

RESUME

KENT J. VOORHEES

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Date of Birth: September 7, 1943

Education:

B.S. Utah State University, 1965; Major in Chemistry
M.S. Utah State University, 1968; Major in Chemistry;
Thesis Title: A Substituent Effect Study in Thermolysis and/or Rearrangement of β -hydroxy-olefins. (Major professor, G.G. Smith)
Ph.D. Utah State University, 1970; Major in Physical Organic Chemistry; Thesis Title - A Substituent Effect Study in the Thermolysis and Electron Impact of β -hydroxy olefins in the Gas Phase. (Major professor, G.G. Smith)

Work Experience:

1970-1971 Postdoctoral Fellow, Michigan State University, East Lansing, Michigan
1971-1973 Instructor, Department of Chemistry, University of Utah
1973-1974 Research Associate, Department of Materials Science, University of Utah; and
Research Scientist, Eyring Research Institute, Provo, Utah
1973-1976 Manager, Analytical Chemistry Section Flammability Research Center, University of Utah
1974-1977 Research Assistant Professor, Materials Science and Engineering, University of Utah
1977-1979 Research Associate Professor, Materials Science and Engineering, University of Utah
1979-1982 Assistant Professor, Department of Chemistry and Geochemistry, Colorado School of Mines
1982-1986 Associate Professor, Department of Chemistry and Geochemistry, Colorado School of Mines
1987-1988 Chairman, Material Science Program Steering Committee
1986-2014 Professor, Department of Chemistry and Geochemistry, Colorado School of Mines
1995 Visiting Scientist, FDA National Center for Toxicological Research, Jefferson, AR
2014-present Research Professor, University Emeritus Professor

Honors:

Listed in Who's Who in the World, Who's Who in America, and American Men and Women of Science

Chairman, Fifth International Symposium on Analytical Pyrolysis

American Chemical Society, Board of Directors, 2004-2010, Green Chemistry Institute Advisory Board, 2007-2010, Board Committee on Awards, 2004-2005, Chair 2009-2011, Board Committee on Member and Professional Relations, 2004-2006, Chair 2006-2008, Chair of Green Chemistry Institute Governing Board 2012-present.

Fellow, American Chemical Society, 2014.

Councilor, 1981- 2004, Colorado Section of the American Chemical Society, Ex officio 2004 to present.

Member of the National ACS Nomination and Elections Committee, 1988-90, Member of the National ACS Committee on Committees, 1993-1996, Member of the National ACS Council Policy Committee, 1999-2004, Associate Member of the National ACS Chemical Abstracts Committee, 1999, member 2013-14.

Colorado ACS Section Research Award, 1995

Colorado ACS Section Service Award 2005

ACS Richard A. Glenn Award, 2009.

Ex-officio Councilor, American Chemical Society, 2004-2007.

Member, National Research Council Committee on "Toxicology of Materials Used in Rail Cars."

Member, National Research Council Committee on EPA Homeland Security Efforts, 2003

Chairman, 1991 Gordon Conference on Analytical Pyrolysis

R&D 100 Award, 2000, 2009

Editor, Journal of Analytical and Applied Pyrolysis, 2000-present

Utah State University Distinguished Chemistry Alumni Award 2001

CSM Dean's Excellence Award 2003

CSM Board of Trustees Outstanding Faculty Member 2013

CSM Faculty Senate 2003-2005, 2008-10

Utah State University College of Science Advisory Board, 2007-2009.

Reviewed Publications:

1. K.J. Voorhees, G.G. Smith, R.T. Arnold, R.R. Covington and G. Milolasek, (1969), "A New Reaction in the Pyrolysis of β -Hydroxy Olefins," *Tetrahedron Letters*, 201.
2. K.J. Voorhees and G.G. Smith, (1970), "Pyrolysis Study XIX. A Substituent Effect Study of 1-aryl-3-buten-1-ols." *J. Org. Chem.*, 35, 2182.
3. G.G. Smith, K.J. Voorhees, (1971), "Pyrolysis Study XX. A Substituent Study of 3-aryl-3-buten-1-ols," *J. Org. Chem.*, 36, 1755.
4. G.G. Smith, K.J. Voorhees, and F. Kelly, (1971), "Pyrolysis Study XXII. The Thermolysis of ^{18}O Labeled Ethyl Acetate," *Chem. Comm.*, 789.
5. E.L. Allred, B.R. Beck, and K.J. Voorhees, (1973), "Formation of Carbon-Carbon Double Bonds by the Reaction of Vicinal Dihalides with Sodium in Ammonia," *J. Org. Chem.*, 38, 1773.
6. E.L. Allred and K.J. Voorhees, (1973), "Orientation Effects on Cyclopropyl Participation in the Thermolysis of Azo Compounds. Assessment of the Endo Configuration," *J. Amer. Chem. Soc.*, 95, 620.
7. J.L. Dye, M.T. Lok, F.J. Tehan, J.M. Ceraso, and K.J. Voorhees, (1973), "Flow Synthesis. A Substitute for the High Dilution Steps in Cryptate Synthesis," *J. Org. Chem.*, 38, 1773.
8. J.H. Petajan, K.J. Voorhees, R.C. Baldwin, I.N. Einhorn, M.L. Grunnet, B.G. Dinger, M.M. Birky, and S.C. Packham, (1975), "Extreme Toxicity from Combustion Products of a Fire-Retarded Polyurethane Foam," *Sci.*, 187, 752.
9. K.J. Voorhees, I.N. Einhorn, F.D. Hileman and L.H. Wojcik, (1975), "The Identification of a Highly Toxic Bicyclophosphate in the Combustion Products of a Fire-Retarded Urethane Foam," *J. Poly. Sci., Poly. Letters Ed.*, 13, 293.
10. K.J. Voorhees, F.D. Hileman, L.H. Wojcik, M.M. Birky, P.W. Ryan and I.N. Einhorn, (1975), "Pyrolysis of a Flexible Urethane Foam," *J. Poly. Sci.*, 13, 571.
11. K.J. Voorhees, F.D. Hileman, and I.N. Einhorn, (1975), "Generation of Retention Index Standards by the Pyrolysis of Hydrocarbons," *Anal. Chem.*, 47, 2385.
12. I.N. Einhorn, D.A. Chatfield, K.J. Voorhees, F.D. Hileman, R.W. Mickelson, S.C. Israel, J.H. Futrell, and P.W. Ryan, (1977), "A Strategy for the Analysis of Thermal Decomposition of Polymeric Materials," *J. Fire Research*, 1, 41.
13. D.A. Chatfield, I.N. Einhorn, K.J. Voorhees, F.D. Hileman and J.H. Futrell, (1978), "The Analysis of Thermal Decomposition Products from Polymeric Materials," in *Experimental Diagnostics in Combustion of Solids*, T.L. Boggs, & B.T. Zinn, Ed., AIAA, New York, p. 49.

14. D.A. Chatfield, K.J. Voorhees, F.D. Hileman, I.N. Einhorn and J.H. Futrell, (1978), "Characterization of Polymer Decomposition Products by Electron Impact and Chemical Ionization Mass Spectrometry," Application of Polymer Spectroscopy, E.G. Brame, Jr., Ed., Academic Press, Inc., New York, NY, p. 241.
15. K.J. Voorhees, F.D. Hileman, I.N. Einhorn, J.H. Futrell, (1978), "An Investigation of the Thermolysis Mechanism of Model Urethanes," J. Poly. Sci., 16, 213.
16. K.J. Voorhees, F.D. Hileman, and D.L. Smith, (1979), "The Effect of a Phosphorus Bridgehead Atom on the Loss of Neutral Species in the Mass Spectra of Bicyclooctanes," Org. Mass. Spectrom. 14, 459.
17. G. Wells and K.J. Voorhees, (1980), "The Use of Filament Pyrolysis Devices with Fast Scanning Mass Spectrometry," Anal. Chem. 52, 1782.
18. G.G. Smith and K.J. Voorhees, (1981), "Electron Impact Reactions of 1- and 3-aryl-3-buten-1-ols," Org. Mass Spectrom, 16, 76.
19. K.J. Voorhees and F.D. Hileman, (1981), "Source Determination of Atmospheric Particulates by Py-MS," J. Anal. Appl. Pyrol, 3, 234.
20. K.J. Voorhees, S.M. Kunen, S.L. Durfee, L.A. Currie, and G. Klouda, (1981), "The Determination of Source Contribution of Organic Matter in Atmospheric Particulates by Py-MS and ¹⁴C Analysis," Anal. Chem., 53, 1463.
21. K.J. Voorhees, W.A. McClennen and N.A. Mumford, (1981), "Micro-Synthesis of Deuterium Labelled Propoxylated Trimethylolpropane Polyols," J. Labelled Compounds and Radiopharmaceuticals, 18, 473.
22. G. Wells, K.J. Voorhees, and J.H. Futrell, (1981), "A New Approach to Fast Scanning P/MS," Rev. Sci. Inst. 52 735.
23. K.J. Voorhees and R.P. Lattimer, (1982), "A Mechanistic Study of the Pyrolysis of a Specifically Labeled Deuterated Urethane," J. Poly. Sci., 20, 1457.
24. C.G. Greenwalt, K.J. Voorhees, and J.H. Futrell, (1983), "The Efficiency of a Silicone Membrane Gas Chromatography-Spectrometer Interface," Anal. Chem. 55, 468.
25. K.J. Voorhees and S.L. Durfee, (1983), "The Analysis of Naturally Occurring Polymers by Pyrolysis/Mass Spectrometry," Colorado School of Mines Quarterly, 78(3), 23.
26. K.J. Voorhees, S.L. Durfee, and R.M. Baldwin, (1983), "Liquefaction Reactivity Correlations Using Pyrolysis/Mass Spectrometry/Pattern Recognition Procedures," Advances in Chemistry, 203, 677.
27. L.A. Currie, G.A. Klouda, and K.J. Voorhees (1984), "Atmospheric Carbon: The Importance of Accelerator Mass Spectrometry," Nuclear Inst. and Methods, 233B5, 371.
28. R. Tsao and K.J. Voorhees, (1984), "Analysis of Smoke Aerosols from Nonflaming Combustion by Pyrolysis-Mass Spectrometry/Pattern Recognition, Anal. Chem., 56, 368.

29. R. Tsao and K.J. Voorhees, (1984), "Fingerprinting of Gasoline in Combustion Aerosols by Pyrolysis/Mass Spectrometry with Factor Analyses," *Anal. Chem.*, 56, 1339.
30. K.J. Voorhees, R.W. Klusman and J.C. Hickey, (1984), "Analysis of Groundwater Contamination by a New Surface Static Trapping/Mass Spectrometry Technique," *Anal. Chem.*, 56, 2602.
31. K.J. Voorhees, A. Retima and F.A. Guffy, (1984), "Analysis of the Optically Active Species in Shale Oil," *Fuel*, 63, 310.
32. S.J. DeLuca, G. Holzer, and K.J. Voorhees, (1985), "Capillary Supercritical Fluid Chromatography with Simultaneous Flame Ionization and Mass Spectrometric Detection," *HRC & CC*, 8, 528.
33. S.L. Durfee and K.J. Voorhees, (1985), "Pyrolysis-Mass Spectrometry Predictions of Liquefaction Reactivity and Structural Analysis of Coals," *Anal. Chem.*, 57, 2378.
34. D.A. Kalman, K.J. Voorhees, I.N. Einhorn and D. Osborne, (1985), "Production of a Bicyclophosphate Neurotoxin Agent During Pyrolysis of a Synthetic Lubricating Oil," *Fire Science*, 3, 222.
35. P. MacCarthy, S.J. DeLuca, K.J. Voorhees, R.L. Malcolm and E.M. Thurman, (1985), "Pyrolysis-Mass Spectrometry/Pattern Recognition on a Well Characterized Suite of Humic Samples," *Geochim. Cosmochim. Acta.*, 49, 2091.
36. K.J. Voorhees and R. Tsao (1985), "Smoke Aerosol Analysis by Py-MS/Pattern Recognition for Assessment of Fuels Involved in Flaming Combustion," *Anal. Chem.*, 57, 1630.
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38. S.J. DeLuca, K.J. Voorhees, and E.W. Sarver, (1986), "Application of a Pyrolysis Methodology for Classifying Southeast Asian Environmental Samples," *Anal. Chem.*, 58, 2472.
39. R.M. Baldwin, S.L. Durfee and K.J. Voorhees, (1987), "Coal Liquefaction Reactivities Correlated with Coal Structure," *Fuel Process. Tech.*, 15, 281.
40. R.W. Klusman and K.J. Voorhees, (1987), "An Integrative Gas Geochemistry Technique in Surficial Petroleum Exploration." *Unconventional Methods in Exploration for Petroleum and Natural Gas*, SMU Press, pg. 283.
41. S. Zaugg, S.J. DeLuca, G. Holzer and K.J. Voorhees, (1987), "Simple Interface for Electron Ionization for SFC/MS," *HRC & CC*, 10, 100.

42. C.S. Fernhaber, S.J. Hoffman, T. Street and K.J. Voorhees (1988), "Py-MS can be used to detect Antibiotic-Resistance in *E. coli*," *Clinic. Res.*, 36, A189.
43. K.J. Voorhees, M.J. Malley, J.C. Hickey, R.W. Klusman and W.W. Bath, (1988), "Application of a New Technique for the Detection of Low Levels of Contaminants in Soil," *ASTM STP*, 963, 381.
44. M.M. Birky and K.J. Voorhees (1989), "The Use of Soot Analysis as an Investigative Tool in Aircraft Fires," *J. Aviation-Space and Environ. Medicine*, 60, 72.
45. K.J. Voorhees, W. Schulz, G. Klouda and L.A. Currie, (1988), "An Investigation of the Insoluble Carbonaceous Material in Airborne Particulates from Vehicular Traffic," *J. Anal. Appl. Pyrol.*, 14, 83.
46. K.J. Voorhees, S.L. Durfee, J.R. Holtzclaw, C. Enke and M. Bauer, (1988), "Pyrolysis-Tandem Mass Spectrometry of Bacteria," *J. Anal. Appl. Pyrol.*, 14, 7.
47. K.J. Voorhees, S.L. Durfee and D.M. Updegraff, (1988), "Identification of Diverse Bacteria and Fungi by Py-MS," *J. Microbiolog. Methods*, 8, 315.
48. K.J. Voorhees, S. Zaugg and S.J. DeLuca, (1988), "Supercritical Fluid Chromatography-Mass Spectrometry" in *Modern Supercritical Fluid Chromatography*, C. White, Ed., Heuthig, p 59.
49. J.E. France and K.J. Voorhees, (1988), "Capillary SFC with Ultraviolet Multichannel Detection of Some Pesticides and Herbicides," *HRC & CC.*,11, 692
50. P.B. Harrington, K.J. Voorhees, R.W. Odom and T.E. Street, (1989), "A Rule-building Expert System for Classification of Mass Spectra," *Anal. Chem.*, 61, 715.
51. J.E. France and K.J. Voorhees, (1989), "A Solvent Evaporation Sample Injection Technique for Capillary Supercritical Fluid Chromatography," *HRC*, 11, 753.
52. K.J. Voorhees, P.B. Harrington, T.E. Street, S. Hoffman, S.L. Durfee, J.E. Bonelli and C.S. Firnhaber, (1990), "Approaches to Py-MS Data Analysis of Biological Materials," *Computer-Enhanced Analytical Spectroscopy*, 2, 259.
53. P.B. Harrington, K.J. Voorhees, R. Odom and F.R. DiBrozolo, (1990), "Organic Polymer Analysis by Laser Mass Spectrometry and Pattern Recognition," *J. Appl. Polym. Sci.*, 41, 1737.
54. P.B. Harrington and K.J. Voorhees, (1990) "MuRES: A Multivariate Rule-Building Expert System," *Anal. Chem.*, 62, 729.
55. S.J. DeLuca, E.W. Sarver, P.B. Harrington and K.J. Voorhees, (1990), "Direct Analysis of Fatty Acids by Curie Point Pyrolysis-Tandem Mass Spectrometry," *Anal. Chem.*, 62, 1465.
56. B. Murugaverl and K.J. Voorhees, (1991) "On-line Supercritical Fluid Extraction/Chromatography System for Trace Analysis of Pesticides in Soybean Oil and Rendered Fats," *J. Microcol. Sep.*, 3, 11.

57. K.J. Voorhees, E.W. Sarver, P.B. Harrington and S.J. DeLuca, (1991), "The Effect of Pyrolysis and Instrument Parameters on the Results of Various Supervised Learning Techniques," *Appl. Spectroscopy*, 45, 36.
58. K. Zarrabi, S.L. Durfee, S.R. Daniel and K.J. Voorhees, (1991), "Use of Pattern Recognition Techniques to Characterize Components of Complex Oxidation Mixtures," *J. Anal. Appl. Pyrol.*, 21, 1.
59. K.J. Voorhees, W.D. Schulz, S.M. Kunen, L.J. Hendricks, G. Klouda and L.A. Currie, (1991), "Analysis of Insoluble Carbonaceous Materials from Air Particulates Collected in Pristine Regions of Colorado," *J. Anal. Appl. Pyrol.*, 18, 189.
60. C.M. Young and K.J. Voorhees, (1991), "The Mechanism for the Formation of PICs from the Combustion of 1,2-Dichlorobenzene," *Chemosphere*, 23, 1265.
61. M. Summerfield, F. Fendell, J.W. Clayton, S.C. Packham, G.S. Tesoro, K.J. Voorhees and R.S. Weule, (1991), "Fires in Mass Transit Vehicles: Guidelines for the Evaluation of Toxic Hazards," National Research Council Report, NMAB-462, National Academy Press, Washington, D.C.
62. S.J. DeLuca, E.W. Sarver and K.J. Voorhees, (1992) "Direct Analysis of Bacterial Glycerides by Curie-point Py-MS," *J. Anal. Appl. Pyrol.*, 23, 1.
63. C.M. Young and K.J. Voorhees, (1992) "Thermal Decomposition of 1,2-Dichlorobenzene Part I: The Effect of Operating Conditions," *Chemosphere*, 24, 525.
64. C.M. Young and K.J. Voorhees, (1992) "Thermal Decomposition of 1,2-Dichlorobenzene Part II: The Effect of Feed Mixtures," *Chemosphere*, 25, 681.
65. K.J. Voorhees, S.J. DeLuca and A. Noguerola, (1992) "Identification of Chemical Biomarkers in Bacteria and Other Compounds by Pyrolysis-Tandem Mass Spectrometry," *J. Anal. Appl. Pyrol.*, 24, 1.
66. A. Noguerola, B. Murugaverl and K.J. Voorhees, (1992) "An Investigation of Dipeptides Containing Polar and Non-Polar Side Groups by Curie-point Pyrolysis-Tandem Mass Spectrometry" *J. Amer. Soc. Mass. Spectrom.*, 3, 750.
67. B. Murugaverl, S.J. DeLuca and K.J. Voorhees, (1993) "The Utilization of a Benchtop Mass Spectrometer with Capillary Supercritical Fluid Chromatography," *J. Chromatog.*, 633, 195.
68. S.J. DeLuca and K.J. Voorhees, (1993) "A Comparison of an Infrared Radiative Air Pyrolyzer with a Vacuum Curie-point Pyrolyzer: Implications for Analytical Pyrolysis," *J. Anal. Appl. Pyrol.*, 24, 211.
69. B. Muragaverl, A. Gharaibeh and K.J. Voorhees, (1993) "A Selective Adsorbent for Cleanup During Supercritical Fluid Extraction of Carbamate Pesticides in Tissues," *J. Chromatog.*, 657, 223.

70. K.J. Voorhees, W. Zhang, A.D. Hendricker and B. Muragaverl, (1994) "An Investigation of the Pyrolysis of Oligopeptides by Curie-Point Pyrolysis Tandem Mass Spectrometry" *J. Anal. Appl. Pyrol.*, 30, 1.
71. K.J. Voorhees, S.F. Baugh and D.N. Stevenson, (1994) "An Investigation of the Thermal Degradation of Polyethylene Glycol," *J. Anal. Appl. Pyrol.*, 30, 47.
72. K.J. Voorhees, (1995) " The Analysis of Soot Produced from the Combustion of Polymeric Materials," *Fire and Polymers II*, ACS Symposium Series 599, 399.
73. F. Basile, K.J. Voorhees and T.L. Hadfield, (1995) "Microorganism Gram-Type Differentiation based on Py-MS of Bacterial Fatty Acid Ester Extracts," *Appl. and Env. Microbiol.*, 61, 1534.
74. M. Beverly, P.T. Kay and K.J. Voorhees, (1995) "Pyrolysis-Mass Spectrometric Analysis of European, Africanized Hybrid, and African Beeswax," *J. Anal. Appl. Pyrol.*, 34, 251.
75. Hendricker and K.J. Voorhees, (1996) "An Investigation into the Curie-point Pyrolysis-Mass spectrometry of Glycyl Dipeptides," *J. Anal. Appl. Pyrol.*, 36, 51.
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77. M.B. Beverly, F. Basile, K.J. Voorhees and T.L. Hadfield, (1996), " A Rapid Approach for the Detection of Dipicolinic Acid in Bacterial Spores using Pyrolysis-Mass Spectrometry," *Rapid Commun. in Mass Spectrom.*, 10, 455.
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79. R.D. Holland, J.G. Wilkes, F. Rafii, J.B. Sutherland, C.G. Persons, K.J. Voorhees and J.O. Lay, (1996), " Rapid Identification of Intact Whole Bacteria Based on Spectral Patterns Using MALDI/TOF MS," *Rapid Commun. in Mass Spectrom.*, 10, 1232.
80. C.Abbas-Hawks, K.J. Voorhees and T.L. Hadfield, (1996), "*In Situ* Methylation of Nucleic Acids using Pyrolysis-Mass Spectrometry", *Rapid Commun. in Mass Spectrom.*, 10, 1802.
81. K.J. Voorhees, F. Basile, M.B. Beverly, C. Abbas-Hawks, A. Hendricker, R.B. Cody and T.L. Hadfield, (1997) " The Use of Biomarkers for the Identification of Bacteria By Py-MS/MS", *J. Anal. Appl. Pyrol.*, 40-41, 111.
82. K.J. Voorhees, D.N. Stevenson, Y. Sun and G. Maciel, (1997) "A Solid State ¹³C Nuclear Magnetic Resonance Investigation of the Thermal Degradation of a Poly(ethylene glycol) and

Poly(vinyl alcohol) Binder in An Alumina Ceramic," J. Mat. Sci., 32, 2115.

83. F. Basile, M.B. Beverly, C. Abbas-Hawks, C.D. Mowry, K.J. Voorhees and T.L. Hadfield, (1998) "In situ Thermal Hydrolysis Methylation/Mass Spectrometric Analysis of Lipids from Whole Bacteria," Anal. Chem., 70, 1555.
84. M.B. Beverly, F. Basile and K.J. Voorhees, (1997) "Fatty Acid Analysis of Beer Spoiling Microorganisms Using Py-MS," J. Am. Soc. Brew. Chem., 55, 79.
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88. A.D. Hendricker, F. Basile and K.J. Voorhees, (1998) "A Study of Protein Oxidation Products Using a Pyrolysis-Membrane Inlet Quadrupole Ion Trap MS with Air as the Buffer Gas," J. Anal. Appl. Pyrol., 46, 65.
89. K.J. Voorhees, A.A. Gharraibeh and B. Murugaverl, (1998) "An Integrated SFE/SFC/MS System for the Analysis of Pesticides in Animal Tissues," J. Agric. Food Chem., 46, 2353.
90. A.D. Hendricker and K.J. Voorhees, (1998), "Amino acid and Oligopeptide Analysis using Curie-point Pyrolysis/MS with in-situ Thermal Hydrolysis and Methylation: Mechanistic Considerations," J. Anal. Appl. Pyrol., 48, 35.
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92. A.J. Madonna, T.L. Hadfield, E.C. Hilyard and K.J. Voorhees (1999) "Identification of Secondary Biomarkers from Viral Infected Cell Culture Media Using Pyrolysis Mass Spectrometry," J. Amer. Soc. Mass. Spectrom., 10, 502.
93. M.B. Beverly, K.J. Voorhees and T.L. Hadfield (1999) "The Effect of Electron and Chemical Ionization Modes on the MS Profiling of Bacteria," J. Amer. Soc. Mass. Spectrom., 10, 747.
94. R.D. Holland, C.R. Duffy, F. Rafii, J.B. Sutherland, T.H. Heinze, C.L. Holder, K.J. Voorhees and J.O. Lay (1999) "Identification of Bacterial Proteins Observed in MALDI TOF Mass Spectrometry from Whole Cells", Anal. Chem., 71, 3226.

95. M.B. Beverly, K.J. Voorhees and T.L. Hadfield (1999) "Direct Mass Spectrometric Analysis of *Bacillus* Spores," *Rapid Commun. in Mass Spectrom.*, 13, 2320.
96. M. Xu, F. Basile and K.J. Voorhees (2000) "Differentiation and Classification of User-Specified Bacterial Groups by *in situ* Thermal Hydrolysis/Methylation of Whole Bacterial Cells by tert-Butyl Bromide CI Ion Trap MS," *Anal. Chim. Acta.*, 418, 119
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100. A.J. Madonna, T.L. Hadfield and K.J. Voorhees (2001) "Detection of Taxonomically Important Fatty Acid Methyl Esters and Steroid Biomarkers using *in situ* Thermal Hydrolysis/Methylation Mass Spectrometry (THM/MS): Implications for Bioaerosol Detection," *J. Anal. Appl. Pyrol.*, 61, 63.
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102. P.B. Harrington, K.J. Voorhees, F. Basile and A.D. Hendricker (2002) "Validation Using Sensitivity Target Factor Analyses of Neural Network Models for Classifying Bacteria from Mass Spectra," *J. Amer. Soc. Mass. Spectrom.*, 13, 10.
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Presentations:

Over 180 total

Books:

"Analytical Pyrolysis: Techniques and Applications," K.J. Voorhees, ed., Butterworths,

1984.

Patents:

Twelve U.S. and foreign patents
Eight U.S. and several foreign patents pending

Professional Societies:

American Chemical Society
American Society of Mass Spectrometry