chem. Phys. **119**, 8500 (2003). Selecting the information content of two-dimensional Raman spectra in liquids.

95. P. M. Weber, R. C. Dudek, S. Ryu, and R. M. Stratt, Experimental and theoretical studies of pump-probe electron diffraction: time-dependent and state-specific signatures in small cyclic molecules, in FEMTOCHEMISTRY and FEMTOBIOLOGY: Ultrafast Events in Molecular Science, edited by M. M. Martin and J. T. Hynes (Elsevier, Amsterdam, 2004).

96. S. Ryu, R. M. Stratt, K. K. Baeck, and P. M. Weber, J. Phys. Chem. A **108**, 1189 (2004). Electron diffraction of molecules in specific quantum states: A theoretical study of vibronically excited s-tetrazine.

97. S. Ryu and R. M. Stratt, J. Phys. Chem. B **108**, 6782 (2004). A case study in the molecular interpretation of optical Kerr effect spectra: Instantaneous-normal-mode analysis of the OKE spectrum of liquid benzene.

98. Polly B. Graham, Kira JM Matus, and Richard M. Stratt, J. Chem. Phys. **121**, 5348 (2004). The workings of a molecular thermometer: The vibrational excitation of carbon tetrachloride by a solvent.

99. A. Ma and R. M. Stratt, J. Chem. Phys. **121**, 11217 (2004). Multiphonon vibrational relaxation in liquids: Should it lead to an exponential-gap law?

100. G. Tao and R. M. Stratt, J. Phys. Chem. B **110**, 976 (2006). Why does the intermolecular dynamics of liquid biphenyl so closely resemble that of liquid benzene? Molecular dynamics simulation of the optical-Kerr-effect spectra.

101. A. C. Moskun, A. E. Jailaubekov, S. E. Bradforth, G. Tao, and R. M. Stratt. Science **311**, 1907 (2006). Rotational coherence and a sudden breakdown in linear response seen in room-temperature liquids.

102. G. Tao and R. M. Stratt, J. Chem. Phys. **125**, 114501 (2006). The molecular origins of nonlinear response in solute energy relaxation: The example of high-energy rotational relaxation.

103. C. Wang and R. M. Stratt, J. Chem. Phys. **127**, 224503 (2007). Global perspectives on the energy landscapes of liquids, supercooled liquids, and glassy systems: The potential energy landscape ensemble.

104. C. Wang and R. M. Stratt, J. Chem. Phys. **127**, 224504 (2007). Global perspectives on the energy landscapes of liquids, supercooled liquids, and glassy systems: Geodesic pathways through the potential energy landscape.

105. G. Tao and R. M. Stratt, J. Phys. Chem. B **112**, 369 (2008). The anomalously slow solvent structural relaxation accompanying high-energy rotational relaxation.

106. B. H. Savitzky and R. M. Stratt, J. Phys. Chem. B **112**, 13326 (2008). The anatomy of an energy transfer event in a liquid: The high-energy rotational relaxation of OH in solution.

107. R. M. Stratt, Science **321**, 1789 (2008). Nonlinear thinking about molecular energy transfer.

108. X. Liang, M. G. Levy, S. Deb, J. D. Geiser, R. M. Stratt, and P. M. Weber, J. Mol. Struct. **978**, 250 (2010). Electron diffraction with bound electrons: The structure sensitivity of Rydberg fingerprint spectroscopy.

109. C. N. Nguyen and R. M. Stratt, J. Chem. Phys. **133**, 124503 (2010). Preferential solvation dynamics in liquids: How geodesic pathways through the potential energy landscape reveal mechanistic details about solute relaxation in liquids. (**2010 Journal of Chemical Physics Editors' Choice article**).

110. X. Sun and R. M. Stratt, Phys. Chem. Chem. Phys. **14**, 6320 (2012). The molecular underpinnings of a solute-pump/solvent-probe spectroscopy: The theory of polarizability response spectra and an application to preferential solvation.

111. C. N. Nguyen, J. I. Isaacson, K. Beth Shimmyo, A. Chen, and R. M. Stratt, J. Chem. Phys. **136**, 184504 (2012). How dominant is the most efficient pathway through the potential energy landscape of a slowly diffusing disordered system?

112. B. Zhang and R. M. Stratt, J. Chem. Phys. **137**, 024506 (2012). Vibrational energy relaxation of large-amplitude vibrations in liquids.

113. X. Sun and R. M. Stratt, J. Chem. Phys. **139**, 044506 (2013). How a solute-pump/solvent-probe spectroscopy can reveal structural dynamics: Polarizability response spectra as a two-dimensional solvation spectroscopy.

114. D. Jacobson and R. M. Stratt, J. Chem. Phys. **140**, 174503 (2014). The inherent dynamics of a molecular liquid: Geodesic pathways through the potential energy landscape of a liquid of linear molecules.

115. Q. Ma and R. M. Stratt, Phys. Rev. E **90**, 042314 (2014). The potential energy landscape and inherent dynamics of a hard-sphere fluid.

116. X. Sun, B. M. Ladanyi, and R. M. Stratt, J. Phys. Chem. B **119**, 9129 (2015). The effects of electronic-state-dependent solute polarizability: Application to solute-pump/solvent-probe spectra. **(2014 American Chemical Society Editors' Choice article).**

117. L. Frechette, D. Jacobson, and R. M. Stratt, J. Chem. Phys. **141**, 209902 (2014). Erratum: "The inherent dynamics of a molecular liquid: Geodesic pathways through the potential energy landscape of a liquid of linear molecules" [J. Chem. Phys. **140**, 174503 (2014)].

118. L. Frechette and R. M. Stratt, J. Chem. Phys. **144**, 234505 (2016). The inherent dynamics of isotropic- and nematic-phase liquid crystals.

*119. D. Vale Cofer-Shabica and R. M. Stratt, J. Chem. Phys. **146**, 214303 (2017). What is special about how roaming chemical reactions traverse their potential surfaces? Differences in geodesic paths between roaming and non-roaming events.

Invited Lectures:

Harvard University, May 1981

University of Rhode Island, March 1982
University of Missouri, November 1982
Ohio State, November 1982

Dartmouth College, November 1983
Massachusetts Institute of Technology, November 1983

Columbia University, October 1984

American Chemical Society National Meeting (Chicago), September 1985

University of California at Berkeley, March 1986
Massachusett Institute of Technology, April 1986
University of Maryland, April 1986
National Institutes of Health, June 1986
Cornell University, September 1986
Pennsylvania State University, October 1986
Harvard University, November 1986
Kalamazoo College, November 1986

University of Maine, February, 1987
Northeastern University, February 1987
North Carolina State University, April 1987
American Chemical Society National Meeting, New Orleans, September 1987
Washington and Lee College, December 1987

Gordon Conference on Order/Disorder in Solids, August 1988

Utah Workshop on Theoretical and Computational Chemistry, February 1989
Cornell University, March 1989
University of Chicago, April 1989
University of California at Los Angeles, May 1989
Boston College, October 1989

Boston University, March 1990
Harvard University, April 1990
New York University, May 1990
Congress of the Chemical Institute of Canada (Halifax), July 1990
American Chemical Society National Meeting (Washington), August 1990
University of Pennsylvania, September 1990
University of Rochester, November 1990

Colorado State University, February 1991
University of Colorado, February 1991
University of Missouri, February 1991
Harvard University, April 1991
Gordon Conference on Molten Salts and Liquid Metals, August 1991
Gordon Conference on the Chemistry and Physics of Liquids, August 1991
University of Wisconsin, September 1991
University of Pittsburgh, September 1991
Cambridge University, November 1991

University of London, Queen Mary and Westfield College, January l992
Oxford University, February 1992
University of Manchester, March 1992
Canadian Symposium on Theoretical Chemistry (Montreal), August 1992
American Chemical Society National Meeting, (Washington), August 1992

University of Oregon, May 1993
Oregon State University, May 1993

Swarthmore College, January 1994
Battelle Pacific Northwest Laboratories, February 1994
University of Washington, February 1994
American Chemical Society National Meeting, (San Diego), March 1994
Chair of Symposium (Theoretical and Experimental Approaches to Ultrafast Dynamics in Liquids), American Physical Society National Meeting, March 1994
Telluride Workshop on Dynamics in Condensed Matter, July 1994
American Chemical Society National Meeting, (Washington), August 1994

Brookhaven National Laboratory, February 1995
University of Illinois at Urbana-Champaign, March 1995
Eastern Regional American Chemical Society Meeting (Rochester), October 1995

Louisiana State University, January 1996
Yale University, April 1996
Pennsylvania State University, April 1996
Boston College, May 1996
American Converence on Theoretical Chemistry (Park City, Utah), July 1996
University of California at Berkeley, November 1996
Stanford University, November 1996
University of California at Davis, November 1996

University of Texas at Austin, February 1997
Houston Area Computational Science Consortium, The Institute for Molecular Design,

and The Keck Center for Computational Biology, February 1997
Wesleyan University, March 1997
American Physical Society National Meeting (Kansas City), March 1997
Gordon Conference on Chemistry and Physics of Liquids, August 1997
Clark University, April 1997

Telluride Workshop on Condensed Phase Dynamics, July 1998
University of Michigan, November 1998

5th International Conference on Molecular Reaction Dynamics, February 1999
American Physical Society National Meeting (Atlanta), March 1999
Centre Europeen de Calcul Atomique et Moleculaire (CECAM) Workshop on "Instantaneous Normal Mode Approach to Dynamics in Liquids" (Lyon), July 1999
Colorado State University, October 1999
University of Colorado, October 1999

American Chemical Society National Meeting (Washington, D.C.), August 2000
Symposium on Two-Dimensional Raman Spectroscopy (Cambridge) – August 2000

2001 Berkeley Statistical Mechanics Meeting (Berkeley), January 2001
Princeton University, February 2001
Symposium on Chemical Dynamics honoring W. H. Miller (Berkeley), March 2001
Northeast Regional Meeting of the American Chemical Society, June 2001
Gordon Conference on Chemistry and Physics of Liquids, August 2001
Joint Meeting of the New England and Rhode Island Sections of the American Chemical Society, September 2001
University of Michigan, December 2001

Pennsylvania State University, March 2002
American Chemical Society National Meeting (Boston), August 2002
International Symposium on Two-Dimensional Vibrational Spectroscopy (Seoul, Korea), October 2002
Nagoya University (Japan), October 2002
Institute for Molecular Sciences (Okazaki, Japan), October 2002
Kyoto University (Japan), October 2002
Kobe University (Japan), October 2002

American Chemical Society National Meeting (New Orleans), March 2003
Emory University, April 2003

American Chemical Society National Meeting (Anaheim), March 2004
Center for Computation and Visualization (Brown University), September 2004

2005 Berkeley Statistical Mechanics Meeting (Berkeley), January 2005
Symposium for Undergraduates in the Mathematical Sciences (Brown University), February 2005
University of Southern California, February 2005

Texas Tech University, March 2005
Telluride Town Talk, June 2005
University of Wisconsin, November 2005

American Chemical Society National Meeting (Atlanta), March 2006
University of California at Los Angeles, October 2006

Brown University (Department of Physics), February 2007
University of Maryland, April 2007
National Institutes of Health, September 2007
Wesleyan University, October 2007

University of Missouri, March 2008
Brown University (Department of Mathematics), March 2008
Brown University (Women in Science and Engineering: Cliffs Notes Lecture), May 2008
Advances in Chemical Dynamics Workshop (Santa Fe), August 2008
American Chemical Society National Meeting (Philadelphia), August 2008

Gordon Conference on the Chemistry and Physics of Liquids, August 2009
American Chemical Society National Meeting (Washington, D. C.), August 2009
Cornell University, September 2009

American Conference on Theoretical Chemistry (Telluride), July 2011
Joint European-Japanese Conference on Molecular Liquids (Warsaw, Poland), September 2011

Western Spectroscopy Association Annual Meeting (featured speaker) (Asilomar), January 2013
University of Science and Technology of China, March 2013
Tsinghua University, April 2013
Peking University, April 2013

Joint European-Japanese Conference on Molecular Liquids (Chania, Crete), September 2016

*American Chemical Society National Meeting (San Francisco), April 2017
*Gordon Conference on the Chemistry and Physics of Liquids, August 2017

*University of Massachusetts, Boston, February 2018
*Charles University in Prague, March 2018

Research in Progress:

*Theoretical investigation into ultrafast dynamics and spectroscopy of liquids. Study of molecular pathways through the potential energy landscapes of liquids.

6. Service:

i) To the University:

Member, University Computer Advisory Committee, 1981-83
Member, University Committee on Science in the Liberal Arts, 1982-84
Departmental Colloquium and Physical Chemistry Seminar Committee, 1982-84
Co-Organizer Dreyfus Lecturship (1981)
Co-Organizer Building Symposium (1983)
Departmental Representative to Academic Staffing Study Group, 1984
Member, Local Allocation Committee, Center for Scientific Computation, 1985
Member, Faculty Committee to Review Establishment of a Center for Control Sciences, 1987
Departmental Graduate Recruiting Committee, 1986-1988
Chairman, Faculty Committee to Review Establishment of a Center for Fluid Mechanics and Computation, 1988
Chairman, Departmental Faculty Search Committee, 1987-1989
Member, Provost's Seminar 1989
Wriston Award Committee, Fall 1990
Member, Departmental Computer Committee
Sophomore Advisor, 1993-1994
Member, University Search Committee for the Dean of the Graduate School and Dean of Research, 1993
Advisor, Departmental Undergraduate Group (DUG), 1990-91, 1992-99
Organizer, Departmental NSFREU undergraduate research program (1994-1996)
Member, University Campus Advisory Committee: Search for the President of the University, 1997
Chair, Brown University Department of Chemistry, l996-1999
Organizer, Departmental Physical Chemistry Seminar, 2002
Freshman Advisor, 2002-2003
Sophomore Advisor, 2003-2004
University Faculty Committee on Grievance, 2003-2005 (Chair 2003-2004)
Sophomore Advisor, 2005-2006
Member, Departmental Potter Prize Committee, 2006
Chair, Departmental Faculty Search Committee, 2006-2007
Member, Advisory Committee, Search for the Provost of the University, 2006
Member, Departmental Faculty Search Committee, 2007-2008
Liaison, Engineering Faculty Search Committee, 2007-2008
Chair, Departmental Faculty Search Committee, 2008-2009
Member, University Tenure, Promotions, and Appointments Committee, 2008-2011

Member, Engineering Faculty Search Committee, 2009-2010
Member, Advisory Board, Brown University Center for Computation and Visualization, 2009-2011
Organizer, Appleton Lectureship, 2012
Chair, Departmental Faculty Reappointment Committee 2014
Member, Departmental Faculty Promotion Committee 2014-2015
Sophomore Advisor, 2014-2015
Concentration Advisor, Chemical Physics, 2014-2016
Chair, Departmental Faculty Annual Review Committee, 2015
Chair, Departmental Faculty Search Committee, 2015-2016
*Supervisor, Adjunct Lecturer, 2013-2017
Member, Departmental Diversity and Inclusion Advisory Committee 2016
*Member, Departmental Faculty Promotion Committee, 2016-2017
*Member, Graduate Admission Committee, 2016-2017

ii) To the Profession:

NSF Review Panel for Undergraduate Course and Curriculum Development - July, 1993.
Department of Energy (Office of Basic Energy Sciences - Chemical Sciences Division) External Peer Review Committee - February, 1994.
Organizer, Symposium (Theoretical and Experimental Approaches to Ultrafast Dynamics in Liquids), American Physical Society National Meeting, March, 1994.
NSF Review Panel for Postdoctoral Fellowships - February, 1995.
Co-organizer, Symposium*: A Celebration of 20 Years of the Subdivision of Theoretical Chemistry*, American Chemical Society National Meeting - August 1998.
Co-organizer, Telluride Workshop: *Nonlinear Ultrafast Spectroscopy in Fluids* – June 2005.
Department of Energy, INCITE Review Panel for Chemical Sciences – September 2014.
Member, Advisory Board, *The Journal of Physical Chemistry* - 1999-2007.
Member, Editorial Board, *The Journal of Chemical Physics* - 2002-2004.
Member, Editorial Board, *Molecular Physics* - 2003-2006.
Theoretical Chemistry Subdivision of the American Chemical Society

Vice-Chair:	1996-1997
Chair-Elect:	1997-1998
Chair:	1998-1999

Physical Chemistry Division of the American Chemical Society

Vice-Chair Elect	1998-1999
Vice-Chair:	1999-2000
Chair-Elect and Program Chair:	2000-2001
Chair:	2001-2002
Immediate-Past Chair:	2002-2003

Co-Editor, Special Issue, *The Journal of Physical Chemistry* B - 2015.

7. Academic Honors:

National Merit Scholarship, 1971-72
Phi Lamba Upsilon, 1974
Merck Award (Dept. of Chemistry, MIT), 1975
National Science Foundation Postdoctoral Fellowship, 1980
Sigma Xi, 1980
Materials Research Society Student Award for Graduate Research under my direction given to Vladimir Dobrosavljevic, 1985
Alfred P. Sloan Foundation Fellow, 1985-1989
Apker Award (American Physical Society) for Undergraduate Research under my direction given to Steven Simon, 1990
Fulbright Scholar, 1991-92
Elected Fellow of the American Physical Society, 1997
Harrison S. Kravis University Professor, Brown University, 1999-2000
Newport Rogers Professor of Chemistry, Brown University, 2004-
Philip J. Bray Award for Excellence in Teaching in the Physical Sciences, 2010
Elected Fellow of the American Chemical Society, 2013

8.

Professional Societies:
American Physical Society
American Chemical Society

Grants Funded:

Research Corporation Cottrell Research Grant, "Quantum Intramolecular Statistical Mechanics in Solution", 12/81-12/82
ACS Petroleum Research Fund Type G Grant, "Quantum Intramolecular Statistical Mechanics in Solution", 6/81-8/83.
NSF Grant, "Theoretical Investigations into the Equilibrium Statistical Mechanics of Quantal Intramolecular Degrees of Freedom: Electronic and Conformational Electronic Degrees of Freedom", 7/82-7/85.
Brown Materials Research Laboratory (NSF) "Conformational and Electronic Transitions in Macromolecular Systems", 9/83-4/88
University Biomedical Research Support Grants (NIH): "Theoretical Investigation into the Conformational Behavior of a Retinal Prototype" 10/81-3/82.
"Environmental Effects on Retinal-like Molecules", 10/84-3/86
NSF Grant, "The Statistical Mechanics of Intramolecular Degrees of Freedom", 7/85-12/88
Alfred P. Sloan Foundation Grant, 10/85-8/89
NSF Grant, "The Statistical Mechanics of Electronic Structure in Condensed Phases", 1/89-12/91
NSF Grant, "Purchase of a Workstation Network for Computational Chemistry and Physics", 5/92-10/93

NSF Grant, "The Electronic Structure of Fluids", 1/92-12/94
NSF Grant, "The Short-Time Dynamics of Liquids", 1/95-12/98
NSF Grant, "The Rhode Island Workstation Network for Computational Chemistry and Physics", 1997-1998
NSF Grant, "Anharmonicities and Nonlinearities in Liquids", 7/99-6/02
NSF Grant, "A Proposed Enhancement of the Rhode Island Network for Computational Chemistry and Physics", 2/1/02 - 1/31/05
NSF Grant, "Anharmonicities and Nonlinearities in the Ultrafast Dynamics of Liquids", 8/02-7/05
NSF Grant, "Anharmonicities and Nonlinearities in the Ultrafast Dynamics of Liquids", 8/05-7/08
NSF Grant, "Exploring the Ultrafast Dynamics of Liquids through the Next Generation of Solvation Spectroscopies", 8/08-7/12
*NSF Grant, "Exploring the Connections between the Nonlinear Spectroscopy and the Potential Energy Landscapes of Liquids", 5/1/13-5/30/17
*NSF Grant, "Exploring the Connections between the Nonlinear Spectroscopy and the Potential Energy Landscapes of Liquids", 8/1/16-7/31/18

9. Teaching

Courses Taught:

1980-81	Chemistry 202
1981-82	Chemistry 3
1982-83	Chemistry 3 and 202
1983-84	Chemistry 3 and 203
1984-85	Chemistry 202
1985-86	Chemistry 31 and 115
1986-87	Chemistry 201 and 202
1987-88	Chemistry 31 and 278
1988-89	Chemistry 31 and 278
1989-90	Chemistry 31 and 203
1990-91	Chemistry 201 and 203
1992-93	Chemistry 114 and 203
1993-94	Chemistry 114 and 202
1994-95	Chemistry 114 and 202
1995-96	Chemistry 114 and 162
1996-97	Chemistry 278
1997-98	Chemistry 202
1998-99	Chemistry 115
1999-00	Chemistry 115
2000-01	Chemistry 114 and 10
2001-02	Chemistry 114 and 202
2002-03	Chemistry 33 and 202

2003-04	Chemistry 33 and 202
2004-05	Chemistry 33 and 202
2005-06	Chemistry 202
2006-07	Chemistry 114 and 115
2007-08	Chemistry 1140 and 1150
2008-09	Chemistry 1140 and 1150
2009-10	Chemistry 0330 and 2020
2010-11	Chemistry 0330 and 2020
2012-13	Chemistry 0330 and 2020
2013-14	Chemistry 0330 and 2020
2014-15	Chemistry 1140 and 2020
2015-16	Chemistry 1140 and 2020
*2016-17	Chemistry 0330 and 2020
*2017-18	Chemistry 0330 and 2020

***Ph.D. Theses Directed**: 14 graduates:

Steven G. Desjardins, *Some Models for Quantal Solvation* D (May 1985).

Antonio DeSimone, *Theoretical Studies of Modulated Order and Continuum Percolation* (May 1986).

Vladimir Dobrosavljevic, *Some Theoretical Studies of Disordered Quantum Systems* (May 1988).

Grant Goodyear, *The Short-Time Intramolecular Dynamics of Solutes in Liquids* (May 1997).

Ross E. Larsen, *Static and Dynamic Properties of Molecules Dissolved in Liquids* (May 1998).

Joonkyung Jang, *The Microscopic Dynamics of Classical and Quantal Rotors in Liquids* (May 2000).

Yuqing Deng, *The Mechanism of Polyatomic Vibrational Relaxation in Liquids* (May 2002).

Ao Ma, *Theoretical Studies with Molecular Dynamics Simulation and Instantaneous Normal Modes Theory: Fifth-Order Raman Spectroscopy and Vibrational Relaxation* (May 2003).

Seol Ryu, *Applications of the Interaction between Light and Anisotropic Molecular Polarizabilities: Enhanced Diffraction Patterns of Gas-Phase Polyatomic Molecules and Analysis of Optical Kerr Effect Spectra for a Molecular Liquid* (May 2004).

Guohua Tao, *Molecular Dynamics Simulations and Theoretical Analysis of Ultrafast Spectroscopy and Rotational Intermolecular Dynamics in Liquids* (May 2007).

Crystal N. Nguyen, *Potential Energy Landscape Perspective on Slow Diffusive Behavior: From Low Dimensional Disordered Media to Relaxation in the Liquid State* (August 2010).

Baofeng Zhang, *Molecular Dynamics Simulation and Theoretical Studies of Vibrational Energy Relaxation: Vibrational Energy Relaxation of a Large Polyatomic Molecule in a Liquid* (May 2012).

Xiang Sun, *Molecular Theory of Solute-Pump/Solvent-Probe Spectroscopy and Application to Preferential Solvation Dynamics* (May 2014).

Qingqing Ma, *Geodesic Theory and Inherent Dynamics of Hard Sphere Liquids* (May 2015)

(*2 current graduate students)

MS Theses Directed: 1

Sophia A. Demoulini, *Some Developments in Continuum Percolation* (May, 1986)

*__Undergraduate Honors Theses Directed__: 14

Andrew E. Panson, *Phase Transitions in Disordered Mixed Valence Compounds* (1988)
Steven H. Simon, *Geometric Aspects of Electron Mobility in Fluids* (1989)
Michael S. Richman, *The Development and Applications of Effective Potentials for Al Clusters* (1992)
Kishor Ganguly, *Direct Simulation of Electronic Band Structure in Liquids* (1992)
Aaron J. Burstein, *Friction in Liquids: A Connection between the Brownian Oscillator and Instantaneous Normal Mode Approaches to Vibrational Relaxation* (1996)
Kira JM Matus, *Foundations for the Study of Vibrational Relaxation in CCl_4* (2003)
Polly B. Graham, *Study of a Molecular Thermometer: Vibrational Energy Relaxation in the Gateway Normal Mode of CCl_4* (2004)
Brenda Rubenstein, *Unique Statics, Unique Dynamics?: Towards a Thorough Understanding of the Short Time Dynamics of Liquid Crystals* (2007)
Benjamin H. Savitzky, *Molecular Dynamics Predictions of Linear Response Failure During Relaxation of a Rotationally Excited Hydroxyl Radical In Solution* (2008)
Kayoko Beth Shimmyo, *Determination of Diffusion Coefficients from Landscape Geometry: Application to Bond Percolation on Square Lattices* (2010)
Noah Langowitz, *Geodesic Pathways through the Potential Energy Landscape Ensemble for Diatomic Molecules* (2010)
Daniel Rance Jacobson, *Geodesic Pathways in a Diatomic Liquid* (2014)
Layne Frechette, *Geodesic Pathways through the Potential Energy Landscape of Liquid Crystal Formers* (2015)
Evangelos Nikitopoulos, *Instantaneous Normal Mode Analysis on Arbitrary Configuration Manifolds* (2017)

*__Undergraduate Research Supervised__

Shepard Smithline (Chemistry)
Andrew E. Panson (Chemistry)
Charles Henebry (Chemistry)
Steven H. Simon (Physics)
Kishor Ganguly (Physics)
Michael S. Richman (Chemistry)
Joseph Both (Physics, Swarthmore)

Belinda Bashore (Chemistry, Oklahoma State)
Joon Kang (Chemistry)
Garo Taft (Chemistry)
Heidi Daigler (Chemistry, Carnegie Mellon)
Aaron J. Burstein (Chemistry)
Kira JM Matus (Chemistry)
Polly B. Graham (Chemistry)
Andrew Miklos (Chemistry)
Brenda Rubenstein (Chemical Physics)
Benjamin H. Savitzky (Chemical Physics)
D. Vale Cofer-Shabica (Chemical Physics)
Kayoko Beth Shimmyo (Chemistry)
Joseph I. Isaacson (Applied Mathematics-Computer Science)
Noah Langowitz (Chemical Physics)
Thomas Weinreich (Chemical Physics)
Nicholas R. Gould (Chemical Engineering, Vanderbilt)
Andersen Chen (Computer Science)
Daniel Jacobson (Chemical Engineering)
Shawn Tsutsui (Applied Mathematics)
Layne Frechette (Chemical Physics)
Kei Nishimura-Gasparian (Applied Mathematics)
*Mansheej Paul (Applied Mathematics)
Michelle Miller (Physics)
*Evangelos Nikitopolous (Chemistry and Mathematics)
*Artur Avkhadiev (Physics)
*Andrew Ton (Chemistry)

University teaching contributions

Organizer, Departmental NSF REU undergraduate research program 1994-1996.

Helped the University Tenure, Promotions, and Appointments Committee (TPAC) develop tenure and promotion guidelines for assessing teaching, 2008 – 2011.

Co-leader, Junior Faculty Roundtable, Sheridan Center for Teaching and Learning, ("The role of teaching in tenure"), February 2009, February 2010, February 2011.

*Participant, Science, Mathematics, and Engineering Faculty "Science Friday" Discussions, Sheridan Center for Teaching and Learning: 2009-2011, 2013-2017.

10. CV Updated: January 2, 2018