

Mark F. Vitha, Ph.D.

Office Address

Department of Chemistry
Drake University
2507 University Ave.
Des Moines, IA 50311
mark.vitha@drake.edu

Work Experience

- *Professor*, Drake University (2012-present).
- *Research Fellow*, Project MUSE, Indianapolis Museum of Art at Newfields (June – Aug., 2008)
- *Associate Professor*, Drake University (2004-2012).
- *Assistant Professor*, Drake University (1998-2004).
- *Assistant Professor*, University of Minnesota-Duluth (1997-1998).
- *Laboratory Instructor*, University of St. Thomas (1995).
- *Head Analytical Chemistry Division Teaching Assistant*, University of Minnesota (1993-1995).
- *Research Technician*, Ecolab Incorporated (1992).

Education

- University of Minnesota, Minneapolis, Minnesota, Doctor of Philosophy, Analytical Chemistry (1992-1997).
- University of St. Thomas, St. Paul, Minnesota, Bachelor of Arts in Chemistry (1988-1992).

Editorships

- Series Editor, *The Chemical Analysis Series*, John Wiley and Sons (2010-2020).
- Editor of on-line chromatography collection, *Analytical Sciences Digital Library* (2002-2008).

Courses Taught

- General Chemistry I and II.
- Quantitative Analysis.
- Instrumental Analysis.
- Characters in Science (Honors).
- Paths to Knowledge (Honors).
- Art and Chemistry (Artistic AOI)

Awards and Honors

- Windsor Professor of Science, Drake University (2011-present).
- Ronald D. Troyer Research Fellowship, Drake University (2010-2011).
- Madelyn M. Levitt Teacher of the Year, Drake University (2003).
- Honors Program Teacher of the Year, Drake University (2003).
- Drake University College of Arts and Sciences Teacher of the Year (2020).
- Drake University non-College of Pharmacy and Health Sciences Teacher of the Year (2018, 2020, 2021).
- Nominated for Madelyn M. Levitt Teacher of the Year Award (2009).
- Nominated for Madelyn M. Levitt Mentor of the Year Award (2003, 2008, 2011, 2012, 2013).
- Nominated for Drake University College of Arts and Sciences Teacher of the Year Award (2003, 2018).
- *Journal of Chromatography* Top Referees Award (2007, 2008).
- American Chemical Society Division of Analytical Chemistry Full-Year Fellowship (1997).
- University of Minnesota Edward Leete, Boehringer-Ingelheim Graduate Fellowship in Chemistry (1996).
- University of Minnesota Presidential Student Leadership and Service Award (1995).
- American Chemical Society Analytical Chemistry Award, University of St. Thomas (1991).

University Committees and Service

- Chair, College of Arts and Sciences Council Curriculum Committee (2019-2020).
- Arts and Sciences Promotion and Tenure Committee (2015-2016, 2020-2021).
- Chair, Provost Search Committee (2011).
- Chair, College of Arts and Sciences Curriculum Committee (2019-2020).
- Chair, Student Evaluation Committee for College of Pharmacy and Health Science review of Dr. Geoff Wall (2010).
- Chair, College of Arts and Sciences Dean Evaluation Committee (2020-2021)
- Drake Faculty Senate Executive Committee (2009-2010, 2018-2019).
- University Hidden Labor Committee (2020-2021)
- University Admissions Committee (2015-2017).
- Chair, ad hoc Senate Executive Committee related to the role of UCC (2009).
- Drake University Academic Dishonesty Hearing Panel (2009-2010).
- College of Arts and Sciences Dean's Search Committee (2006-2007, 2008-2009, 2017-2018).
- Drake Faculty Senate (2002-2004, 2006-2010, 2011-2015, 2017-2019).
- Higher Learning Commission Academy for the Assessment of Student Learning (2006-2007).
- Drake Curriculum Analysis and Planning Committee (2006-2007).
- Drake's Accreditation Student Learning Committee (2004-2005, Vice-Chair 2006-2007).
- President's Advisory Committee (2004-2005).
- Information Resource Policies and Issues (2002-2003).
- Institutional Priorities Review Committee (2002).
- Human Subjects Committee (2001-2002).
- College of Arts and Sciences Council (2000-2005, 2007, 2010-2011, 2018-present).
- Barry M. Goldwater Science Scholarship Campus Coordinator (2001-2005).
- College of Arts and Sciences Dean's Cabinet (2001-2002, 2004-2005, 2006-2008).
- National Alumni Scholarship Interviews (2000-2004).
- University Core Curriculum Subcommittee of the General Education Committee (2000-2002).
- First Year Seminar University Committee (1998-1999).

Professional Committees and Service

- ACS Division of Analytical Chemistry Long Range Planning Program Planning Committee (2018-present).
- ACS Division of Analytical Chemistry Education Committee (2003-present).
- Member of ACS Instrumental Analysis Exam Writing Committee (2015-2017).
- Reviewer for National Science Foundation grants (2003, 2005, 2011, 2012, 2013).
- Reviewer for the *Journal of Chromatography* (1998 – present).
- Reviewer for the *Journal of Chemical Education* (1998 – present).
- Reviewer for the Analytical Sciences Digital Library (2000 – 2006).

Funded Grants

1. Iowa Space Grant Consortium NASA Award, Mark F. Vitha, *Effects of Temperature on the Spectroscopic Shifts of Organic Molecules Dissolved in Water*, 02/99-12/99, \$10,000.00.
2. Pittsburgh Conference on Analytical Chemistry: Promoting Excellence in Science Education, *Incorporating Polarimetry into the Undergraduate Curriculum*, Mark F. Vitha and Colin C. Cairns, 3/99-2/00, \$6,000.00.
3. Drake University Faculty Research Grant, Mark F. Vitha, *A Systematic Study of the Effect of Temperature on the Properties of Water*, 06/99-5/00, \$3000.00.

4. American Chemical Society Petroleum Research Fund Grant, Mark F. Vitha, *The Development and Application of New Solute Parameters for Use in Phase Transfer Linear Solvation Energy Relationships*, 05/99-8/01, \$25,000.00.
5. Minnesota Chromatography Forum Undergraduate Research Award, *A Linear Solvation Energy Relationship of Amphiphilic Copolymers as Separation Enhancers in Capillary Electrophoresis*, Mark F. Vitha, Christopher Field*, 5/01-8/01, \$3,500.00.
6. National Science Foundation Course Curriculum and Laboratory Improvement Grant, Mark F. Vitha, LaRhee L. Henderson, Nita K. Pandit, *An Interdisciplinary Approach to Instrumental Analysis Involving Biochemical, Pharmaceutical, and Biological Samples*, 01/00-12/01, \$46,000.00.
7. Research Corporation Cottrell College Science Award, *The Measurement and Analysis of Chemically Distinct Solute Parameters for Use in Linear Solvation Energy Relationships*, Mark F. Vitha, 6/00-5/02, \$31,700.00.
8. National Science Foundation Research Site for Educators in Chemistry – University of Minnesota Site, *Molecular Simulations of Chromatographic Partition Processes*, 01/02-01/03, \$9,300.00.
9. National Science Foundation Research Site for Educators in Chemistry – University of Minnesota Site, *Exchange Visit of John Stubbs to Teach a Junior/Senior-level Class in Computational Chemistry at Drake University*, 01/03-01/04, \$12,075.00.
10. National Science Foundation Course Curriculum and Laboratory Improvement Grant, Maria Del Valle Bohorquez, Mark F. Vitha, Nita K. Pandit, LaRhee Henderson, *Interdisciplinary Incorporation of Fluorescence Spectroscopy into the Upper-Level Undergraduate Laboratories*, 06/03-05/05, \$79,221.00.
11. American Chemical Society Petroleum Research Fund Grant, Mark F. Vitha, *Experimental and Computational Studies of the Photochemistry of Fluorescent Dyes*, 07/05-6/06, \$26,321.00.
12. American Chemical Society Petroleum Research Fund Grant, Mark F. Vitha, *Fundamental Studies of the Solvatochromism of Hemicyanine Dyes and Their Application to Characterize Micelles Used to Enhance Oil Recovery*, 01/08 – 08/11, \$63,000.00.
13. American Chemical Society Project SEED grant, Mark F. Vitha, *Fundamental Studies of the Solvatochromism of Hemicyanine Dyes and Their Application to Characterize Micelles Used to Enhance Oil Recovery*, 05/08 – 08/08, \$5,000.00 (award to support two economically disadvantaged high school students to participate in a research internship in my laboratory).
14. Drake University Research Grant, *The Interface in Analytical Chemistry*, 02/09-05/09, \$1,500.00
15. American Chemical Society Project SEED grant, Mark F. Vitha, *Fundamental Studies of the Solvatochromism of Hemicyanine Dyes and Their Application to Characterize Micelles Used to Enhance Oil Recovery*, 05/09 – 08/09, \$6,100.00 (award to support two economically disadvantaged high school students to participate in a research internship in my laboratory).
16. Drake University Research Grant, Timothy Urness and Mark F. Vitha, *3D Visualization for Evaluating Chemical Separation Systems*, 01/10 – 05/10, \$700.00.
17. American Chemical Society Project SEED grant, Mark F. Vitha, *Using Linear Solvation Energy Relationships to Study the Solvatochromism of Organic Dyes*, 05/10 – 08/10, \$5,600.00 (award to support two economically disadvantaged high school students to participate in a research internship in my laboratory).
18. Pittsburgh Conference Memorial National College Grants Program, Mark F. Vitha, *Using NMR in General Chemistry Labs to Enhance Our Emphasis on Molecular Structure*, 03/13 – 04/14, \$10,000.

Books

1. *Interfaces and Interphases in Analytical Chemistry*, Robin S. Helburn and Mark F. Vitha, Eds., American Chemical Society, 2011.
2. *High Throughput Analysis for Food Safety*, Perry G. Wang, Mark F. Vitha, and Jack F. Kay, Eds., John Wiley and Sons, Inc., 2014.
3. *Chromatography: Principles and Instrumentation*, Mark F. Vitha, John Wiley and Sons, Inc., 2016.
4. *Spectroscopy: Principles and Instrumentation*, Mark F. Vitha, John Wiley and Sons, Inc., 2018.

Book Chapters

1. *Defining the Micelle/Water Interface Using Computational and Experimental Results*, Mark F. Vitha, in *Interfaces and Interphases in Analytical Chemistry*, Robin S. Helburn and Mark F. Vitha, Eds., American Chemical Society, 2011.
2. *Characterizing the Micelle/Water and Vesicle/Water Interface Using Solvatochromism and Linear Solvation Energy Relationships*, Mark F. Vitha, in *Interfaces and Interphases in Analytical Chemistry*, Robin S. Helburn and Mark F. Vitha, Eds., American Chemical Society, 2011.

Publications

1. *A Study of Water-Sodium Dodecyl Sulfate Micellar Solubilization Thermodynamics for Several Solute Homolog Series by Headspace Gas Chromatography*, Mark F. Vitha, Andrew J. Dallas, and Peter W. Carr, *J. Phys. Chem.* 1996, 100, 5050-5062.
2. *Study of the Polarity and Hydrogen Bond Ability of Sodium Dodecyl Sulfate Micelles by the Kamlet-Taft Solvatochromic Comparison Method*, Mark F. Vitha, Jeffrey D. Weckwerth, Kris Odland,* Valdemia Dema,* and Peter W. Carr, *J. Phys. Chem.* 1996, 100, 18823-18828.
3. *An Adaptation of Kubista's Method for Spectral Curve Deconvolution*, Mark F. Vitha, Jeff D. Weckwerth, Kris Odland,* Valdemia Dema,* and Peter W. Carr, *Anal. Chem.* 1997, 69, 2268-2274.
4. *A Laboratory Exercise in Statistical Analysis of Data*, Mark F. Vitha and Peter W. Carr, *J. Chem. Educ.* 1997, 74, 998-1000.
5. *A Comparison of Water-Sodium Dodecyl Sulfate Phase Transfer Linear Solvation Energy Relationships and Databases*, Mark F. Vitha, Andrew J. Dallas, and Peter W. Carr, *J. Colloid Interface Sci.* 1997, 187, 179-183.
6. *Study of the Polarity and Hydrogen Bond Ability of Dodecyltrimethylammonium Bromide Micelles by the Kamlet-Taft Solvatochromic Comparison Method*, Mark F. Vitha and Peter W. Carr, *J. Phys. Chem. B*, 1998, 102, 1888-1895.
7. *An LSER Study of the Effects of Surfactant Chain Length on the Chemical Interactions Governing Retention and Selectivity in Micellar Electrokinetic Capillary Chromatography Using Sodium Alkyl Sulfate Elution Buffers*, Mark F. Vitha and Peter W. Carr, *Sep. Sci. and Tech.* 1998, 33, 2075-2100.
8. *A Comparison of Gas-Hexadecane and Gas-Apolane Partition Coefficients*, Jeff D. Weckwerth, Mark F. Vitha, Asad Nasehzadeh and Peter W. Carr, *Anal. Chem.* 1998, 70, 3712-3716.
9. *Linear Solvation Energy Relationship Study of Retention in Micellar Liquid Chromatography on a C-18 Column Using Sodium Dodecylsulphate and Cetyltrimethylammonium Bromide Mobile Phases with Alcohol Modifiers*, Mark F. Vitha, M.A. Garcia, and M.L. Marina, *J. Liq. Chromatogr. and Related Tech.* 2000, 6, 873-895.
10. *The Chemical Meaning of the Standard Free Energy of Transfer: Use of van der Waals' Equation of State to Unravel the Interplay Between Free Volume, Volume Entropy, and the Role of Standard States*, Mark F. Vitha and Peter W. Carr, *J. Phys. Chem. B*, 2000, 104, 5343-5348.
11. *Determining the Percent Water in Organic Solvents Using the Zwitterionic Dimroth-Reichardt's Betaine ET-30 Dye -- An Industrial Application of a Previously Published Laboratory Experiment*, Mark F. Vitha, *J. Chem. Educ.* 2001, 78, 370-372.
12. *Study of Retention in Micellar Liquid Chromatography on a C-8 Column Using Linear Solvation Energy Relationships*, M.A. Garcia, Mark F. Vitha, Joshua Sandquist*, Kali Mulville*, and M.L. Marina, *J. Chromatogr. A*, 2001, 918, 1-11.
13. *The Development and Determination of Chemically Distinct Solute Parameters for use in Linear Solvation Energy Relationships*, Jeff D. Weckwerth, Mark F. Vitha, and Peter W. Carr, *Fluid Phase Equilibria*, 2001, 183/184, 143-157.
14. *Mechanistic Implications of the Equality of Compensation Temperatures in Chromatography*, Ravi Ranatunga, Mark F. Vitha, and Peter W. Carr, *J. Chromatogr. A*, 2002, 946, 47-49.
15. *The Chemical Meaning of the Standard Free Energy of Transfer. II. Use of van der Waals' Equation of State to Evaluate the Enthalpic and Entropic Contributions of Free Volume and Attractive Forces*

- to *Chemical Potentials*, Mark F. Vitha, and Peter W. Carr, *Ind. Eng. Chem. Res.*, **2003**, *42*, 6290-6293.
16. *Solvent Strength Parameter and Retention Factor in Pure Water using UNIFAC-Predicted Activity Coefficients*, Jung Hag Park, Yun Jung Jung, Mark F. Vitha, and Peter W. Carr, *Ind. Eng. Chem. Res.* 2003, *42*, 6320-6330.
 17. *The Appropriate Use of Blanks, Standards, and Controls in Chemical Measurements*, Mark F. Vitha, Peter W. Carr, and Gary A. Mabbott, *J. Chem. Educ.* 2005, *82*, 901-903.
 18. *Cholesterol Effects on the Dipole Potential of Lipid Membranes*, Thomas Starke-Peterkovic, Nigel Turner, Mark F. Vitha, Mark P. Waller, David E. Hibbs, and Ronald J. Clarke, *Biophys. J.* 2006, *90*, 4060-4070.
 19. *The Chemical Interpretation and Practice of Linear Solvation Energy Relationships in Chromatography*, Mark F. Vitha and Peter W. Carr, *J. Chromatogr. A*, 2006, *1126*, 143-194.
 20. *Comparison of Excitation and Emission Ratiometric Fluorescence Methods for Quantifying the Membrane Dipole Potential*, Mark F. Vitha and Ronald J. Clarke, *Biochim. Biophys. Acta - Biomembranes*, 2007, *1768*, 107-114.
 21. *Oriental Polarizability of Lipid Membrane Surfaces*, Gaëlle Le Goff*, Mark F. Vitha, and Ronald J. Clarke, *Biochim. Biophys. Acta - Biomembranes*, 2007, *1768*, 562-570.
 22. *Paths to Knowledge as a Foundational Course in an Honors Program*, Mark F. Vitha, Arthur Sanders, Colin Cairns, David Skidmore, Clive Elliott, and William Lewis, *Honors in Practice*, 2009, *5*, 135-152.
 23. *System Selectivity Cube: A 3D Visualization Tool for Comparing the Selectivity of Gas Chromatography, Supercritical-Fluid Chromatography, High-Pressure Liquid Chromatography, and Micellar Electrokinetic Capillary Chromatography Systems*, Andrew R. Johnson*, Mark F. Vitha, Timothy Urness, and Thomas Marrinan*, *Anal. Chem.* 2010, *82*, 6251-6258.
 24. *Chromatographic Selectivity Triangles; A Review*, (invited) Andrew R. Johnson* and Mark F. Vitha, *J. Chromatogr. A*, 2011, *1218*, 556-586.
 25. *Multivariate Visualization of Chromatographic Systems*, Timothy Urness, Thomas Marrinan*, Andrew R. Johnson*, Mark F. Vitha, Visualization and Data Analysis 2011, *Proceedings of SPIE-IS&T Electronic Imaging*, SPIE Vol. 7868, 2011.
 26. *Identifying orthogonal and similar RPLC stationary phases using the system selectivity cube and the hydrophobic subtraction model*, Andrew R. Johnson*, Carrie M. Johnson, Dwight R. Stoll, Mark F. Vitha, *J. Chromatogr. A*, 2012, *1249*, 62-82.
 27. *An Advanced, Interactive High-Performance Liquid Chromatography Simulator and Instructor Resources*, Paul Boswell, Dwight Stoll, Peter Carr, Megan Nagel, Mark Vitha, and Gary Mabbott, *J. Chem. Educ.* 2013, *90*, 198-202.
 28. *"Retention Projection" Enables Reliable Use of Shared Gas Chromatographic Retention Data Across Laboratories, Instruments, and Methods*, Brian B. Barnes, Michael B. Wilson, Peter W. Carr, Mark F. Vitha, Corey D. Broeckling, Adam L. Heuberger, Jessica Prenni, Gregory C. Janis, Henry Corcoran, Nicholas H. Snow, Shilpi Chopra, Ramkumar Dhandapani, Amanda Tawfall, Lloyd W. Sumner, and Paul G. Boswell, *Anal. Chem.* 2013, *85*, 11650-11657.
 29. *Everything Old is New Again: Science Unravels a Fake Moroccan Embroidery*, Amanda Holden, Gregory D. Smith, Victor J. Chen, and Mark F. Vitha, *Proceedings of the North American Textile Conservation Conference, Lessons Learned: Textile Conservation - Then and Now*, Ed. H. Sutcliffe and J. Thompson; New York, NATCC, 2019, 253-267.
 30. *Short Gas Chromatography Experiment that Richly Connects Thermodynamics to the Intermolecular Interaction that Govern Solute Retention*, Mark F. Vitha, *J. Chem. Educ.* 2022, *99*, 1923-1930.
 31. *Mindfulness Pedagogy in the General Chemistry Classroom*, Mark F. Vitha, *J. Chem. Educ.* 2022, *99*, 2441-2445.

Invited Talks

1. Fourteenth Symposium on Thermophysical Properties, *National Institute of Standards and Technology, Boulder, Colorado*, June 2000 “The Development and Determination of Chemically Distinct Solute Parameters Using Kovats Retention Indices.” Mark F. Vitha, Jeff D. Weckwerth.
2. Eastern Analytical Symposium, *Atlantic City, New Jersey*, October, 2000 “A New Set of Chemically Distinct Solute Parameters for Use in LSERs.” Sarah M. Ronnebaum*, Christopher J. Fennell*, Josh Sandquist*, Kali Mulville*, Jeff D. Weckwerth, and Mark F. Vitha.
3. Undergraduate Research Award Poster Presentation at the Eastern Analytical Symposium, *Atlantic City, New Jersey*, October 2000 “Regression-Based Parameterization of Molecular Interactions via Gas Chromatography for use in Linear Solvation Energy Relationships.” Sarah M. Ronnebaum*, Christopher J. Fennell*, Jeff D. Weckwerth, and Mark F. Vitha. Christopher Fennell was the award recipient.
4. Federation of Analytical Chemistry and Spectroscopy Societies, *Detroit, Michigan*, October 2001, Special Session: New Investigators in Analytical Science: Innovative Leaders in the New Millennium “Chemically Distinct Solute Parameters for Linear Solvation Energy Relationships.” Mark F. Vitha, Joshua Sandquist*, Kali Mulville*, Sarah Ronnebaum*, Benjamin Richards*, Christopher Fennell*, and Lisa Stalheim*.
5. Chemistry Seminar at Truman State University, *Kirksville, Missouri*, March, 2003, “Topics You Already Know About Tied Together to Study Equilibria and Chromatography.” Mark F. Vitha.
6. Chemistry Seminar at Gustavus Adolphus College, *St. Peter, Minnesota*, April, 2003, “Characters in Science.” Mark F. Vitha.
7. Keynote Speaker, Upper Midwest Honors Conference, *Drake University, Des Moines, Iowa*, March, 2005, “1905 ± 25: The Mysteries and Uncertainties in Art and Science at the Turn of the Century.” Mark F. Vitha
8. American Chemical Society Northeast Regional Meeting, University of Vermont, *Burlington, Vermont*, July, 2008, “Chemistry at the Interface – Studying Chromatography, Micelles, and Lipid Membranes Using Linear Solvation Energy Relationships.” Mark F. Vitha, Ronald Clarke, and Peter W. Carr.
9. American Chemical Society National Meeting, *Washington, D.C.*, August, 2009, “Characterization of Separation Media Using Spectroscopic Indicators.” Mark F. Vitha, Ryan T. Johnson*, Samuel Nkrumak-Agyeefi*, Zoila Sarmiento[†], Carolina Chavez[†], Rachel M. Barkley*, Carly E. Hurley*, and Sarah Wildgen*.
10. Canadian Chemistry Conference, *Toronto*, May, 2017, “Threshold Concepts in Analytical Chemistry.” Mark F. Vitha.

Contributed Presentations

1. Minnesota Analytical Professors Meeting, *Bethel College, Roseville, Minnesota*, April, 1995 “An Introductory Statistics Experiment for Undergraduate Laboratories.” Mark F. Vitha and Peter W. Carr.
2. Great Lakes Regional Meeting of the American Chemical Society, *University of Wisconsin, LaCrosse*, June, 1995 “Measuring Water-Micelle Partition Coefficients Using Headspace Gas Chromatography.” Mark F. Vitha and Peter W. Carr.
3. The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, *McCormick Place, Chicago, Illinois*, March, 1996 “Measuring and Understanding Solute Partitioning in Sodium Dodecylsulfate Micellar Systems.” Mark F. Vitha, Andrew J. Dallas, and Peter W. Carr.
4. The Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, *McCormick Place, Chicago, Illinois*, March, 1996 “Solvatochromic Approach to the Study of Solute-Solvent Interactions in Chromatography.” Peter W. Carr, Jeffrey D. Weckwerth, and Mark F. Vitha.
5. Winchell Undergraduate Symposium, *Hamline University, St. Paul, Minnesota*, April 1996 “Solvatochromic Study of Surfactant Micelles.” Valdemia Dema,* Mark F. Vitha, and Peter W. Carr.

6. The Gordon Conference on Analytical Chemistry, *New England College, New Hampshire*, August, 1997 “Thermodynamic and Spectroscopic Characterization of Solute/Micelle Interactions.” (Poster) Mark F. Vitha and Peter W. Carr.
7. American Chemical Society Meeting, *Boston*, August, 1998 “A Unified Approach to Chromatographic Retention in GC, SFC, LC, and MEKC Based on Linear Solvation Energy Relationships.” Peter W. Carr, Mark F. Vitha, Jeffrey D. Weckwerth, Laychoo Tan, and Jianjun Li.
8. HPLC ‘99, *Granada, Spain*, May, 1999 “Linear Solvation Energy Relationship Study of Retention in Micellar Liquid Chromatography on a C-18 Column Using Sodium Dodecylsulphate and Cetyltrimethylammonium Bromide Mobile Phases with Alcohol Modifiers.” (Poster) M.A. García, C. García-Ruiz, Mark F. Vitha, Peter W. Carr, and M.L. Marina.
9. Midwest University Analytical Chemistry Conference, *Illinois State University, Normal, Illinois*, October, 1999 “Using Solvatochromism to Teach Spectroscopy.” Mark F. Vitha.
10. Iowa Space Grant Consortium Conference, *University of Northern Iowa, Cedar Falls, Iowa*, November, 1999 “Effects of Temperature on the Spectroscopic Shifts of Organic Molecules Dissolved in Water.” Mark F. Vitha, Greta A. Anderson, Seth R. Bauer.
11. The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, *Morial Convention Center, New Orleans, Louisiana*, March, 2000 “Measuring Solute Parameters Using Kovats Retention Indices.” Mark F. Vitha, Jeff D. Weckwerth, and Peter W. Carr.
12. XXIX Scientific Meeting of the Group of Chromatography and Related Techniques, *Universidad de Alcalá, Alcalá de Henares, Spain*, July, 2000 “Study of the Retention in Micellar Liquid Chromatography on a C-8 Column Using Linear Solvation Energy Relationships.” M.A. García, Mark F. Vitha, Christopher Fennell*, Sarah Ronnebaum*, and M.L. Marina.
13. Midwest University Analytical Chemistry Conference, *University of Wisconsin, Madison*, October, 2000 “Capillary Electrophoresis in the Undergraduate Curriculum.” Mark F. Vitha, LaRhee Henderson, and Charisse Busing.
14. American Chemical Society, *McCormick Place, Chicago*, August, 2001 “Capillary Electrophoresis in the Undergraduate Curriculum in Chemistry, Biochemistry, and Pharmaceutical Science.” Mark F. Vitha, Nita K. Pandit, and LaRhee L. Henderson.
15. Federation of Analytical Chemistry and Spectroscopy Societies, *Detroit, Michigan*, October, 2001: “Incorporating Capillary Electrophoresis into the Undergraduate Analytical Chemistry Curriculum Through Courses that Emphasize Pharmaceutical and Biochemical Applications.” Mark F. Vitha, LaRhee L. Henderson, and Nita K. Pandit.
16. The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, *Morial Convention Center, New Orleans, Louisiana*, March, 2001 “Mechanistic Implications of the Equality of Compensation Temperatures in Chromatography.” Mark F. Vitha, Ravi Ranatunga, and Peter W. Carr.
17. The Minnesota Chromatography Forum, *Earl Browne Heritage Center, Minneapolis, Minnesota*, May, 2002 “Development of a Linear Solvation Energy Relationship Using Block Co-polymers as Separation Enhancers in Capillary Electrophoresis.” Christopher R. Field* and Mark F. Vitha.
18. Midwest University Analytical Chemistry Conference, *University of Pittsburgh, Pittsburgh, Pennsylvania*, October, 2002 “Characters in Science, or, ‘I’m Human Enough to Tell You to Go to Hell’.” Mark F. Vitha.
19. Midwest University Analytical Chemistry Conference, *Indiana University Purdue University Indianapolis, Indianapolis, Indiana*, October, 2003 “The Analytical Sciences Digital Library: What It Can Do For You and What You Can Do For It.” Mark F. Vitha
20. The Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, *McCormick Place, Chicago, Illinois*, March, 2004 “The Effects of Free Volume, Volume Entropy, and Standard States on the Standard Free Energy of Transfer in Chromatography.” Peter W. Carr and Mark F. Vitha.

21. American Chemical Society National Meeting, *Anaheim, California*, March, 2004 “Adsorption of Water and Alcohols on Crystalline and Amorphous Silica Surfaces: A Computational Study.” Christopher R. Field*, John M. Stubbs, Mark F. **Vitha**, J. Ilja Siepmann, and Mark R. Schure.
22. The Collaboration for the Advancement of College Teaching and Learning”, Minneapolis, Minnesota, November, 2004, “Creativity in a Straightjacket – a Roundtable Discussion.” Angela Battle and Mark F. Vitha.
23. Chemistry Seminar Series, *University of Sydney, Australia*, October, 2005, “Spectroscopic and Thermodynamic Investigations of the Intermolecular Interactions Governing Retention in Chromatography.” Mark F. Vitha.
24. Australian Society for Biophysics, *University of Sydney, Australia*, December, 2006, “Membrane Orientational Polarizability: A Mechanism of Lipid-Ion Pump Interaction?” Gaëlle Le Goff*, Mark F. Vitha, and Ronald J. Clarke.
25. The Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, *McCormick Place, Chicago, Illinois*, March, 2007, “A Spectroscopic Investigation of the Orientational Polarizability and Fluidity/Rigidity of Lipid Membranes” Mark F. Vitha, Gaëlle LeGoff, and Ronald J. Clarke.
26. Drake Undergraduate Science Collaborative Institute Colloquium Series, *Drake University, Des Moines, Iowa*, April 2007, “Koalas, Kookaburras, Kangaroos, and Chemistry Down Under: Fluorescent Studies of the Effect of Cholesterol on Lipid Vesicles” Mark F. Vitha and Ronald J. Clarke.
27. Midwest University Analytical Chemistry Conference, *University of Illinois, Urbana, Illinois*, November, 2007, “Measuring the Dipole Potential and Fluidity/Rigidity of Lipid Bilayers Using Fluorescent Dyes.” Mark F. Vitha.
28. Midwest University Analytical Chemistry Conference, *University of Indiana, Bloomington, Indiana*, November, 2008, “Involving High School Students in Research via Project SEED.” Mark F. Vitha.
29. The Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, *McCormick Place, Chicago, Illinois*, March, 2009, “A Linear Solvation Energy Relationship Study of Fluorescent Membrane Probes.” Mark F. Vitha, Minh Nguyen*, Mai Tu*, Alicia Dickinson*, Ryan Johnson*, Samuel Nkrumah-Agyeefi*, Carolina Chavez[†], Zoila Sarmiento[†].
30. American Chemical Society Midwest Regional Meeting, *University of Iowa, Iowa City, Iowa*, October, 2009, “Spectroscopic Characterization of Solvatochromic Dyes.” Mark F. Vitha, Ryan T. Johnson*, Samuel Nkrumah-Agyeefi*, Zoila Sarmiento[†], Carolina Chavez[†], Rachel M. Barkley*, Carly E. Hurley*, Sarah Wildgen*, and Alma Marquez*.
31. American Chemical Society Midwest Regional Meeting, *University of Iowa, Iowa City, Iowa*, October, 2009, “Three Dimensional Selectivity Visualization Model.” Andrew R. Johnson, Mark F. Vitha, Timothy Urness.
32. The Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, *McCormick Place, Chicago, Illinois*, March, 2010, “An Innovative 3-D Visualization Method for Evaluating Selectivity Differences in Separation Systems.” Mark F. Vitha, Timothy Urness, Andrew R. Johnson*.
33. American Chemical Society National Meeting, *Boston, Massachusetts*, August, 2010, “Characterization of solvatochromic shifts of dyes for use in micellar studies via linear solvation energy relationships (LSERs).” Ryan T. Johnson, Rachel M. Barkley*, Samuel Nkrumah-Agyeefi*, Hillary R. O'Brien*, Heather M. Liedl*, Carley E. Hurley*, Alma Marquez[†], Carolina Chavez[†], Zoila Sarmiento[†], Samantha Haas*, Joann Max*, Joshua Moreno[†]
34. Drake University Center for the Humanities Colloquium, *Des Moines, Iowa*, September, 2010, “The DaVitha Code: or, How I Learned to Stop Worrying and Love the Chemistry of Art.” Mark F. Vitha and Maura E. Lyons.
35. Midwest University Analytical Chemistry Conference, *Purdue University, West Lafayette, Indiana*, October, 2010, “Comparing RPLC Column Selectivity Differences Using a 3D Visualization Tool.” Mark F. Vitha and Andrew R. Johnson.

36. The Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, *Georgia World Congress Center, Atlanta, Georgia*, March, 2011, “RPLC Column Selectivity Comparisons Using the System Selectivity Cube and the Hydrophobic Subtraction Model of Column Characterization” Andrew R. Johnson*, Thomas Marrinan*, Timothy Urness, and Mark F. Vitha.
37. Eastern Analytical Symposium, *Somerset, New Jersey*, November, 2012 “www.hplcsimulator.org - A Free, Open-Source, Sophisticated HPLC Simulator for Use in all Levels of HPLC Education and Training,” Dwight Stoll, Paul Boswell, Peter Carr, Mark Vitha, Gary Mabbott, Megan Nagle.
38. American Society for Mass Spectrometry, *Minneapolis Convention Center, Minneapolis, Minnesota*, June, 2013, An Inter-Laboratory Study on a New, Extremely Accurate Retention Prediction Methodology for GC-MS, Brian Barnes, Michael Wilson, Panhia Yang, Mark Vitha, Amanda Tawfall, Lloyd Sumner, Adam Heuberger, Corey Broeckling, Jessica Prenni, Henry Corcoran, Gregory Janis; Shilpi Chopra, Nicholas Snow, Paul Boswell.
39. Midwest University Analytical Chemistry Conference, *University of Notre Dame, South Bend, Indiana*, October, 2014, “Teaching acid-base chemistry through chromatography,” Mark F. Vitha and Peter W. Carr.
40. The Gordon Conference on Visualization in the Sciences, *Bates College, Lewiston, Maine*, August, 2015, Using NMR spectrometers in general chemistry laboratories to emphasize the three-dimensional visualization of molecules,” Colin J. Cairns and Mark F. Vitha.
41. Midwest University Analytical Chemistry Conference, *University of Minnesota, Minneapolis, Minnesota*, November, 2015, “Introducing NMR into the general chemistry curriculum,” Mark F. Vitha and Colin J. Cairns.
42. Midwest University Analytical Chemistry Conference, *University of Illinois, Urbana-Champaign, Illinois*, October, 2016, “Art and Chemistry,” Mark F. Vitha and Maura E. Lyons.
43. Canadian Chemistry Conference, *Metro Toronto Convention Centre*, May, 2017, “Teaching Instrumental Techniques in an Art + Chemistry Class,” Mark F. Vitha and Maura E. Lyons.
44. Midwest University Analytical Chemistry Conference, *Michigan State University, East Lansing, Michigan*, November, 2018, “A MUACC Collaborative Effort: Identifying Threshold Concepts in Analytical Chemistry,” Mark F. Vitha.
45. Midwest University Analytical Chemistry Conference, *Indiana University Purdue University Indianapolis, Indianapolis, Indiana*, November, 2019, “Unraveling a Fake Moroccan Textile,” Mark F. Vitha, Victor Chen, Amanda Holden, Gregory Smith,

Organization and Society Memberships

- American Chemical Society
- Council of Undergraduate Research
- Midwestern Association of Chemistry Teachers in Liberal Arts Colleges
- Minnesota Chromatography Forum

* denotes undergraduate students.

† denotes high school students.