

# CURRICULUM VITAE

## JACK K. STEEHLER

Director of Institutional Research

Professor of Chemistry

Roanoke College

### Personal:

Born: January 25, 1956, Elmhurst, Illinois.

Married, two children.

### Business Address:

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### Education:

B. S. (Biochemistry) The Ohio State University (1977), summa cum laude, Phi Beta Kappa

Ph.D (Chemistry) with J. C. Wright, University of Wisconsin - Madison (1984).

### Professional Experience:

Director of Institutional Research (2010-)

Brian H. Thornhill Professor of Chemistry, Roanoke College (2008-2010)

Director of Student/Faculty Research, Roanoke College (2008-2010)

Professor, Roanoke College (1998-)

RSEC Fellow, Procter & Gamble Company, Mason, OH (Summer, 2004)

RSEC Fellow, University of Tennessee – Knoxville (2003-2004)

Chairman, Department of Chemistry, Roanoke College (1999-2003)

Associate Professor, Roanoke College (1991-1998 )

Visiting Associate Professor of Chemistry, University of Illinois at Urbana-Champaign (1995-96)

Visiting Professor, Beckman Institute, University of Illinois at Urbana-Champaign (Summer, 1992)

Assistant Professor, Roanoke College (1988-91)

Adjunct Instructor, Division of Continuing Education, University of Virginia (1989)

Assistant Professor, University of Virginia (1984-1988)

Graduate Fellow, Research and Teaching Assistant, Chemistry Department, University of Wisconsin - Madison (1980-84)

Chemical Analyst II, City of Madison, Wisconsin, Public Health Laboratory (1979-80)

Graduate Fellow, Biochemistry Department, University of Wisconsin - Madison (1977-78)

### Professional Memberships:

The American Chemical Society

The American Educational Research Association

The Association for Institutional Research

The Virginia Academy of Science

Phi Lambda Upsilon (National Chemistry Honorary)

## Honors and Awards:

1977-78, 80-82	NSF Graduate Fellowship
1982-83	American Chemical Society Analytical Chemistry Fellowship
1983-84	University of Wisconsin Dean's Fellowship
1989	Mednick Memorial Fellowship
1989-92	Roanoke College Faculty Scholar
1994	Participant, University of North Carolina-Chapel Hill Summer Institute in Analytical Chemistry
1997-2000	Roanoke College Faculty Scholar
2003-2004	Research Site for Educators in Chemistry (RSEC) Fellow, Univ. of Tennessee-Knoxville
2008-2010	Brian H. Thornhill Professor of Chemistry, Roanoke College

## Publications:

1. J.K. Steehler, D.C. Nguyen, and J.C. Wright, "Four Wave Mixing Spectroscopy of Mixed Crystals Using Three Input Frequencies", *J. Luminescence* **31 & 32**, 858 (1984).
2. S.H. Lee, J.K. Steehler, D.C. Nguyen, and J.C. Wright, "Site Selective Nonlinear Four Wave Mixing by Multiply Enhanced Non-parametric and Parametric Spectroscopy", *Appl. Spectroscopy* **39**, 243 (1985).
3. J.K. Steehler and J.C. Wright, "Two-frequency CARS for Mixture Analysis Using Pentacene in p-Terphenyl as a Model", *Appl. Spectroscopy* **39**, 451 (1985).
4. J.K. Steehler and J.C. Wright, "Site Selective Nonlinear Spectroscopy of Pentacene : p-Terphenyl", *Chem. Phys. Lett.* **115**, 486 (1985).
5. J.K. Steehler and J.C. Wright, "Multiply Enhanced Site Selective CARS Spectroscopy", *J. Chem. Phys.* **83**, 3188 (1985).
6. J.K. Steehler and J.C. Wright, "Parametric and Non-parametric Four Wave Mixing in Pentacene : p-Terphenyl", *J. Chem. Phys.* **83**, 3200 (1985).
7. J.C. Wright, D.C. Nguyen, J.K. Steehler, M.A. Valentini, and R.J. Haskell, "Linear and Nonlinear Site Selective Laser Spectroscopy in Analytical Chemistry", in *Analytical Applications of Lasers*, edited by E.H. Piepmeyer, John Wiley & Sons, New York, 1986, pp. 273-292.
8. S.A. Cresswell and J.K. Steehler, "Factors Affecting Quantitative Studies of Surface Adsorbates Using Multiresonant Second Order Nonlinear Spectroscopy", *Appl. Spectroscopy* **41**, 1329 (1987).
9. S.A. Cresswell and J.K. Steehler, "Selective Observation of Adsorbate Mixtures Using Resonant Sum Frequency Generation", *Appl. Spectroscopy* **41**, 1444 (1987).
10. F.W. Gordon, S.A. Cresswell, and J.K. Steehler, "Resonant Nonlinear Surface Spectroscopy: Range and Limitations", *Langmuir* **5**, 286 (1989).
11. J.C. Wright, R.J. Carlson, M.T. Riebe, J.K. Steehler, D.C. Nguyen, S.H. Lee, B.B. Price, and G.B. Hurst, "Fully Resonant Nondegenerate Nonlinear Mixing Spectroscopy", in: *Raman Spectroscopy: Sixty Years On*, edited by H.D. Bist, J.R. Durig, and J.F. Sullivan, Vibrational Spectra and Structure, Vol. 17B, Elsevier Science Publishers, Amsterdam, 1989, pp. 123-158.
12. J.K. Steehler, "Lasers in the Undergraduate Curriculum: I. Features and Philosophy", *J. Chem. Educ.* **67**, A37 (1990).
13. J.K. Steehler, "Lasers in the Undergraduate Curriculum: II. Coursework Experiments and Research Projects", *J. Chem. Educ.* **67**, A65 (1990).
14. J.C. Wright, R.J. Carlson, G.B. Hurst, J.K. Steehler, M.T. Riebe, B.B. Price, D.C. Nguyen, and S.H. Lee, "Molecular Multiresonant Coherent Four-Wave Mixing Spectroscopy", *Int. Rev. Phys. Chem.* **10**, 349-390 (1991).

15. J.K. Steehler, "Basic Laser Spectroscopy for Physical Chemistry Lab", in: Physical Chemistry: Developing a Dynamic Curriculum, edited by R. Schwenz and R. Moore, American Chemical Society Books, Symposium Series, Chapter 7, pp. 109-119, 1993.
16. B. Freeman, M. Arnold, J. DeSimone, R. Linton, D. Betts, C. Kassis, Z. Guan, J. Steehler, "Very Low Surface Energy Heterophase Polymeric Materials for Membrane Separations," Proceedings of the US-Japan Technical Workshop on Shipboard Wastes Treatment Technology, 2-20 to 2-25 (1994).
17. C.M. Kassis, J.K. Steehler, D.E. Betts, Z. Guan, T.J. Romack, J.M. DeSimone, R.W. Linton, "XPS Studies of Fluorinated Acrylic Polymers and Block Copolymers with Polystyrene", *Macromolecules* **29**, 3247-54 (1996).
18. C.M. Kassis, J.K. Steehler, R.W. Linton, "Characterization of 1,1-Dihydroperfluorooctyl Acrylate (PFOA) by XPS", *Surface Science Spectra* **3**, 299-306 (1997).
19. C.M. Kassis, J.K. Steehler, R.W. Linton, "Characterization of 1,1-Dihydroperfluorooctyl Methacrylate (PFOMA) by XPS", *Surface Science Spectra* **3**, 307-314 (1997).
20. C.M. Kassis, J.K. Steehler, R.W. Linton, "Characterization of 1,1,2,2-Tetrahydroperfluorooctyl Acrylate (PTAN) by XPS", *Surface Science Spectra* **3**, 315-322 (1997).
21. J.K. Steehler, W. Lu, P.J. Kemery, P.W. Bohn, "Electric Field Induced Permeability Modulation in Pure and Mixed Langmuir-Blodgett Multilayers of Hemicyanine Dyes and Octadecanoic Acid on Nanoporous Solid Supports", *J. Membrane Science*, **139**, 243-257 (1998).
22. J.K. Steehler, "Should Advanced Instruments Be Used in Introductory Courses?", *J. Chem. Educ.* **75**, 274-275 (1998).
23. P.J. Kemery, J.K. Steehler, P.W. Bohn, "Electric Field Mediated Transport in Nanometer Diameter Channels", *Langmuir*, **14**, 2884-2889 (1998).
24. W. Zhao, K.M. Murdoch, N.J. Condon, D.M. Besemann, K.A. Meyer, P.C. Chen, J.P. Hamilton, A. Zilian, M.J. Labuda, D.E. Thompson, R.J. Carlson, G.B. Hurst, M.T. Riebe, J.K. Steehler, J.C. Wright, "Comparisons Between 2D Doubly Vibrationally Enhanced Four Wave Mixing and Site Selective Spectroscopy", *J. Luminescence*, **87-89**, 90-95 (2000).
25. Beth Tucker, "Developing Surface Plasmon Resonance Spectroscopy Instrumentation to Monitor Substrate Deposition", *Alpha Chi Recorder (Undergraduate Issue)*, Vol. 50, No. 1, Spring, 2007, pp. 23-35.

#### **Presentations:**

1. J.K. Steehler, D.C. Nguyen, and J.C. Wright, "Four Wave Mixing Spectroscopy of Mixed Crystals Using Three Input Frequencies", presented at the International Conference on Luminescence, Madison, Wisconsin, August, 1984.
2. J.C. Wright, J.K. Steehler, D.C. Nguyen, "Site Selective Nonlinear Laser Spectroscopy of Molecules in Low Temperature Matrices", presented by J. Wright at the 1984 Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS), September, 1984.
3. J.K. Steehler, "Nonlinear Spectroscopy as a Surface Probe," presented at the 1986 Southeastern Association of Analytical Chemists (SEACC) meeting, Greenville, North Carolina, April 25, 1986.
4. J.K. Steehler, S.A. Cresswell, J.A. Tribble, and B.H. Pate, "Analysis of Surface Adsorbates Using Multiresonant Laser Sum Frequency Generation", presented at the 1986 Federation of Analytical Chemistry and Spectroscopy Societies, St. Louis, Missouri, September 29, 1986.
5. B.H. Pate and J.K. Steehler, "Molecular Orientation Determination Using Doubly Resonant Sum Frequency Generation", presented by B. Pate at the 1987 Annual Southeastern Regional Meeting of the Student Affiliates of the American Chemical Society, Richmond, Virginia, March 27, 1987.

6. J.C. Wright, M.T. Riebe, R.J. Carlson, J.K. Steehler, "Spectral Selectivity in Nonlinear Four Wave Mixing," presented by J. Wright at the 194th ACS National Meeting, New Orleans, Louisiana, September 2, 1987.
7. J.K. Steehler, "Resonant  $\chi^{(2)}$  Surface Spectroscopy - Recent Results," presented at the 1987 Midwestern Universities Association of Analytical Chemists (MUACC) meeting, Columbus, Ohio, November 6, 1987.
8. J.K. Steehler, "Analytical Chemists: Real Scientists or Just Technicians?", presented as an invited Alpha Chi Sigma lecture, University of Virginia, March 29, 1988.
9. S.A. Cresswell, J.K. Steehler, "Nonlinear Laser Spectroscopy of Surface Adsorbates", presented by S. Cresswell at the 1988 Annual Meeting of the Virginia Academy of Science, May 26, 1988. Abstract published: Virginia Journal of Science **39**, 137 (1988).
10. J.K. Steehler, "Resonant Nonlinear Spectroscopy of Surface Adsorbates", presented at the 1988 Eastern Analytical Symposium, New York, New York, October 4, 1988.
11. J.K. Steehler, "Nonlinear Spectroscopy of Surface Adsorbate Mixtures", presented as an invited lecture at the University of Illinois, Urbana, Illinois, October 21, 1988.
12. J.K. Steehler, "Lasers in Chemistry - Beyond Bright Lightbulbs", presented as an invited lecture for a statewide satellite TV course (Chemistry 707) at the University of Virginia, Charlottesville, Virginia, January 28, 1989.
13. J.K. Steehler, "Laser Spectroscopy in Undergraduate Research and Coursework", presented at the 1989 Annual Meeting of the Southeast Association of Analytical Chemists (SEAAC), Charlotte, North Carolina, April 21, 1989.
14. J.K. Steehler, "Analytical Chemists: Real Scientists or Just Technicians?", presented as a Chemistry Department Seminar, Roanoke College, September 15, 1989.
15. J.K. Steehler, "Richard Feynman: Feisty Physicist, Free Spirit, and Bongo Player Extraordinaire", invited talk, Roanoke College Sigma Xi Club, October 23, 1989.
16. J.K. Steehler, "Lasers in Science and Technology: Beyond Bright Lightbulbs, Roanoke College Faculty Forum presentation, January 23, 1990.
17. J.K. Steehler, "Light, Lasers, and Color in Chemistry", a two day display and hands on demonstration at the Science Museum of Western Virginia, Roanoke, VA, February 23-24, 1990.
18. J.K. Steehler, "Lasers in Science and Technology: An Overview", talk presented at the Fourth Annual Science Spectacular: Light, Lasers, and Optics. Science Museum of Western Virginia, Roanoke, VA. February 24, 1990.
19. J.K. Steehler, "A Practical HPLC Solvent Optimization Experiment", poster paper presented at the Spring 1990 National American Chemical Society meeting, Boston, MA. April 25, 1990.
20. J.K. Steehler, "Laser Experiments in Undergraduate Chemistry: A Practical Guide", presented at the Summer 1990 11th Biennial Conference on Chemical Education, Atlanta, GA. August 8, 1990.
21. J.K. Steehler and J.R. Dalton, "Using HPLC Throughout the Curriculum", presented at the Fall 1990 National American Chemical Society meeting, Washington, DC. August 29, 1990.
22. J.K. Steehler, "Adventures and Misadventures in Introductory Chemistry: Wet Chemistry Versus Instrumental Chemistry", presented at the Blue Ridge Section Meeting of the American Chemical Society, Hollins College, Hollins, VA. September 21, 1990.
23. J.K. Steehler, "Practical Laser Experiments for Undergraduate Physical Chemistry Lab", invited talk presented at the Fall 1991 National American Chemical Society meeting, New York, NY. August 27, 1991.

24. J.K. Steehler, "The Chemistry of Chemical Warfare", presented as a Chemistry Department Seminar, Roanoke College, February 8, 1991.
25. J.K. Steehler and B.P. Huddle, "Traditional Style Experiments Versus Modern Instrumental Experiments - Where is the Proper Balance", invited talk presented at the 43rd Southeast Regional Meeting of the American Chemical Society, Richmond, VA. November 14, 1991.
26. J.K. Steehler, "Studying Surfaces with Lasers", presented as an invited seminar at the Chemistry Department of James Madison University, Harrisonburg, VA. January 31, 1992. Also presented as a Roanoke College Chemistry Seminar, January 24, 1992.
27. J.K. Steehler, "Successful Catalytic Improvement of a Chemistry Department", talk presented at the Fall, 1992 National Meeting of the American Chemical Society, Washington, DC. August 24, 1992.
28. J.K. Steehler, "Ideas for Using Advanced Instrumentation in the Chemistry Laboratory at All Levels", talk and discussion session presented at the 26th Annual Meeting of the Mid-Atlantic Association of Liberal Arts Chemistry Teachers (MAALACT), Chestertown, MD. October 10, 1992.
29. J.K. Steehler, S. Lau, D.W. Michie, C. Rhodes, and B. Lyon, "Comparison of Low Power Light Sources for Optical Spectroscopy of Surface Adsorbates," poster paper presented at the 1993 Analytical Chemistry Gordon Research Conference, New Hampton, NH. August 10, 1993.
30. J.K. Steehler, "Fundamental Analytical Research, Applied Analytical Research, and Full Disclosure: Opinions and Discussion.", presented at the 1993 Annual Meeting of the Southeastern Association of Analytical Chemists (SEAAC), Atlanta, GA. September 10, 1993.
31. J.K. Steehler, "Practical Integration of Advanced Instrumentation in Introductory Courses", poster and oral presentation at the Chemistry Curriculum Planning Conference, Madison, WI. November 18-21, 1993.
32. J.K. Steehler, "Trading Traditional Topics for Application Topics in General Chemistry", poster and oral presentation at the Chemistry Curriculum Planning Conference, Madison, WI. November 18-21, 1993.
33. J.K. Steehler, "Applications of Supercritical Fluids in Chemistry", presented as a Chemistry Department Seminar, Roanoke College, March 25, 1994.
34. W. A. Lyon and J. K. Steehler, "Photothermal Spectroscopy Using a Low Power Light Source", presented at the American Chemical Society - Blue Ridge Section meeting, Radford, VA, April 21, 1994.
35. J. Polkinghorne and J. K. Steehler, "Identification of Semi-Volatile Organics in Surface Water Near Roanoke Valley Landfills by GC/MS Analysis", presented at the American Chemical Society - Blue Ridge Section meeting, Radford, VA, April 21, 1994.
36. J.K. Steehler and V.R. Miller, "Real Samples and Modern Instruments - A Pairing that Works", presented at the 13th Biennial Conference on Chemical Education", Lewisburg, PA. July 31 - August 4, 1994.
37. C.M. Kassis, J.K. Steehler, et. al., Polymer Symposium, University of North Carolina - Chapel Hill, September 14-16, 1994.
38. B. Freeman, J.K. Steehler, et.al., US-Japan Technical Workshop on Shipboard Wastes Treatment Technology, Tokyo, Japan, September 19-20, 1994.
39. J.K. Steehler, "XPS Studies of Fluorinated Polymers and Copolymers", presented as a Roanoke College Chemistry Department Third Friday Seminar, October 28, 1994.
40. C.M. Kassis, J.K. Steehler, D.E. Betts, Z. Guan, A.M. Belu, M.O. Hunt, Jr., J.M. DeSimone, and R.W. Linton, "Surface Characterization of Copolymers Using X-Ray Photoelectron Spectroscopy and Time-of-Flight Secondary Ion Mass Spectrometry", presented (by J.M. DeSimone) at the 17th Biennial Polymer Symposium, American Chemical Society Division of Polymer Chemistry, San Juan, Puerto Rico, November 19-23, 1994.

41. J.K. Steehler, "I'm Leaving - But I'm Coming Back!", Roanoke College Collegewide Convocation Series (Last Lecture Program), Salem, VA, April 6, 1995.
42. C.M. Kassis, J.K. Steehler, D.E. Betts, Z. Guan, T.J. Romack, J.M. DeSimone, and R.W. Linton, "XPS Studies of Low Surface Energy Heterophase Polymers: Fluorine-Containing Acrylate Polymers and Diblock Copolymers", Hoechst Celanese Corporation and University of North Carolina Workshop: "Applying Analytical Science to Advance Business and Technology", Chapel Hill, NC, April 25-26, 1995.
43. C.M. Kassis, J.K. Steehler, D.E. Betts, Z. Guan, T.J. Romack, J.M. DeSimone, and R.W. Linton, "XPS Studies of Fluorine-Containing Acrylate Polymers and Diblock Copolymers", Michigan Chapter of the American Vacuum Society 22nd Annual Spring Symposium "Polymer Systems: Surface Properties and Characterization", University of Michigan, Ann Arbor, MI, May 18, 1995.
44. J.K. Steehler, "Instrumental Experiments for an Environmental Analytical Course", 210<sup>th</sup> National Meeting of the American Chemical Society, Chicago, IL, August 22, 1995.
45. T. Tewolde, C.S. Hurd, V.R. Miller, and J.K. Steehler, "Use of GC/MS in the Analysis of Air and Water Samples in General Chemistry Laboratory", 210th National Meeting of the American Chemical Society, Chicago, IL, August 24, 1995.
46. J.K. Steehler and G.A. Steehler, "Student Involvement in Learning: Hooks that Work, Hooks that Don't", 14th Biennial Conference on Chemical Education, Clemson, SC, August 7, 1996.
47. J.K. Steehler, "College Sponsored Hands-On Instrumentation Workshops for High Schools", 14th Biennial Conference on Chemical Education, Clemson, SC, August 8, 1996.
48. J.K. Steehler, P.W. Bohn, W. Lu, and Q. Song, "Characterization of High Permeability Sites in an Electric Field Responsive Thin Film Barrier Layer", 1996 Eastern Analytical Symposium, Somerset, NJ, November 20, 1996.
49. P.W. Bohn, J.K. Steehler, P.J. Clapp, "An Electroosmotically Driven Molecular Transport Barrier with Large Asymmetry", Materials Research Society, 1996 Fall Meeting, Boston, MA, December 3, 1996.
50. K. Schneider, J.K. Steehler, "Thiol Monolayers on Gold Surfaces - Characterization and Zone Refining", poster paper presented at the American Chemical Society - Blue Ridge Section meeting, Radford, VA, April 10, 1997.
51. V.R. Miller and J.K. Steehler, "Water Quality Project", 213th National Meeting of the American Chemical Society, San Francisco, CA, April 13, 1997.
52. J.K. Steehler, V.R. Miller, C.M. Coffey, K.A. Newton, "Comprehensive Environmental Study of Mason Creek, Virginia", American Chemical Society 49<sup>th</sup> Southeastern Regional Meeting, Roanoke, VA, October 21, 1997.
53. J.K. Steehler, G.A. Steehler, V.R. Miller, "Multimedia in the Classroom - Pros and Cons", American Chemical Society 49<sup>th</sup> Southeastern Regional Meeting, Roanoke, VA, October 20, 1997.
54. J.K. Steehler, K. Schneider, D.R. Lineberry, II, "Zone Refining of Thiols on Gold Surfaces", Eastern Analytical Symposium, Somerset, NJ, November 20, 1997.
55. J.K. Steehler, "Integrated Usage of Modern Instrumentation", Gordon Conference on Innovations in College Chemistry Teaching, Ventura, CA, January 4-8, 1998.
56. J.K. Steehler, "Instrument Usage at Introductory Levels - What Works, What Doesn't", Middle Atlantic Regional Academic Analytical Conference, Washington, DC, May 22, 1998.
57. H.D. Turner, J.K. Steehler, "Active Learning in a Chemistry Classroom", American Chemical Society 50th Southeastern Regional Meeting, Research Triangle Park, NC, November 7, 1998.
58. D.R. Lineberry, II, J.K. Steehler, "Two-Dimensional Thermal Annealing of Mixed Thiols on Gold", Virginia Academy of Science 77<sup>th</sup> Annual Meeting, Norfolk, VA, May 28, 1999.

59. J.L. Runyon, J.K. Steehler, "Trace Metals in the Roanoke River Watershed", 51<sup>st</sup> Southeastern Regional Meeting of the American Chemical Society (Meeting in Miniature), Knoxville, TN, October 17, 1999.
60. J.K. Steehler, V.R. Miller, "Innovative AA Experiments", 220<sup>th</sup> National Meeting of the American Chemical Society, Washington, DC, August 21, 2000.
61. S. C. Kirby, J.K. Steehler, "Polyacrylamide Based Fiber Optic Biosensors," 2<sup>nd</sup> Annual Mid-Atlantic Regional Conference of Undergraduate Scholarship (MARCUS), Sweet Briar, VA, October 14, 2000.
62. S. L. Doyle, J.K. Steehler, "Fiber Optic Biosensors," 2<sup>nd</sup> Annual Mid-Atlantic Regional Conference of Undergraduate Scholarship (MARCUS), Sweet Briar, VA, October 14, 2000.
63. J.K. Steehler, "Instructional Instruments: Real and Imaginary Limiting Factors", Middle Atlantic Regional Academic Analytical Chemistry Conference, Atlantic City, NJ, October 29, 2000.
64. G.A. Steehler and J.K. Steehler (presented by JKS), "Integrated Lecture/Laboratory at the Introductory Level - Two Success Stories", presented at the "Innovations in College Chemistry Teaching" Gordon Research Conference in New London, Connecticut, June 25, 2002.
65. J.K. Steehler, "Biochemical Applications of Luminescence Spectroscopy", a Roanoke College Chemistry Department Seminar, 11/15/02.
66. S. Wood, J.K. Steehler, "Initial Experiments with Potentiometric Probe Dyes in Yeast Cells", poster paper presented at the American Chemical Society - Blue Ridge Section meeting, Radford, VA, April 7, 2003.
67. A.K. Bostick, J.K. Steehler, "Determining the Stoichiometric Ratio of Zinc to 8-Hydroxyquinoline in a Complex" 5<sup>th</sup> Annual Mid-Atlantic Regional Conference of Undergraduate Scholarship (MARCUS), Sweet Briar, VA, October 4, 2003.
68. A.K. Bostick, J.K. Steehler, "Determining the Stoichiometric Ratio of Zinc to 8-Hydroxyquinoline in a Complex," American Chemical Society 55<sup>th</sup> Southeastern Regional Meeting, Atlanta, GA, November 16, 2003.
69. A.K. Bostick, J.K. Steehler, "Determining the Stoichiometric Ratio of Zinc to 8-Hydroxyquinoline," poster paper presented at the American Chemical Society - Blue Ridge Section meeting, Radford, VA, April 14, 2004.
70. J.K. Steehler, "Imaging Applications Using Surface Enhanced Raman Spectroscopy (SERS)," University of Tennessee – Chattanooga, Chattanooga, TN, April 16, 2004.
71. J.K. Steehler, "Development of a Surface Plasmon Based Sensor to Model Interfacial Phenomena in Apatitic Minerals", Health Care Research Center, Procter & Gamble Company, Mason, OH, August 3, 2004.
72. J.K. Steehler, "An Optical Sensor to Study Surfaces Similar to Tooth Surfaces", Roanoke College Chemistry Department Seminar, September 17, 2004.
73. P. Drake, J. Steehler, "Modeling Saliva/Apatite Interfacial Phenomena with Surface Plasmon Resonance (SPR) Spectrometry", International Association for Dental Research & American Association for Dental Research Annual Meeting, Baltimore, MD, March 11, 2005.
74. J.K. Steehler, "Senior Seminar: Challenges in Assessment", 230<sup>th</sup> National Meeting of the American Chemical Society, Washington, DC, August 28, 2005.
75. A.A. Gadpaille, B.A. Tucker, "Initial Experiments Using Surface Plasmon Resonance and Raman Spectroscopy", 7<sup>th</sup> Annual MARCUS Conference, Sweet Briar College, VA. Oct. 8, 2005 (with J.K. Steehler)
76. A. Huggard, "Studying the Effect of Biochar: Chemical Analysis of Soils", 9<sup>th</sup> Annual MARCUS Conference, Sweet Briar College, VA. Oct. 6, 2007 (with J.K. Steehler)

77. N. Kuchenbuch, "Using Surface Plasmon Resonance Spectroscopy to Measure Mineral Surface Response to Chemical Challenge", 9<sup>th</sup> Annual MARCUS Conference, Sweet Briar College, VA. Oct. 6, 2007 (with J.K. Steehler)
78. K. Sloan, "Analysis of Perfluorinated Organic Compounds (PFOC's)", 11<sup>th</sup> Annual MARCUS Conference, Sweet Briar College, VA. Oct 10, 2009 (with J.K. Steehler).
79. J.K. Steehler, B.P. Huddle, H.N. Anthony, "Assessment of Multiyear Changes in Laboratory Curricula at Roanoke College", 21<sup>st</sup> Biennial Conference on Chemical Education, Denton, TX Aug. 2, 2010.
80. J.K. Steehler, "Four Year Undergraduate Research Assistant Program (URAP) at Roanoke College, 21<sup>st</sup> Biennial Conference on Chemical Education, Denton, TX Aug. 2, 2010.
81. H.N. Anthony, "Bisphenol A in Polycarbonate Plastics", 12<sup>th</sup> Annual MARCUS Conference, Sweet Briar College, VA. Oct 9, 2010 (with J.K. Steehler).
82. J.K. Steehler, "Analysis of Student Course Evaluation Data", Virginia Association for Management Analysis and Planning (VAMAP) Spring Meeting, Charlottesville, VA. April. 29, 2011.
83. J.K. Steehler, B.P. Huddle, H.N. Anthony, and C.A. Hunter, "Assessment Results for Guided Inquiry GC-MS Laboratories in First Year Courses for Majors and Non-Majors", 242<sup>nd</sup> ACS National Meeting, Denver, CO, Aug. 28-Sept. 1, 2011. (Accepted for presentation).

#### **Book Reviews:**

1. J.K. Steehler, Review of "Advances in Nonlinear Spectroscopy", edited by R.J.H. Clark and R.E. Hester. *Journal of the American Chemical Society* **111**, 5018 (1989).
2. J.K. Steehler, Review of "Chemometrics: a textbook", by D.L. Massart et.al. *Spectroscopy* **5**, 56 (1990). Reprinted in *Spectroscopy International* **3**, 45 (1991).
3. J.K. Steehler, Review of "What Do You Care What Other People Think?", by Richard P. Feynman. *Roanoke Times & World News*, Nov. 19, 1989, p. F4.
4. J.K. Steehler, Review of "Analytical Applications of Spectroscopy", edited by C.S. Creaser and A.M.C. Davies. *Journal of the American Chemical Society* **111**, 9139 (1989).
5. J.K. Steehler, Review of "Laser Microanalysis", by L. Moenke-Blankenburg. *Journal of the American Chemical Society* **112**, 5898 (1990).
6. J.K. Steehler, Review of "Laser Techniques in Luminescence Spectroscopy", edited by T. Vo-Dinh and D. Eastwood. *Spectroscopy* **7**, 51 (1992).
7. J.K. Steehler, Reviews of "Chemistry: The Central Science, 7<sup>th</sup> Ed.", by T.L. Brown, H. E. LeMay, Jr., and B.E. Bursten and of "Chemistry & Chemical Reactivity, 3<sup>rd</sup> Ed." by J.C. Kotz and P. Treichel, Jr. *Journal of Chemical Education* **74**, 378-379 (1997).
8. E. Walsh, J. Kovac, J. Steehler, and H. Harris, "Summer Reading Suggestions", *Journal of Chemical Education* **74**, 748-749 (1997).
9. J.K. Steehler, Review of "The Hidden Curriculum: Faculty-Made Tests in Science" (Parts 1 and 2), by S. Tobias and J. Raphael. *Journal of Chemical Education* **75**, 36-37 (1998).
10. J.K. Steehler, Review of "Four Centuries of Clinical Chemistry", by L. Rosenfeld. *Journal of Chemical Education* **77**, 565 (2000).
11. J.K. Steehler, Review of "Analytical Instrumentation - Performance Characteristics and Quality", by G. Currell. *Journal of Chemical Education* **78**, 34-35 (2001).

12. J.K. Steehler, Review of "Computers in Chemistry", by P. Biggs. *Journal of Chemical Education* **78**, 1028 (2001).
13. J.K. Steehler, Review of "Chemistry: The Molecular Science" by J.W. Moore, C.L. Stanitski, and P.C. Jurs. *Journal of Chemical Education*, **78**, 1598-1599 (2001).
14. J.K. Steehler, Review of "Chemistry CD" by B.C. Sanctuary, *Journal of Chemical Education*, **79**, 166 (2002).
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26. J.K. Steehler, Review of "Introduction to Mass Spectrometry: Instrumentation, Applications, and Strategies for Data Interpretation, 4<sup>th</sup> Ed." by J. Throck Watson and O. David Sparkman, *Journal of Chemical Education*, **86**, 810 (2009).
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Listing of undergraduate research projects supervised by Jack Steehler

<u>Student</u>	<u>Year</u>	<u>Project</u>
Brooks Pate	1986-87	"Molecular Orientation Determination using Doubly Resonant Sum Frequency Generation"
Frank Gordon	1987	"Photothermal Spectroscopy"
Kelly Perdue*	1987	"Determination of the Detection Limit for Laser Induced Fluorescence"
Frank Gordon	1988	"SHG Studies of Dyes on Surfaces"
Melissa Erwin	1989	"Water Composition Analysis of the Upper Roanoke River Basin"
Sharon Lau	1989-90	"Room Temperature Luminescence"
David Michie	1990	"Light Sources for Mixture Analysis Using Room Temperature Luminescence"
Cary Gentry	1990	"Mixture Analyses of Anthracene and Drug Derivatives Using Room Temperature Luminescence"
Don Treacy	1992	"Analysis of Organics by Means of Gas Chromatograph / Mass Spectrometer"
Chris Rhodes	1992	"Mixture Resolution via Differences in Phosphorescence Lifetimes"
Bill Lyon	1993	"Design, Construction, and Optimization of a Photothermal Spectrometer"
Jeannette Polkinghorne	1993	"Identification of Semi-Volatile Organics in Surface Water Near Roanoke Valley Landfills by GC/MS Analysis"
Bill Lyon	1994	"Photothermal Spectroscopy Using a Low Power Light Source"
Jeannette Polkinghorne	1994	"QuickBasic and Visual Basic Programming for Interfacing"
Mike Leonard	1997	"Two Dimensional Zone Refining of Monolayer Adsorbates on Surfaces"
Kera Schneider	1997	"Two Dimensional Zone Refining of Monolayer Adsorbates on Surfaces"
Chelsea Coffey	1997	"Pesticide Residue Analysis of Fish from Mason Creek"
Daniel Lineberry, II	1997	"Thermal Annealing of Thiol Monolayers on Gold Substrates"
Heather Turner	1998	"Active Learning in a Chemistry Classroom"
Daniel Lineberry, II	1998-99	"Thermal Annealing of Mixed Monolayers on Gold Substrates"
Jennifer Runyon	1999	"Trace Metals in the Roanoke River Watershed"
Perry Taylor, II	1999	"Biosensors"
Susan L. Doyle	2000	"Fiber Optic Biosensors"
S. Caroline Kirby	2000	"Polyacrylamide Based Fiber Optic Biosensors"
Stephanie A. Kenny	2000-01	"Fiber Optic Biosensors Utilizing Antibodies"
Susan L. Doyle	2000	"Investigation of Noise and Background Problems with Fiber Optic Biosensors"
Stacy Wood	2002	"Fluorescent Probes of Membrane Potentials in Yeast"
Amandaa Bostick	2003	"Development of Instructional Fluorescence Experiments"

Alissa Gadpaille	2005	“Initial Experiments Using Surface Plasmon Resonance to Monitor Thiol Deposition and Use of Raman to Characterize Types of Calcium Carbonate”
Beth Tucker	2005	“Developing Surface Plasmon Resonance Spectroscopy Instrumentation to Monitor Substrate Deposition”
Kelly Fletcher	2005-06	“Optimization of Experimental Factors in Surface Plasmon Resonance Spectroscopy”
Sara Woody	2006	“Raman Spectroscopy of Urinary Calculi”
Ashleigh Huggard	2007	“Chemical Analyses of Soil”
Nick Kuchenbuch	2007	“Surface Plasmon Resonance Studies of Mineral Layers”
Kelsey Sloan	2009	“Analysis of Perfluorinated Organic Compounds (PFOC’s)”
Heather Anthony	2009-11	“Analysis of Assessment Data for NSF GC/MS Project”
Heather Anthony	2010	“Leaching of Bisphenol A from Plastics”
Caroline Hunter	2010-11	“Analysis of Non-Majors Assessment Data for NSF GC/MS Project”