

Kevin R. Wilson
Lawrence Berkeley National Lab
1 Cyclotron Road, Mail Stop 6R2100
Berkeley, CA 94720-8226
ph: 510-495-2474
fax: 510-486-5311
krwilson@lbl.gov

EDUCATION

University of California, Berkeley, California

Ph.D. January 2003 *"Structural studies of volatile liquid surfaces using x-ray absorption spectroscopy"*

Advisor: Professor R.J. Saykally

St. John's College, Santa Fe, New Mexico

M.A. Humanities May 1996

Thesis: *"Metaphysics in Husserl's Phenomenology"*

Willamette University, Salem, Oregon

May 1993, B.A. Chemistry

RELEVANT EXPERIENCE

2011–present

Lawrence Berkeley National Laboratory

Deputy Director for Science, Chemical Sciences Division

2006–present

Lawrence Berkeley National Laboratory

Staff Scientist, Chemical Sciences Division

2004–2006

Lawrence Berkeley National Laboratory

Term Scientist, Chemical Sciences Division

2003–2004

Los Alamos National Laboratory, Chemistry Division

Fredrick Reines Distinguished Postdoctoral Fellow

2002–2003

University of California, Berkeley, Dept. of Chemistry

Advanced Light Source Doctoral Fellow,

1997–2002

Graduate Researcher, Advisor Prof. R.J. Saykally

1994–1997

Los Alamos National Laboratory, Los Alamos, New Mexico

Researcher, Supervisor Dr. Jeanne Robinson

AWARDS

U. S. Department of Energy Early Career Award (2012)

Fredrick Reines Distinguished Postdoctoral Fellowship
(Feb. 2003-present)

ALS Doctoral Fellowship in Residence (Jan. 2002- Jan. 2003)

REFEREED PUBLICATIONS:

105. C. R. Ruehl, J. Davies and K. R. Wilson, "[An interfacial mechanism for cloud droplet formation on organic aerosols](#)," *Science*, **351**, 1447, DOI: 10.1126/science.aad4889 (2016)
104. N. K. Richards-Henderson, A. H. Goldstein, and K. R. Wilson, "[Sulfur Dioxide Accelerates the Heterogeneous Oxidation Rate of Organic Aerosol by Hydroxyl Radicals](#)," *Environ. Sci. Technol.*, **50**, 3554, DOI: 10.1021/acs.est.5b05369 (2016)
103. J. Davies and K. R. Wilson, "[Raman Spectroscopy of Isotopic Water Diffusion in Ultraviscous, Glassy, and Gel States in Aerosol by Use of Optical Tweezers](#)," *Anal. Chem.*, **88**, 2361, DOI: 10.1021/acs.analchem.5b04315 (2016)
102. N. Richards-Henderson, A. H. Goldstein, and K. R. Wilson, "[Large Enhancement in the Heterogeneous Oxidation Rate of Organic Aerosols by Hydroxyl Radicals in the Presence of Nitric Oxide](#)," *J. Phys. Chem. Lett.*, **6**, 4451, DOI: 10.1021/acs.jpcllett.5b02121 (2015)
101. D. R. Worton, H. Zhang, G. Isaacman-VanWertz, A. W. H. Chan, K. R. Wilson, and A. H. Goldstein, "[Comprehensive chemical characterization of hydrocarbons in NIST standard reference material 2779 Gulf of Mexico crude oil](#)," *Environ. Sci. Technol.*, **49**, 13130, DOI: 10.1021/acs.est.5b03472 (2015)
100. K. R. Kolesar, Z. Li, K. R. Wilson, C. D. Cappa, "[Heating-Induced Evaporation of Nine Different Secondary Organic Aerosol Types](#)," *Environ. Sci. Technol.*, **49**, 12242, DOI: 10.1021/acs.est.5b03038 (2015)
99. J. Davies and K. R. Wilson, "[Nanoscale interfacial gradients formed by the reactive uptake of OH radicals onto viscous aerosol surfaces](#)," *Chem. Sci.*, **6**, 7020, DOI: 10.1039/C5SC02326B (2015)
98. D. M. Popolan-Vaida, C.-L. Liu, T. Nah, K. R. Wilson, and S. R. Leone, "[Reaction of chlorine molecules with unsaturated submicron organic particles](#)," *Z. Phys. Chem.*, **229**, 1521, DOI: 10.1515/zpch-2015-0662 (2015)
97. J. H. Kroll, C. Y. Lim, S. H. Kessler, and K. R. Wilson, "[Heterogeneous Oxidation of Atmospheric Organic Aerosol: Kinetics of Changes to the Amount and Oxidation State of Particle-Phase Organic Carbon](#)," *J. Phys. Chem. A.*, **119**, 10767, DOI: 10.1021/acs.jpca.5b06946 (2015)
96. C. T. Cheng, M. N. Chan, and K. R. Wilson, "[The Role of Alkoxy Radicals in the Heterogeneous Reaction of Two Structural Isomers of Dimethylsuccinic Acid](#)," *Phys. Chem. Chem. Phys.*, **17**, 25309, DOI: 10.1039/C5CP03791C (2015)
95. H. Zhang, D. R. Worton, S. Shen, T. Nah, G. Isaacman-VanWertz, K. R. Wilson, and A. H. Goldstein, "[Fundamental Timescales Governing Organic Aerosol Multiphase Partitioning and Oxidative Aging](#)," *Environ. Sci. Technol.*, **49**, 9768, DOI: 10.1021/acs.est.5b02115 (2015)

94. B. B. Kirk, J. D. Savee, A. Trevitt, D. L. Osborn, and K. R. Wilson, "[Molecular weight growth in Titan's atmosphere: branching pathways for the reaction of 1-propynyl radical \(H3CC=C•\) with small alkenes and alkynes](#)," *Phys. Chem. Chem. Phys.*, **17**, 20754, DOI: 10.1039/C5CP02589C (2015)
93. E. C. Browne, J. P. Franklin, M. R. Canagaratna, P. Massoli, T. W. Kirchstetter, D. R. Worsnop, K. R. Wilson, and J. H. Kroll, "[Changes to the Chemical Composition of Soot from Heterogeneous Oxidation Reactions](#)," *J. Phys. Chem. A.*, **119**, 1154, DOI: 10.1021/jp511507d (2015)
92. M. R. Canagaratna, P. Massoli, E. C. Browne, J. P. Franklin, K. R. Wilson, T. B. Onasch, T. W. Kirchstetter, E. C. Fortner, C. E. Kolb, J. T. Jayne, J. H. Kroll, and D. R. Worsnop, "[Chemical Compositions of Black Carbon Particle Cores and Coatings via Soot Particle Aerosol Mass Spectrometry with Photoionization and Electron Ionization](#)," *J. Phys. Chem. A.*, **119**, 4589, DOI: 10.1021/jp510711u (2015)
91. F. A. Houle, W. D. Hinsberg, and K. R. Wilson, "[Oxidation of a model alkane aerosol by OH radical: the emergent nature of reactive uptake](#)," *Phys. Chem. Chem. Phys.*, **17**, 4412, DOI: 10.1039/C4CP05093B (2015)
90. K. O. Johansson, J. Y. W. Lai, S. A. Skeen, K. R. Wilson, N. Hansen, A. Violi, and H. A. Michelsen, "[Soot Precursor Formation and Limitations of the Stabilomer Grid](#)," *Proc. Combust. Inst.*, **35**, 1819, DOI: 10.1016/j.proci.2014.05.033 (2015)
89. A. A. Wiegel, K. R. Wilson, W. D. Hinsberg, and F. A. Houle, "[Stochastic methods for aerosol chemistry: a compact molecular description of functionalization and fragmentation in the heterogeneous oxidation of squalane aerosol by OH radicals](#)," *Phys. Chem. Chem. Phys.*, **17**, 4398, DOI: 10.1039/C4CP04927F (2015)
88. T. Nah, H. Zhang, D. R. Worton, C. Ruehl, B. B. Kirk, A. Goldstein, S. R. Leone, and K. R. Wilson, "[Isomeric Product Detection in the Heterogeneous Reaction of Hydroxyl Radicals with Aerosol Composed of Branched and Linear Unsaturated Organic Molecules](#)," *J. Phys. Chem. A*, **118**, 11555, DOI: 10.1021/jp508378z (2014)
87. D. M. Popolan-Vaida, S. R. Leone, and K. R. Wilson, "[Reaction of Iodine Atoms with Submicrometer Squalane and Squalene Droplets: Mechanistic Insights into Heterogeneous Reactions](#)," *J. Phys. Chem. A*, **118**, 10688, DOI: 10.1021/jp5085247 (2014)
86. M. R. Canagaratna, J. L. Jimenez, J. H. Kroll, Q. Chen, S. H. Kessler, P. Massoli, L. Hildebrandt Ruiz, E. Fortner, L. R. Williams, K. R. Wilson, J. D. Surratt, N. M. Donahue, J. T. Jayne, and D. R. Worsnop, "[Elemental ratio measurements of organic compounds using aerosol mass spectrometry: characterization, improved calibration, and implications](#)," *Atmos. Chem. Phys. Discuss*, **14**, 19791, DOI: 10.5194/acpd-14-19791-2014 (2014)
85. C. Ruehl and K. R. Wilson, "[Surface organic monolayers control the hygroscopic growth of submicron particles at high relative humidity](#)," *J. Phys. Chem. A*, **118**, 3952, DOI: 10.1021/jp502844g (2014)

84. T. Nah, S. H. Kessler, K. E. Daumit, J. H. Kroll, S. R. Leone, and K. R. Wilson, "[The influence of molecular structure and chemical functionality on the heterogeneous OH-initiated oxidation of unsaturated organic particles](#)," J. Phys. Chem. A, **118**, 4106, DOI: 10.1021/jp502666g (2014)
83. K. R. Kolesar, G. Buffaloe, K.R. Wilson and C.D. Cappa, "[OH-Initiated Heterogeneous Oxidation of Internally-Mixed Squalane and Secondary Organic Aerosol](#)," Environ. Sci. Technol., **48**, 3196 (2014)
82. M.N. Chan, H. Zhang, A. H. Goldstein, and K. R. Wilson, "[The Role of Water and Phase in the Heterogeneous Oxidation of Solid and Aqueous Succinic Acid Aerosol by Hydroxyl Radicals](#)," J. Phys. Chem. C, **118**, 28978, DOI: 10.1021/jp5012022 (2014)
81. D. R. Worton, G. Isaacman, D. R. Gentner, T. R. Dallmann, A. W. H. Chan, C. Ruehl, T. W. Kirchstetter, K. R. Wilson, R. A. Harley, and A. H. Goldstein, "[Lubricating oil dominates primary organic aerosol emissions from motor vehicles](#)," Environ. Sci. Technol., **48**, 3698 (2014)
80. N. Hansen, S. A. Skeen, H. A. Michelsen, K. R. Wilson, and K. Kohse-Höinghaus, "[Flame Experiments at the Advanced Light Source: New Insights into Soot Formation Processes](#)," J. Vis. Exp., **87**, doi:10.3791/51369 (2014)
79. H. Zhang, C. Ruehl, A. Chan, T. Nah, D. Worton, G. Isaacman, A. Goldstein, and K. R. Wilson, "[OH- Initiated Heterogeneous Oxidation of Cholestane: A Model System for Understanding the Photochemical Aging of Cyclic Alkane Aerosols](#)," J. Phys. Chem. A. **117**, 12449 (2013)
78. T. Nah, S. H. Kessler, K. E. Daumit, J. H. Kroll, S. R. Leone, and K. R. Wilson, "[OH- initiated oxidation of sub-micron unsaturated fatty acid particles](#)," Phys. Chem. Chem. Phys., **15**, 18649 (2013)
77. A. W. H. Chan, G. Isaacman, K. R. Wilson, D. R. Worton, C. R. Ruehl, T. Nah, D. R. Gentner, T. R. Dallman, T. W. Kirchstetter, R. A. Harley, J. B. Gilman, W. C. Kuster, J. A. de Gouw, J. H. Offenberg, T. E. Kleindienst, Y. H. Lin, C. L. Rubitschun, J. D. Surratt, and A. H. Goldstein, "[Detailed Chemical Characterization of Unresolved Complex Mixtures \(UCM\) in Atmospheric Organics: Insights into Emission Sources, Atmospheric Processing and Secondary Organic Aerosol Formation](#)," J. Geophys. Res., [Atmos.] **118**, 6783 (2013)
76. J. Bouwman, M. Fournier, I. R. Sims, S. R. Leone, and K. R. Wilson, "[Reaction Rate and Isomer-Specific Product Branching Ratios of C₂H + C₄H₈: 1-Butene, cis-2-Butene, trans-2-Butene and Isobutene at 79K](#)," J. Phys. Chem. A., **117**, 5093 (2013)
75. C. W. Harmon, C. R. Ruehl, C. D. Cappa, and K. R. Wilson, "[A Statistical Description of the Evolution of Cloud Condensation Nuclei Activity during the Heterogeneous Oxidation of Squalane and Bis \(2-ethylhexyl\) Sebacate Aerosol by Hydroxyl Radicals](#)," Phys. Chem. Chem. Phys., **15**, 9679 (2013)
74. C. R. Ruehl, T. Nah, G. Isaacman, D. R. Worton, A. W. H. Chan, K. R. Kolesar, C. D. Cappa, A. H. Goldstein, and K. R. Wilson, "[The influence of molecular structure and aerosol phase on the heterogeneous oxidation of normal and branched alkanes by OH](#)," J. Phys. Chem. A., **117**, 3990 (2013)

73. M.N. Chan, T. Nah, and K. R. Wilson, "[In-Situ Chemical Detection of Sub-micron Organic Aerosols using Direct Analysis in Real Time Mass Spectrometry \(DART-MS\): The Effect of Aerosol Size and Volatility](#)," *Analyst*, **138**, 3749 (2013)
72. T. Nah, M.N. Chan, S. R. Leone, and K. R. Wilson, "[Real Time in Situ Chemical Characterization of Submicrometer Organic Particles Using Direct Analysis in Real Time-Mass Spectrometry](#)," *Anal. Chem.*, **85**, 2087 (2013)
71. S. A. Skeen, H. A. Michelsen, K. R. Wilson, D. M. Popolan, A. Violi, and N. Hansen, "[Near-threshold Photoionization Mass Spectra of Combustion-Generated High-Molecular-Weight Soot Precursors](#)," *J. Aerosol Sci.*, **58**, 86 (2013)
70. L. Lee, P. Wooldridge, T. Nah, K. R. Wilson, and R. Cohen, "[Observation of Rates and Products in the Reaction of NO₃ with Submicron Squalane Aerosol](#)," *Phys. Chem. Chem. Phys.*, **15**, 882 (2013)
69. D. Gentner, G. Isaacman, D. R. Worton, A. W. H. Chan, T. R. Dallmann, L. Davis, S. Liu, D. A. Day, L. M. Russell, K. R. Wilson, R. Weber, A. Guha, R. A. Harley, and A. H. Goldstein, "[Elucidating secondary organic aerosol from diesel and gasoline vehicles through detailed characterization of organic carbon emissions](#)," *PNAS*, **109**, 18318, DOI: 10.1073/pnas.1212272109 (2012)
68. F. Goulay, A. J. Trevitt, J. D. Savee, J. Bowman, D. L. Osborn, C. A. Taatjes, K. R. Wilson, and S. R. Leone, "[Product Detection of the CH Radical Reaction with Acetaldehyde](#)," *J. Phys. Chem. A*, **116**, 6091, DOI: 10.1021/jp2113126 (2012)
67. S. Soorkia, S. R. Leone, and K. R. Wilson, "[Radical-Neutral Chemical Reactions Studied at Low Temperature with VUV Synchrotron Photoionization Mass Spectrometry](#)," *AIP. Conf. Proc.*, **1501**, 1365 (2012)
66. G. Isaacman, A. W. H. Chan, T. Nah, D. R. Worton, C. R. Ruehl, K. R. Wilson, and A. Goldstein, "[Heterogeneous OH oxidation of motor oil particles causes selective depletion of branched and less cyclic hydrocarbons](#)," *Environ. Sci. Technol.*, **46**, 10632 (2012)
65. J. H. Kroll, J. D. Smith, D. R. Worsnop, and K. R. Wilson, "[Characterisation of lightly oxidized organic aerosol formed from the photochemical aging of diesel exhaust particles](#)," *Environ. Chem.*, **9**, 211 (2012)
64. K. S. Kalogerakis, C. Romanescu, M. Ahmed, K. R. Wilson, and T. G. Slanger, "[CO prompt emission as a CO₂ marker in comets and planetary atmospheres](#)," *Icarus* **220**, 205 (2012)
63. J. Bouwman, F. Goulay, S. R. Leone, and K. R. Wilson, "[Bimolecular rate constant and product branching ratio measurements for the reaction of C₂H with ethane and propene at 79 K](#)," *J. Phys. Chem. A* **116**, 3907 (2012)
62. S. H. Kessler, T. Nah, K. E. Daumit, J. D. Smith, S. R. Leone, C. E. Kolb, D. R. Worsnop, K. R. Wilson, and J. H. Kroll, "[OH-initiated heterogeneous aging of highly oxidized organic aerosol](#)," *J. Phys. Chem. A* **116**, 6358 (2012)

61. G. Isaacman, K. R. Wilson, A. W. H. Chan, D. R. Worton, J. R. Kimmel, T. Nah, T. Hohaus, M. Gonin, J. H. Kroll, D. R. Worsnop, and A. H. Goldstein, "[Improved resolution of hydrocarbon structures and constitutional isomers in complex mixtures using Gas Chromatography-Vacuum Ultraviolet-Mass Spectrometry \(GC-VUV-MS\)](#)," *Anal. Chem.*, **84**, 2335 (2012)
60. C. D. Cappa and K. R. Wilson, "[Multi-generation gas-phase oxidation, equilibrium partitioning, and the formation and evolution of secondary organic aerosol](#)," *Atmos. Chem. Phys. Discuss.*, **12**, 3295-3356, (2012)
59. M. J. Berg, K. R. Wilson, C. Sorensen, A. Chakrabarti, and M. Ahmed, "[Discrete Dipole Approximation for Low-Energy Photoelectron Emission from NaCl Nanoparticles](#)," *J. Quant. Spectrosc. Ra.* **113**, 259 (2012)
58. K. R. Wilson, J. D. Smith, S. H. Kessler, and J. H. Kroll, "[The statistical evolution of multiple generations of oxidation products in the photochemical aging of chemically reduced organic aerosol](#)," *Phys. Chem. Chem. Phys.*, **4**, 1468 (2012)
57. S. Soorkia, C-L. Liu, J. D. Savee, S. J. Ferrell, S. R. Leone and K. R. Wilson, "[Airfoil sampling of a pulsed Laval beam with tunable vacuum ultraviolet \(VUV\) synchrotron ionization quadrupole mass spectrometry: Application to low-temperature kinetics and product detection](#)," *Rev. Sci. Instrum.* **82**, 124102 (2011)
56. C. D. Cappa, D. L. Che, S. Kessler, J. Kroll, and K. Wilson, "[Variations in organic aerosol optical and hygroscopic properties upon heterogeneous OH oxidation](#)," *Geophysical Research Letters*, **116**, D15204 (2011)
55. K. R. Wilson, H. Bluhm, M. Ahmed, Book Chapter: "Aerosol Photoemission," in *Fundamentals and Applications in Aerosol Spectroscopy*, edited by J.P. Reid and R. Signorell, Taylor and Francis, Publication Date (2011)
54. E. R. Mysak, J. D. Smith, P. D. Ashby, J. T. Newberg, K. R. Wilson, and H. Bluhm, "[Competitive reaction pathways for functionalization and volatilization in the heterogeneous oxidation of coronene thin films by hydroxyl radicals and ozone](#)," *Physical Chemistry Chemical Physics*, **13**(16): p. 7554-7564 (2011)
53. C-L. Liu, J. D. Smith, D. L. Che, M. Ahmed, S. R. Leone, and K. R. Wilson, "[The direct observation of secondary radical chain chemistry in the heterogeneous reaction of chlorine atoms with submicron squalane droplets](#)," *Physical Chemistry Chemical Physics*, **13**(19): p. 8993-9007 (2011)
52. J. H. Kroll, N. M. Donahue, J. L. Jimenez, S. H. Kessler, M. R. Canagaratna, K. R. Wilson, K. E. Altieri, L. R. Mazzoleni, A. S. Wozniak, H. Bluhm, E. R. Mysak, J. D. Smith, C. E. Kolb, and D. R. Worsnop, "[Carbon oxidation state as a metric for describing the chemistry of atmospheric organic aerosol](#)," *Nature Chemistry*, **3**(2): p. 133-139 (2011)
51. S. H. Kessler, T. Nah, A. Carrasquillo, J. T. Jayne, D. R. Worsnop, K. R. Wilson, and J. H. Kroll, "[Formation of secondary organic aerosol from the direct photolytic generation of organic radicals](#)," *Journal of Physical Chemistry Letters*, **2**(11): p. 1295-1300 (2011)

50. C. D. Cappa and K. R. Wilson, "[Evolution of organic aerosol mass spectra upon heating: implications for OA phase and partitioning behavior](#)," Atmospheric Chemistry and Physics, **11**(5): p. 1895-1911 (2011)
49. J. Zhou, L. K. Takahashi, K. R. Wilson, S. R. Leone, and M. Ahmed, "[Internal energies of ion-sputtered neutral tryptophan and thymine molecules determined by vacuum ultraviolet photoionization](#)," Analytical Chemistry, **82**(9): p. 3905-3913 (2010)
48. S. Soorkia, A. J. Trevitt, T. M. Selby, D. L. Osborn, C. A. Taatjes, K. R. Wilson, and S. R. Leone, "[Reaction of the C₂H radical with 1-butyne \(C₄H₆\): low-temperature kinetics and isomer-specific product detection](#)," Journal of Physical Chemistry A, **114**(9): p. 3340-3354 (2010)
47. S. Soorkia, C. A. Taatjes, D. L. Osborn, T. M. Selby, A. J. Trevitt, K. R. Wilson, and S.R. Leone, "[Direct detection of pyridine formation by the reaction of CH \(CD\) with pyrrole: a ring expansion reaction](#)," Physical Chemistry Chemical Physics, **12**(31): p. 8750-8758 (2010)
46. M. Sleiman, H. Destailats, J. D. Smith, C-L. Liu, M. Ahmed, K. R. Wilson, and L. A. Gundel, "[Secondary organic aerosol formation from ozone-initiated reactions with nicotine and secondhand tobacco smoke](#)," Atmospheric Environment, **44**(34): p. 4191-4198 (2010)
45. A. W. Rollins, J. D. Smith, K. R. Wilson, and R. C. Cohen, "[Real time in situ detection of organic nitrates in atmospheric aerosols](#)," Environmental Science & Technology, **44**(14): p. 5540-5545 (2010)
44. E. R. Mysak, D. E. Starr, K. R. Wilson, and H. Bluhm, "[Note: A combined aerodynamic lens/ambient pressure x-ray photoelectron spectroscopy experiment for the on-stream investigation of aerosol surfaces](#)," Review of Scientific Instruments, **81**(1) (2010)
43. S. R. Leone, M. Ahmed, and K. R. Wilson, "[Chemical dynamics, molecular energetics, and kinetics at the synchrotron](#)," Physical Chemistry Chemical Physics, **12**(25): p. 6564-6578 (2010)
42. S. H. Kessler, J. D. Smith, D. L. Che, D. R. Worsnop, K. R. Wilson, and J. H. Kroll, "[Chemical sinks of organic aerosol: Kinetics and products of the heterogeneous oxidation of erythritol and levoglucosan](#)," Environmental Science & Technology, **44**(18): p. 7005-7010 (2010)
41. M. T. Timko, Z. H. Yu, J. H. Kroll, J. T. Jayne, D. R. Worsnop, R. C. Miake-Lye, T. B. Onasch, D. Liscinsky, T. W. Kirchstetter, H. Destailats, A. L. Holder, J. D. Smith, and K. R. Wilson, "[Sampling artifacts from conductive silicone tubing](#)," Aerosol Science and Technology, **43**(9): p. 855-865 (2009)
40. L. K. Takahashi, J. Zhou, K. R. Wilson, S. R. Leone, and M. Ahmed, "[Imaging with mass spectrometry: A secondary ion and VUV-photoionization study of ion-sputtered atoms and clusters from GaAs and Au](#)," Journal of Physical Chemistry A, **113**(16): p. 4035-4044 (2009)
39. J. D. Smith, J. H. Kroll, C. D. Cappa, D. L. Che, C-L. Liu, M. Ahmed, S. R. Leone, D. R. Worsnop, and K. R. Wilson, "[The heterogeneous reaction of hydroxyl radicals with sub-micron squalane particles: A model system for understanding the oxidative aging of ambient aerosols](#)," Atmospheric Chemistry and Physics, **9**(9): p. 3209-3222 (2009)

38. J. H. Kroll, J. D. Smith, D. L. Che, S. H. Kessler, D. R. Worsnop, and K. R. Wilson, "[Measurement of fragmentation and functionalization pathways in the heterogeneous oxidation of oxidized organic aerosol](#)," *Physical Chemistry Chemical Physics*, **11**(36): p. 8005-8014 (2009)
37. J. L. Jimenez, M. R. Canagaratna, N. M. Donahue, A. H. Prevot, Q. Zhang, J. H. Kroll, P. F. DeCarlo, J. D. Allan, H. Coe, N. L. Ng, A. C. Aiken, K. S. Docherty, I. M. Ulbrich, A. P. Grieshop, A. L. Robinson, J. Duplissy, J. D. Smith, K. R. Wilson, V. A. Lanz, C. Hueglin, Y. L. Sun, J. Tian, A. Laaksonen, T. Raatikainen, J. Rautiainen, P. Vaattovaara, M. Ehn, M. Kulmala, J. M. Tomlinson, D. R. Collins, M. J. Cubison, E. J. Dunlea, J. A. Huffman, T. B. Onasch, M. R. Alfarra, P. I. Williams, K. Bower, Y. Kondo, J. Schneider, F. Drewnick, S. Borrmann, S. Weimer, K. Demerjian, D. Salcedo, L. Cottrell, R. Griffin, A. Takami, T. Miyoshi, S. Hatakeyama, A. Shimono, J. Y. Sun, Y. M. Zhang, K. Dzepina, J. R. Kimmel, D. Sueper, J. T. Jayne, S. C. Herndon, A. M. Trimborn, L. R. Williams, E. C. Wood, A. M. Middlebrook, C. E. Kolb, U. Baltensperger, and D. R. Worsnop, "[Evolution of organic aerosols in the atmosphere](#)," *Science*, **326**(5959): p. 1525-1529 (2009)
36. D. L. Che, J. D. Smith, S. R. Leone, M. Ahmed, and K. R. Wilson, "[Quantifying the reactive uptake of OH by organic aerosols in a continuous flow stirred tank reactor](#)," *Physical Chemistry Chemical Physics*, **11**(36): p. 7885-7895 (2009)
35. D. E. Starr, E. K. Wong, D. R. Worsnop, K. R. Wilson, and H. Bluhm, "[A combined droplet train and ambient pressure photoemission spectrometer for the investigation of liquid/vapor interfaces](#)," *Physical Chemistry Chemical Physics*, **10** (21): p. 3093-3098 (2008)
34. O. Kostko, L. Belau, K. R. Wilson, and M. Ahmed, "[Vacuum-ultraviolet \(VUV\) photoionization of small methanol and methanol-water clusters](#)," *Journal of Physical Chemistry A*, **112**(39): p. 9555-9562 (2008)
33. C. D. Cappa, J. D. Smith, K. R. Wilson, and R. J. Saykally, "[Revisiting the total ion yield x-ray absorption spectra of liquid water microjets](#)," *Journal of Physics-Condensed Matter*, **20**(20) (2008)
32. K. R. Wilson, S. L. Zou, J. N. Shu, E. Ruhl, S. R. Leone, G. C. Schatz, and M. Ahmed, "[Size-dependent angular distributions of low-energy photoelectrons emitted from NaCl nanoparticles](#)," *Nano Letters*, **7**(7): p. 2014-2019 (2007)
31. M. J. Northway, J. T. Jayne, D. W. Toohey, M. R. Canagaratna, A. Trimborn, K. I. Akiyama, A. Shimono, J. L. Jimenez, P. F. DeCarlo, K. R. Wilson, and D. R. Worsnop, "[Demonstration of a VUV lamp photoionization source for improved organic speciation in an aerosol mass spectrometer](#)," *Aerosol Science and Technology*, **41**(9): p. 828-839 (2007)
30. B. F. Henson, K. R. Wilson, J. M. Robinson, C. A. Nobel, J. L. Casson, L. F. Voss, and D. R. Worsnop, "[Nucleation of bulk phases in the HCl/H₂O system](#)," *Journal of Physical Chemistry A*, **111**(35): p. 8635-8641 (2007)

29. L. Belau, K. R. Wilson, S. R. Leone, and M. Ahmed, "[Vacuum-ultraviolet photoionization studies of the microhydration of DNA bases \(Guanine, cytosine, adenine, and Thymine\)](#)," *Journal of Physical Chemistry A*, **111**(31): p. 7562-7568 (2007)
28. L. Belau, K. R. Wilson, S. R. Leone, and M. Ahmed, "[Vacuum ultraviolet \(VUV\) photoionization of small water clusters](#)," *Journal of Physical Chemistry A*, **111**: p. 10075-10083 (2007)
27. K. R. Wilson, D. S. Peterka, M. Jimenez-Cruz, S. R. Leone, and M. Ahmed, "[VUV photoelectron imaging of biological nanoparticles: Ionization energy determination of nanophase glycine and phenylalanine-glycine-glycine](#)," *Physical Chemistry Chemical Physics*, **8**: p. 1884-1890 (2006)
26. K. R. Wilson, M. Jimenez-Cruz, C. Nicolas, L. Belau, S. R. Leone, and M. Ahmed, "[Thermal vaporization of biological nanoparticles: fragment-free vacuum ultraviolet photoionization mass spectra of tryptophan, phenylalanine-glycine-glycine, and beta-carotene](#)," *Journal of Physical Chemistry A*, **110**(6): p. 2106-2113 (2006)
25. K. R. Wilson, L. Belau, C. Nicolas, M. Jimenez-Cruz, S. R. Leone, and M. Ahmed, "[Direct determination of the ionization energy of histidine with VUV synchrotron radiation](#)," *International Journal of Mass Spectrometry*, **249**: p. 155-161 (2006)
24. J. N. Shu, K. R. Wilson, M. Ahmed, S. R. Leone, C. Graf, and E. Ruhl, "[Elastic light scattering from nanoparticles by monochromatic vacuum-ultraviolet radiation](#)," *Journal of Chemical Physics*, **124**: p.034707 (2006)
23. J. N. Shu, K. R. Wilson, M. Ahmed, and S. R. Leone, "[Coupling a versatile aerosol apparatus to a synchrotron: Vacuum ultraviolet light scattering, photoelectron imaging, and fragment free mass spectrometry](#)," *Review of Scientific Instruments*, **77**(4) (2006)
22. E. Gloaguen, E. R. Mysak, S. R. Leone, M. Ahmed, and K. R. Wilson, "[Investigating the chemical composition of mixed organic-inorganic particles by "soft" vacuum ultraviolet photoionization: The reaction of ozone with anthracene on sodium chloride particles](#)," *International Journal of Mass Spectrometry*, **258**(1-3): p. 74-85 (2006)
21. K. R. Wilson, M. Cavalleri, B. S. Rude, R. D. Schaller, T. Catalano, A. Nilsson, R. J. Saykally, and L. G. M. Pettersson, "[X-ray absorption spectroscopy of liquid methanol microjets: Bulk electronic structure and hydrogen bonding network](#)," *Journal of Physical Chemistry B*, **109**: p. 10194-10203 (2005)
20. L. F. Voss, B. F. Henson, K. R. Wilson, and J. M. Robinson, "[Atmospheric impact of quasiliquid layers on ice surfaces](#)," *Geophysical Research Letters*, **32**(7) (2005)
19. J. D. Smith, C. D. Cappa, K. R. Wilson, R. C. Cohen, P. L. Geissler, and R. J. Saykally, "[Unified description of temperature-dependent hydrogen-bond rearrangements in liquid water](#)," *Proceedings of the National Academy of Sciences of the United States of America*, **102**(40): p. 14171-14174 (2005)
18. J. N. Shu, K. R. Wilson, A. N. Arrowsmith, M. Ahmed, and S. R. Leone, "[Light scattering of ultrafine silica particles by VUV synchrotron radiation](#)," *Nano Letters*, **5**(6): p. 1009-1015 (2005)

17. E. R. Mysak, K. R. Wilson, M. Jimenez-Cruz, M. Ahmed, and T. Baer, "[Synchrotron radiation based aerosol time-of-flight mass spectrometry for organic constituents](#)," Analytical Chemistry, **77**(18): p. 5953-5960 (2005)
16. B. M. Messer, C. D. Cappa, J. D. Smith, K. R. Wilson, M. K. Gilles, R. C. Cohen, and R. J. Saykally, "[pH dependence of the electronic structure of glycine](#)," Journal of Physical Chemistry B, **109**(11): p. 5375-5382 (2005)
15. B. F. Henson, L. F. Voss, K. R. Wilson, and J. M. Robinson, "[Thermodynamic model of quasiliquid formation on H₂O ice: Comparison with experiment](#)," Journal of Chemical Physics, **123**(14) (2005)
14. C. D. Cappa, J. D. Smith, K. R. Wilson, B. M. Messer, M. K. Gilles, R. C. Cohen, and R. J. Saykally, "[Effects of alkali metal halide salts on the hydrogen bond network of liquid water](#)," Journal of Physical Chemistry B, **109**(15): p. 7046-7052 (2005)
13. K. R. Wilson, B. S. Rude, J. D. Smith, C. D. Cappa, D. T. Co, R. D. Schaller, M. Larsson, T. Catalano, and R. J. Saykally, "[Investigation of volatile liquid surfaces by synchrotron x-ray spectroscopy of liquid microjets](#)," Review of Scientific Instruments, **75**(3): p. 725-736 (2004)
12. J. D. Smith, C. D. Cappa, K. R. Wilson, B. M. Messer, R. C. Cohen, and R. J. Saykally, "[Energetics of hydrogen bond network rearrangements in liquid water](#)," Science, **306**(5697): p. 851-853 (2004)
11. B. F. Henson, K. R. Wilson, J. M. Robinson, C. A. Noble, J. L. Casson, and D. R. Worsnop, "[Experimental isotherms of HCl on H₂O ice under stratospheric conditions: Connections between bulk and interfacial thermodynamics](#)," Journal of Chemical Physics, **121**(17): p. 8486-8499 (2004)
10. C. D. Cappa, K. R. Wilson, B. M. Messer, R. J. Saykally, and R. C. Cohen, "[Optical cavity resonances in water micro-droplets: Implications for shortwave cloud forcing](#)," Geophysical Research Letters, **31**(10) (2004)
9. K. R. Wilson, R. D. Schaller, D. T. Co, R. J. Saykally, B. S. Rude, T. Catalano, and J. D. Bozek, "[Surface relaxation in liquid water and methanol studied by x-ray absorption spectroscopy](#)," Journal of Chemical Physics, **117**(16): p. 7738-7744 (2002)
8. K. R. Wilson, M. Cavalleri, B. S. Rude, R. D. Schaller, A. Nilsson, L. G. M. Pettersson, N. Goldman, T. Catalano, J. D. Bozek, and R. J. Saykally, "[Characterization of hydrogen bond acceptor molecules at the water surface using near-edge x-ray absorption fine-structure spectroscopy and density functional theory](#)," Journal of Physics-Condensed Matter, **14**(8): p. L221-L226 (2002)
7. R. D. Schaller, P. T. Snee, J. C. Johnson, L. F. Lee, K. R. Wilson, L. H. Haber, R. J. Saykally, T. Q. Nguyen, and B. J. Schwartz, "[Nanosopic interchain aggregate domain formation in conjugated polymer films studied by third harmonic generation near-field scanning optical microscopy](#)," Journal of Chemical Physics, **117**(14): p. 6688-6698 (2002)

6. R. D. Schaller, J. C. Johnson, K. R. Wilson, L. F. Lee, L. H. Haber, and R. J. Saykally, "[Nonlinear chemical imaging nanomicroscopy: From second and third harmonic generation to multiplex \(broad-bandwidth\) sum frequency generation near-field scanning optical microscopy](#)," Journal of Physical Chemistry B, **106**(20): p. 5143-5154 (2002)
5. R. D. Schaller, J. C. Johnson, K. R. Wilson, L. F. Lee, L. H. Haber, and R. J. Saykally, "[Characterization of biological structures with nonlinear chemical imaging nanomicroscopy](#)," Commercial and Biomedical Applications of Ultrafast and Free-Electron Lasers, **4633**: p. 62-68 (2002)
4. K. R. Wilson, B. S. Rude, T. Catalano, R. D. Schaller, J. G. Tobin, D. T. Co, and R. J. Saykally, "[X-ray spectroscopy of liquid water microjets](#)," Journal of Physical Chemistry B, **105**(17): p. 3346-3349 (2001)
3. K. R. Wilson, J. G. Tobin, A. L. Ankudinov, J. J. Rehr, and R. J. Saykally, "[Extended x-ray absorption fine structure from hydrogen atoms in water](#)," Physical Review Letters, **85**(20): p. 4289-4292 (2000)
2. B. F. Henson, K. R. Wilson, and J. M. Robinson, "[Quantitative measurements of multilayer physical adsorption on heterogeneous surfaces from nonlinear light scattering](#)," Physical Review Letters, **79**(8): p. 1531-1534 (1997)
1. B.F. Henson, K. R. Wilson, and J. M. Robinson, "[A physical adsorption model of the dependence of ClONO₂ heterogeneous reactions on relative humidity](#)," Geophysical Research Letters, **23**(9): p. 1021-1024 (1996)

PATENTS:

"Electrokinetic Hydrogen Generation in Liquid Microjet Arrays" (filed to office of technology transfer 9/28/04) [Kevin R. Wilson](#), Bruce S. Rude, Richard J. Saykally

PRESENTATIONS:

Contributed Talk: [Kevin R. Wilson](#) and R. J. Saykally et al., The 48th Western Spectroscopy Association Conference, "X-ray spectroscopy of the Liquid Water Surface," 2000

Invited Talk: [Kevin R. Wilson](#) and R. J. Saykally: ALS Users' meeting Workshop on Atoms and Aerosols "Exploring the structure of liquid surfaces using microjets," 2002

Contributed Talk: ACCESS VII Colloquium: Gordon Research Conference: Atmospheric Chemistry, "The structure of volatile liquid surfaces, deduced from x-ray absorption spectroscopy: implications for atmospheric chemistry," 2003

Invited Talk: American Association for Aerosol Research (AAAR), "Aerosol Photoemission," Symposium entitled, "Non-invasive methods for probing nanoparticles," 2006

Poster: Atmospheric Chemistry Gordon Conference, 2007

Poster: American Association for Aerosol Research (AAAR) meeting, 2007

Contributed Talk: Advanced Light Source, Lawrence Berkeley National Laboratory, Workshop on Atmospheric Aerosols, 2007

Invited Talk: American Chemical Society in the "Physical chemistry of environmental interfaces," symposium, 2008

Invited Departmental Seminar: Department of Chemical Engineering, Louisiana State University, "Heterogeneous Chemistry of Organic Aerosols," 2008

Contributed Talk: Advanced Light Source, Lawrence Berkeley National Laboratory, Workshop on Energy Frontier Research Centers, 2008

Invited Seminar: U.C. Berkeley in the Berkeley Atmospheric Science Center, "Understanding the role of secondary chemistry, functionalization and chemical erosion in the heterogeneous oxidation of organic aerosols," 2009

Invited Seminar: University of British Columbia Department of Chemistry Seminar, "Heterogeneous Reaction Trajectories: Understanding the Competition between Functionalization and Volatilization Reactions in Chemically Reduced and Oxidized Organic Aerosols," 2010

Contributed Talk: 240th ACS, "Heterogeneous Reaction Trajectories: Understanding the Competition between Functionalization and Volatilization Reactions in Chemically Reduced and Oxidized Organic Aerosols," 2010

Contributed Talk: Pacifichem 2010 Congress, "Heterogeneous Oxidation Trajectories," 2010

Invited Talk: 5th Workshop on Titan Chemistry, "Laboratory Studies of Low Temperature Gas phase Chemistry and Aerosol Formation in Titan's Atmosphere," 2011

Invited Talk: International Conference on Chemical Kinetics, "Free Radical Heterogeneous Oxidation Trajectories and Low Temperature Gas Phase Reactions for Planetary Atmospheres," 2011

Invited Talk: Aerodyne Research Inc., "Statistical Oxidation and the multi-generational aging of organic aerosols," 2011

Invited Talk: American Chemical Society (ACS) "Statistical Distributions and the Chemical Evolution of Organic," ACS Symposium entitled "Atmospheric Aerosols: Chemistry, Clouds and Climate," 2011

Contributed Talk: American Geophysical Union, "Statistical Distributions and the Multi-Generational Aging of Organic Aerosol," 2011

Invited Talk: 2012 America Association for Aerosol Research (AAAR), "Aerosol Photoemission," in symposium entitled, "Nanoscale Aerosol Physics with New Light Sources," 2012

Invited Talk: 2012 Berkeley Atmospheric Science Center Symposium (BASC) "New Insights into the Photochemical Transformation of Organic Aerosols," 2012

Invited Talk: 2012 Telluride Workshop on Organic Particles in the Atmosphere: Formation, Properties, Processing and Impact, "Understanding How Statistical Distributions of Reaction Products Control the Photochemical Evolution of Organic Aerosol," July 30th, 2012

Invited Talk: Symposium. Kinetics and Mechanism in the Atmosphere. 244th ACS National Meeting. "Statistical distributions and the chemical evolution of organic aerosol," Philadelphia, PA, Aug. 23rd, 2012

Invited Talk: Workshop on This Physical Chemistry of Aerosols. "Statistical representations of organic aerosol oxidation," University of British Columbia, Vancouver, Aug. 27th, 2012

Invited Seminar: Chemical Sciences and Engineering (CSE) Division Colloquium, Argonne National Laboratory. "Statistical Distribution and the Multi-generational Oxidation of Organic Aerosols." Chemical Sciences and Engineering (CSE) Division Colloquium, Argonne National Laboratory, Jan. 8th, 2013

Invited Talk: International Workshop on Photon Tools for Combustion and Energy Conversion, Argonne National Laboratory. "New Approaches for Studying the Chemical Transformations of Organic Particles," March 3rd, 2013

Invited Seminar: Department of Chemistry, University of California, Berkeley. "Heterogeneous Oxidation Trajectories: Developing Reduced Variable Representations of Complex Organic Aerosol Chemistry," April 16th, 2013

Invited Departmental Seminar: University of the Pacific, "Reaction Trajectories: Developing Reduced Variable Representations of Complex Organic Aerosol Chemistry," Feb. 2014

Invited Talk: 2014 Telluride Research Conference on Organic Particles in the Atmosphere: Formation, Properties, Processing, and Impact, "Experiments and Simulations of Multiphase Reactive Uptake and the Role of Water and Phase in Controlling Organic Aerosol Transformations," Telluride, Colorado, July 28th - August 1st, 2014

Invited Talk: "Aerosol Chemistry", Lorentz Center Workshop, "Gas/Plasma Liquid Interface: Transport, Chemistry and Fundamental Data", Leiden, Netherlands, Aug. 4-8th, 2014

Invited Talk: 248th National Meeting of the American Chemical Society, Symposium on Fundamental Processes of Atmospheric Chemistry, "Multiphase Chemistry of Organic Aerosols," San Francisco, CA., Aug. 10th -14th, 2014

Invited Talk: Towards a molecular-level understanding of atmospheric aerosols Conference, "Reactive uptake of hydroxyl radicals and the role of water and phase in controlling organic aerosol transformations", Centro Stefano Franscini (CSF), Monte Verità, Ascona, Switzerland, Aug. 31st – Sept. 5th, 2014

Invited Talk: Photon Tools for Physical Chemistry 2014, "Probing Molecular Weight Growth and Decomposition of Organic Particles in Planetary Atmospheres Using Vacuum Ultraviolet Photoionization Mass Spectrometry", Beatenberg, Switzerland, Sept. 28th - Oct. 2nd, 2014

Keynote Speaker: 25th Australian and New Zealand Society for Mass Spectrometry (ANZSMS), "Aerosol Mass Spectrometry and Heterogeneous Chemistry," Brisbane, Australia, July 18th – July 24th, 2015

Invited Talk: 33rd International Symposium on Free Radicals, "Heterogeneous Reaction of Hydroxyl Radicals at Organic Aerosol Surfaces", Squaw Valley, CA, August 2nd - 6th, 2015

Invited Talk: 250th ACS National Meeting, Symposium on Chemical Processes of Atmospherically Relevant Trace Gases, Aerosols and Clouds, "Role of water, viscosity, and molecular structure on the chemistry and cloud condensation (CCN) properties of organic aerosols", Boston, MA, August 16th - 20th, 2015

Invited Talk: Pacifichem 2015, Symposium on Reactive Intermediates in Combustion and Atmospheric Chemistry, "Free radical multiphase chemistry of organic aerosols", Honolulu, HI, December 15th – 20th, 2015

Invited Seminar: Department of Biochemistry and Chemistry, University of Colorado, Boulder, CO, "The Interfacial Chemistry of Organic Aerosols", February 6th, 2016

Invited Seminar: Harvard University Atmospheric Sciences Seminar Series, "Interfacial Chemistry of Organic Aerosols and Cloud Droplets", Cambridge, MA, April 29, 2016

Plenary Talk: Central States Section of the Combustion Institute meeting, "Interfacial chemistry of organic aerosols", Knoxville, TN, May 15-17, 2016