

Curriculum Vita

Kimberley A. Frederick

Personal Information

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Education

BA:	Lawrence University, Appleton, WI	1991
Ph.D.	Purdue University, W. Lafayette, IN	1996
	Advisor: Dr. Dor Ben-Amotz	

Professional Experience

Professor, Skidmore College	2012-present
Fulbright, Senior Scholar, University of Tasmania, Australia	Spring 2018
Department Chair, Chemistry, Skidmore College	2013-2016
Associate Professor, Skidmore College	2009-2012
Associate Professor, College of the Holy Cross	2003-2009
Visiting Scientist, Rensselaer Polytechnic Institute	Fall 2005
Visiting Scientist, National Institute of Standards and Technology	Spring 2006
Associate Professor, Whittier College	2003
Assistant Professor, Whittier College	1999-2003
NSF-ROA Fellow, University of Tennessee	1999, 2000
Assistant Professor, Maryville College	1996-1999

Leadership in Professional Organizations

Chair and Chair-elect, Chemistry Division, CUR	2015-present
Program Review Committee Chair, CUR	2014-2017
Education Chair, Analytical Division, ACS	2013-present
Workshop Facilitator and Coordinator "Beginning a Research Program in the Natural Sciences at a Predominantly Undergraduate Institution"	2008-present
Panelist, National Science Foundation, Chemical Measurement and Instrumentation and Division of Undergraduate Education	2006-present
Organizer and Chair, Symposium on Small-Scale Separations	2011
Editor, Journal of Chemical Education, CUR Association column	2010-2011
Workshop Facilitator "Institutionalizing Undergraduate Research"	September 2008
Council on Undergraduate Research-Councilor	2006-present
Membership Chair, ACS Analytical Division	2006-2008
Program Chair, Education Section, Federation of Analytical Chemistry and Spectroscopy Societies, Providence RI	October 2002
ACS Experiential Programs in Chemistry (EpiC) Program Expert	2002-2005

K.A. Frederick/ Leadership in Professional Organizations Continued

Project Kaleidoscope Faculty for the 21 st Century Member	2001-present
Service Learning Blueprint Task Force, American Chemical Society	2000-2001

Committee Assignments/ College Responsibilities

Faculty Coordinator, Science Facility Project	2012-2017
Leadership Team, Center for Leadership, Teaching and Learning	2015-2017
Steering Committee, Arthur Vining Davis IdeaLab Grant	2016-2017
Department Chair, Chemistry	2013-2016
Committee on Appointments, Promotions and Tenure	2015-2016
Middle States Reaccreditation, Committee on Spaces	2014-2016
Science Facilities Task Force	2012-2013
Mentor, New Faculty Learning Community	2010-2013
Civic Engagement Fellow	2012-2015
Vice President for Academic Affairs Search Committee	2012
Facilitator, Faculty Writing Group	2010-2013
Committee on Academic Freedom and Rights*	2010-2012
Committee on Intellectual Property	2012
NSF ADVANCE Grant Leadership Group, Mentoring	2009-2012
Science Working Group	2009-2011
Goldwater Scholarship Committee	2009-2012
ALANA/Minority Student Mentor	2004-2009
Community Standards Board*	2008-2009
Committee on Faculty Affairs*	2007-2009
Teacher Education Committee	2008-2009
Faculty Compensation Committee*	2006-2007
Environmental Science Steering Committee	1999-2009
Senior Capstone Curriculum Committee	2003-2005
Science Grants Facilitator	2002-2003
Dean Search Committee*	2002
Faculty Executive Council*	2001-2003
Chem Club Co-Advisor	1999-2003
Educational Policies Committee*	2001-2002
Assessment Committee	1999-2001

*Elected committee

Funding (formerly funded as K.F. Schrum)

1. Frederick, K.A. (1/18-5/18) "Development of an Automated Analysis Platform for Continuous Monitoring of Drinking Water Supplies near Hydraulic Fracturing Wells" Fulbright Senior Scholar Award, University of Tasmania.
2. Wenzel, T.A (9/16-8/19) "Collaborative Research: Moving Faculty from Experimentation with to Long-term Adoption of Engaged Student Learning in Analytical Chemistry", Senior Personnel, NSF-IUSE (DUE 1624898), \$632,070

K.A. Frederick/ Funding Continued

3. Ambos, E.A. et al (9/16-8/20) "Integrating and Scaffolding Research into Undergraduate STEM Curricula: Probing Faculty, Student, Disciplinary, and Institutional Pathways to Transformational Change", Consultant NSF-IUSE (DUE1625354)
4. Frederick, K.A. (9/15-9/16), "Implementation of the Peer-led Team Learning Supplemental Instruction Model in Foundational Chemistry in order to Improve Student Success and STEM retention, Consortium on High Achievement and Success, \$6000
5. Frederick, K.A. (1/10-6/13) "MRI-R2: From Molecules to Ecosystems: Establishment of the Skidmore Analytical Interdisciplinary Laboratory (SAIL)" co-PI, NSF-MRI (DBI 0959476), \$547,755
6. Frederick, K.A. (1/10-9/14) "Development and Implementation of an Inquiry-Based, Laboratory-Driven, General Chemistry Sequence, NSF-CCLI (DUE 0941951), \$198,224
7. Frederick, K.A. (10/06-10/11) "Studies of flow processes in microfluidic systems involving polyelectrolyte multilayers, thermoresponsive polymers and guanosine gels" Henry Dreyfus Teacher-Scholar Award, \$60,000
8. Frederick, K.A. (7/04-6/09) "Time Dependent Electroosmotic Flow Studies in Coated Capillaries", NSF-RUI (CHE-0400964), \$120,000
9. Frederick, K.A. and A. Kotze (Summer '07) Connecticut Business Industrial Association-Pfizer Fellowship \$5000
10. Frederick, K.A. (06/03-05/07) "Characterization of Electroosmotic Flow in Fused Silica Capillaries and Electrostatically Self-Assembled Polyelectrolyte Multilayers", Research Corporation (CC-6060) \$38,841
11. Frederick, K.A. (1/06-5/06) "NSF-NIST Collaboration: Deposition and Characterization of Flow in PEM Coated Microfluidic Devices", NSF (CHE-0601238) \$19,550
12. Frederick, K.A. and K.Y.Noonan (Summer '05) Connecticut Business Industrial Association-Pfizer Fellowship \$5000
13. Stoub, D and K.F. Schrum (8/02-7/03) "Integration of High Field, Multinuclear NMR Spectrometry into the Undergraduate Science Curricula at Whittier College and Two Local Community Colleges", Department of Defense Infrastructure Support Program for HBCU/MI, \$262,153.
14. Swift, C, Schrum, K, Warrick, J, and Stoub, D.G., (3/02-3/05) "Investigation of Environmental Impacts of River Reaches on Water Pollution and Bioremediation", Merck AAAS, \$60,000.
15. Schrum, K.F. (8/01-8/02) "Incorporation of Gas Chromatography-Mass Spectrometry into the Undergraduate Curriculum", Department of Defense Infrastructure Support Program for HBCU/MI, \$90,437
16. Schrum, K.F.(3/00-3/01), "Acquisition of a Flame Atomic Absorption Spectrophotometer", Pittsburgh Conference National College Grants Program, \$9,000
17. Schrum, K.F., (5/97-8/98)"Evaluation of Synchronous Luminescence and Raman Spectroscopy to Study Polycyclic Aromatic Hydrocarbons as Environmental Contaminants", Appalachian College Association Student/Faculty Grant Recipient, \$15,000

Publications (formerly published under K.F. Schrum)

1. Narum, J. K.A. Frederick and M.A. Palladino, “21st Century Spaces for 21st Century Learners: Where We Are, How We Got Here, and What Next. Scholarship and Practice of Undergraduate Research, **accepted September 2017**.
2. **Ferro, A., E. Carbone, J. Zhang, E. Marzouk, M. Villegas, A. Siegel, D. Nguyen, T. Possidente, J. Hartman, K. Polley, M. Ingram, G. Berry, T.H. Reynolds, B. Possidente, K. Frederick, S. Ives and S. Lagalwar*** “ Succinic acid treatment mitigates cerebellar mitochondrial OXPHOS dysfunction, neurodegeneration and motor learning deficits in a Purkinje-specific spinocerebellar ataxia type 1 (SCA1) mouse model PLoS One, 2017, under review
3. **Ferro, A, E. Carbone, E. Marzouk, A. Siegel, K. Frederick, S. Ives and S. Laglwar***, “Treating SCA1 Mice with Water-Soluble Compounds to Non-Specifically Boost Mitochondrial Function”, J. Visualized Experiments, **2016**,
4. **O’Connor, E., A. Siegel, S. Markiewicz,** T. Wenzel and K.A. Frederick, “Using Derivatized Cyclodextrins for Chiral Capillary Electrophoretic Separations”, manuscript in preparation.
5. K.A. Frederick, “Assessing the Impact of Lab-First Discovery General Chemistry on Student Learning and Attitudes about Science”, manuscript in preparation.
6. **S. Wang, D. Remillard, R. Ahern** and K.A. Frederick, “Fluorometric Determination of D-Lactate in Human Urine”, manuscript in preparation.
7. K.A. Frederick, "Using Forensic Science to Teach Method Development in the Undergraduate Analytical Lab", Anal Bioanal Chem **2013**, 405, 5623–5626.
8. K.A. Frederick, “The Joys and Pitfalls of Collaboration in the Research Process”, in How to Get Started in Research ed. M. Schuh, Council on Undergraduate Research, Washington, DC, **2013**, 54-57
9. K.A. Frederick, “CUR and NCUR Join Forces”, J. Chem. Ed. **2012**, 89 (2), pp 183–184
10. T. Wenzel, C. Larive and K.A. Frederick, “Role of Undergraduate Research in an Excellent and Rigorous Undergraduate Chemistry Curriculum” J. Chem. Ed, **2012**, 89, 7–9
11. D.S. Imoto and K.A. Frederick, “Incorporating Student Designed Research Projects In the Chemistry Curriculum”, J. Chem. Ed. **2011**, 88, 1069–1073
12. **K.E. Swords, P.B. Bartline, K.R. Roguski, S.A. Bashaw** and K.A. Frederick, “Assessment of Polyelectrolyte Coating Stability under Dynamic Buffer Conditions in CE” J. Sep. Science, **2011**, 34, 2427-2432.
13. **O.S. Fenton, L.A. Tonge, T.H. Moot** and K.A. Frederick, “Quantitative Analysis of Simulated Illicit Street Drug Samples using Raman Spectroscopy and Partial Least Squares Regression”, Spectroscopy Letters, **2011**, 44, 229-234.
14. K.M. Fox, C.W. Berheide, K.A. Frederick and B. Johnson, “Adapting Mentoring Programs to the Liberal Arts College Environment”, in Mentoring Strategies To Facilitate the Advancement of Women Faculty; Karukstis, K., et al.; ACS Symposium Series; American Chemical Society: Washington, DC, 2010.
15. J. Xiao, **J. Carter**, K.A. Frederick and L.B. McGown, “A Genome-Inspired DNA Ligand for Affinity Capture of Insulin and Insulin-like Growth Factor-2”, J. Sep. Science, **2009**, 32, 1654-1664.

***Bold faced type denotes undergraduate research student**

K.A. Frederick/ Publications Continued

16. **K.Y. Noonan, L.A. Tonge, O.S. Fenton**, D. Damiano and K.A. Frederick "Rapid Classification of Simulated Street Drug Mixtures using Principal Components Analysis", *Applied Spectroscopy*, **2009**, 63, 742-747.
17. **J.F. O'Grady, K.Y. Noonan, P. McDonnell, A.J. Mancuso** and K.A. Frederick, "Detecting Deviation from Pure Electroosmotic Flow in Capillary Electrophoretic Separations" *Electrophoresis*, **2007**, 28, 2385-2390
18. A.C. Connor, K.A. Frederick, E.J. Morgan and L.B. McGown, "Insulin Capture by an Insulin-Linked Polymorphic Region G-Quadruplex DNA Oligonucleotide", *J. Am. Chem. Soc.* **2006**, 128 , 4986-4991.
19. **K.Y. Noonan, M. Beshire, J. Darnell** and K.A. Frederick, "Qualitative and Quantitative Analysis of Illicit Drugs on Paper Currency Using Raman Microspectroscopy", *Appl. Spec.*, **2005**, 59 (12) 1493-1497
20. K.A. Frederick, **R. Pertaub** and **N. Wong Shi Kam**, "Identification of Individual Drug Crystals on Paper Currency Using Raman Microspectroscopy" *Spectroscopy Letters* **2004**, 37(3), 301-310.
21. J.L. Pittman, H.J. Gessner, K.A. Frederick, E.M. Raby, **J.B. Batts** and S.D. Gilman, "Experimental Studies of Electroosmotic Flow Dynamics During Sample Stacking for Capillary Electrophoresis", *Anal. Chem.* **2003**, 75(14), 3531-3538
22. J.L. Pittman, K.F. Schrum and S.D. Gilman, "On-line Monitoring of Electroosmotic Flow for Capillary Electrophoretic Separations", *Analyst*, **2001**, 126, 1240-47.
23. **N. Wong Shi Kam** and K.F. Schrum, "Analysis of Drug Samples Using Raman Microspectroscopy" *Journal of Young Investigators*, **2001**, 5.
24. K.F. Schrum, **J. Lancaster, S. Johnston**, and S.D. Gilman, "Monitoring Electroosmotic Flow by Periodic Photobleaching of a Dilute, Neutral Fluorophore" *Anal. Chem.* **2000**, 72, 4317-21.
25. Y. Melendez, K.F. Schrum and D. Ben-Amotz, "Quantitation of Poly(ethylene glycol) Concentration Using Raman Spectroscopy" *Appl. Spec.* **1997**, 51, 1176-78. K.A. Frederick/ Publications Continued
26. K.F. Schrum, S.H. Ko and D. Ben-Amotz, "Description and Theory of a Fiber-Optic Superfocal and Confocal Raman Microspectrometer", *Appl. Spec.* **1996**, 50, 1150-55.
27. K.F. Schrum, A. Williams, **S. Haerther** and D. Ben-Amotz, "Molecular Fluorescence Thermometry", *Anal. Chem.*, **1994**, 66, 2788-90

Invited and Award Presentations (formerly K.F. Schrum)

1. K.A. Frederick and L.Quimby "Turning the Analytical Lab into a Research Method Development Service" ACS National Meeting, San Diego, CA March 2016.
2. K.A. Frederick, K.Cetto-Bales, K. Sheppard and R. Howard, "Research-based laboratories across the foundational and in-depth courses", ACS National Meeting, Boston, MA August, 2015.
3. K.A. Frederick, "Analytical method development as a focus for the foundational analytical course", ACS National Meeting, Boston, MA, August 2015.

***Bold faced type denotes undergraduate research student**

K.A. Frederick/ Invited Presentations Continued

4. K.A. Frederick, "Turning the Analytical Lab into a Research Method Development Service", Pittcon, New Orleans, LA March 2015.
5. K.A. Frederick " Lab on a Chip: Using Plastic Chips to Improve Health Care and Protect the Environment", Trinity University, Hartford, CT, April 2015
6. K. Frederick, M. Roca and L. Quimby "Incorporating Research Method Development into the Analytical Lab" Eastern Analytical Symposium, Somerset, NJ, November 2014.
7. K.A. Frederick, "Lab on a chip: Using Plastic Diagnostics Chips to Improve Health Care", University of Western Florida, Pensacola, FL, April 2013.
8. K.A. Frederick, "Using Research on Maya Murals to Teach FTIR and Chemometrics in an Instrumental Analysis Course", The Pittsburgh Conference, Philadelphia, PA, March 2013K.A. Frederick, "Using Forensic Analysis and Expert Witness Testimony to Teach Method Development", The Pittsburgh Conference, Orlando, FL, March 2012
9. K.A. Frederick, "Development and Implementation of a Lab-Driven General Chemistry Course", Consortium for High Achievement and Success, 6th Annual Science and Math Faculty Forum, Smith College, June 3, 2011
10. K.A. Frederick, "Chemists Writing Across the Curriculum", Becker College, May 2008
11. K.A. Frederick, "Studies of Electroosmotic Flow and Polyelectrolyte Multilayers in CE and Microfluidics", University of New Hampshire, September, 2007
12. K.A. Frederick, "Analytical Chemistry in Art, Archeology and Forensics: An Upper-level Elective", Pittsburgh Conference, Chicago, IL, February 2007
13. K.A. Frederick, "Joys and Rewards of Undergraduate Research: A Success Strategy", American Chemical Society National Meeting, Atlanta, GA, March 2006.
14. K.A. Frederick and **K.A. Soucy**, "Solving Crimes with Chemistry: Using Forensics to Teach Analytical Chemistry to Students at All Levels", The Pittsburgh Conference, Orlando, FL March 2005.
15. K.A. Frederick, "Real-time Measurements of Electroosmotic Flow in Capillary Electrophoresis", Award Presentation for Excellence in Undergraduate Chemical Research, Indiana University, Bloomington, IN, September 2004
16. K.A. Frederick "Forensic and Bioanalytical Applications of Laser Spectroscopy", The Pittsburgh Conference, Chicago, IL, March 2004.
K.A. Frederick and S.D. Gilman, "RSEC Experiences at the University of Tennessee: A View from the Trenches", Southeast Regional ACS Meeting, Atlanta, GA, November 2003
17. J. Narum, L. Lewis, K.F Schrum and M. Puglia, "Is our vision of excellence in education keeping pace with our changing world?", American Association and Colleges and University Annual Meeting, Seattle, WA, January 2003.
18. K.F. Schrum, "Instrumentation and Undergraduates: Getting the Most Bang for Your Buck", Industrial Associates Meeting Honoring Harry Pardue, Purdue University, W. Lafayette, IN, September 2002.
19. K.F. Schrum, "Starting and Sustaining Undergraduate Research: A View from the Trenches" American Chemical Society Meeting, Orlando, FL, April 2002.

Presentations

1. **A. Ismail, L. Swenson, T. Henao,** and K.A. Frederick "Detection of Hydrofracking Water Infiltration in Surface Waters", Pittcon, Chicago, IL, March 2017
 2. **R. Martinez, E. O'Connor, N. Rehmeier,** and K.A. Frederick, "Development of a Paper Microfluidic Test for D-Lactate", Pittcon, Chicago, IL, March 2017
 3. **J.A. Bryant, K. Cantwell** and K.A. Frederick "Using Open Source Hardware to Construct Diagnostic Devices for the Developing World", ACS National Meeting, San Diego, CA, March 2016
 4. **A. Siegel, A. Ferro,** S. Lagalwar and K.A. Frederick, "Development and optimization of an ion-exchange HPLC method for the quantification of succinic acid in cerebral tissue" ACS National Meeting, San Diego, CA, March 2016
 5. **S. Markiewicz, J. Greenspan, A. Siegel,** T.J. Wenzel, K.A. Frederick "Chiral Separations in CE Using Cationic Cyclodextrins as a Buffer Additive", ACS National Meeting, San Diego, CA, March 2016.
 6. **N. Rehmeier, E. O'Connor, L. Swenson** and K.A. Frederick,, "Development of a paper microfluidic analytical device (μ PAD) for detection of D-lactate in urine", ACS National Meeting, San Diego, CA, March 2016.
 7. **S. Wang, M. Debela, N. Rehmeier,** S.T. Frey and K.A. Frederick, "Stabilization of a Urine-based Diagnostic Test for Malaria Using Clay", ACS National Meeting, San Diego, CA, March 2016.
 8. **J O'Sullivan, S. Markiewicz, R. Pontes** and K.A. Frederick, "Development of an Automated Microfluidic Platform for Analysis of Organic Pollutants in Water" Pittcon, New Orleans, LA, March 2015
 9. **M. Debela, A. Siegel, S. Wang, J. Bryant** and K.A. Frederick "Development of a Microfluidic, Urine-Based Assay for D-Lactate: A Diagnostic Test for Malaria" Pittcon, New Orleans, LA, March 2015
 10. K. Frederick, C. Sood and L. Christenson, "Discovery Chemistry: Using a lab first approach to develop expert attitudes in chemistry", Biennial Conference on Chemical Education, Grand Rapids, MI, August 2014.
 11. K. Frederick, C. Sood and L. Christenson, "Flipping the Lab: Using a Lab First Approach for Teaching General Chemistry" ACS National Meeting, Dallas, TX, March 2014.
 12. **L. Martin, A.J. Newell, R. Pontes,** and K.A. Frederick, " Development of an automated microfluidic platform for analysis of organic pollutants in water", ACS National Meeting, Dallax, TX, March 2014
 13. **S. Wang, R. Ahern, A. Winchell, A. Osher** and **K.A. Frederick,** "Development of a microfluidic assay for analysis of d-lactate in urine: A diagnostic test for malaria" ACS National Meeting, Dallas, TX, March 2014
 14. **K. Puffer, K. Ellis,** and K.A. Frederick, "Development of a Chip-Based Assay for Diagnosis of Malaria Infection" The Pittsburgh Conference, Philadelphia, PA, March 2013
 15. **R. Pontes, L. Martin** and K.A. Frederick, "Development of Magnetic Bead-Based Pre-concentration for Water Analysis on Chip" The Pittsburgh Conference, Philadelphia, PA, March 2013
 16. **B. Olivo, L. Martin** and K.A. Frederick, "Characterization of Low Cost Plastic Microfluidic Chips" The Pittsburgh Conference, Orlando, FL, March 2012.
- *Bold faced type denotes undergraduate research student**

K.A. Frederick/ Presentations Continued

17. K.A. Frederick, C. Sood and L. Christenson , “Development and Implementation of an Inquiry-Based, Laboratory-Driven, General Chemistry Sequence”, Transforming Undergraduate Education in STEM, PI’s Conference, January, 2013
18. **L. Martin, S.A. Bashaw** and K.A. Frederick, “Evaluation of Thermoresponsive Hydrogels for In-capillary Preconcentration of proteins in CE”, The Pittsburgh Conference, Orlando, FL, March 2012.
19. **A.Osher** and K.A. Frederick “Studies of Real-time Changes in Electroosmotic Flow under Dynamic Buffer Conditions” The Pittsburgh Conference, Orlando, FL, March 2012.
20. **K.M. Roguski, E. Lipscey-Magyar, A. Hamilton**, R. Roe-Dale and K.A. Frederick “Measurement and Modeling of Real-time Changes in Electroosmotic Flow” National Conference on Undergraduate Research, Ithaca College, March 2011
21. **S. Lipshutz** and K.A. Frederick, “Evaluation of Coating Materials in CE Using Real-time Measurements of EOF”, The Pittsburgh Conference, Atlanta, GA, March 2011.
22. **S.A. Bashaw** and K.A. Frederick, “In-Capillary Preconcentration for Protein Analysis by Capillary Electrophoresis”The Pittsburgh Conference, Atlanta, GA, March 2011.
23. K.A. Frederick, L. Christenson, **M. Labatte** and **C. Martineau**, “Development and Implementation of an Inquiry-Based, Laboratory-Driven, General Chemistry Sequence”, Transforming Undergraduate Education in STEM, PI’s Conference, January, 2011.
24. **E. Lipscey-Magyar, A. Hamilton**, R. Roe-Dale, K. Frederick, and **K. Roguski**. “Modeling Time Dependent Electroosmotic Flow.” Joint Math Meetings, New Orleans, LA. January 2011.
25. K.A. Frederick and D. Iimoto, “Authentic Modeling of the Method of Scientific Inquiry during the Senior Year”, The Pittsburgh Conference, Orlando, FL March 2010.
26. **K. Roguski, E. Lipscey-Magyar**, R. Roe-Dale, K.A. Frederick, “Measurement and Modeling of Real-Time Changes in Electroosmotic Flow under Dynamic Buffer Conditions”, The Pittsburgh Conference, Orlando, FL, March 2010
27. **S.A. Bashaw, A.K. Kotze** and K.A. Frederick, “Using Thermoresponsive, Guanosine Gels for In-capillary Sample Pre-concentration”, The Pittsburgh Conference, Orlando, FL 2010.
28. **A. M. Stingel, L. Sussman, S.P. Crowley** and K.A. Frederick, “Rapid Method for Assessing Coating Performance in Capillary Electrophoresis”, The Pittsburgh Conference, Orlando, FL 2010.
29. K.A. Frederick and **A.K. Kotze**, “Using Thermoresponsive Guanosine Gels for On-Capillary Sample Pre-concentration in Capillary Electrophoresis”, The Pittsburgh Conference, Chicago, IL, March 2009
30. **L.A. Tonge, O.S. Fenton** and K.A. Frederick, “Development of a Quantitative Model for the Raman Spectroscopic Analysis of Illicit Drug Mixtures”, The Pittsburgh Conference, Chicago, IL, March 2009
31. **S.C. Crowley, K.E. Swords** and K.A. Frederick, “Development of a Rapid Method for Assessing Coating Performance in CE”, The Pittsburgh Conference, Chicago, IL, March 2009
32. **A.B. Buga, S.C. Crowley** and K.A. Frederick, “Universal Surface Coating for Microfluidic Chips”, The Pittsburgh Conference, Chicago, IL, March 2009

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K.A. Frederick/ Presentations Continued

33. K.A. Frederick, **S. Crowley**, **A. Dhamko** and **K.E. Swords**, "Evaluation of a Universal Surface Coating for Microfluidics", The Pittsburgh Conference, New Orleans, LA, February 2008.
34. **O.S. Fenton**, D. Damiano and K.A. Frederick, "Quantitative Measurements of Illicit Drugs Using Raman Spectroscopy and Chemometrics" American Chemical Society, Boston, MA, August 2007.
35. **K.Y. Noonan**, D. Damiano and K.A. Frederick, "Classification of Simulated Street Drug Mixtures using Raman Spectroscopy and Chemometrics", American Chemical Society, Chicago, IL, March 2007.
36. **A. Dhamko** and K.A. Frederick "Using Thermoresponsive Guanosine Gels for Sample Preconcentration in Capillary Electrophoresis", The Pittsburgh Conference, Chicago, IL, February 2007.
37. **K.E. Swords**, **J.F. O'Grady** and K.A. Frederick "Understanding the pH Responsive Behavior of Polyelectrolyte Multilayer Coated Capillaries", The Pittsburgh Conference, Chicago, IL, February 2007.
38. K.A. Frederick, **J.F. O'Grady** and **P.B. Bartline**, "Real-time Characterization of Coating Materials for Capillary Electrophoresis". The Pittsburgh Conference, Orlando, FL, March 2006.
39. **P.B. Bartline** and K.A. Frederick "Morphological Changes in Polyelectrolyte Multilayer Coated Capillaries", Federation of Analytical Chemistry and Spectroscopic Societies, Quebec City, Quebec, Canada, October 2005.
40. **K.Y. Noonan** and K.A. Frederick, "Quantitative Analysis of Drug Mixtures Using Raman Spectroscopy and Chemometrics", Federation of Analytical Chemistry and Spectroscopic Societies, Quebec City, Quebec, Canada, October 2005.
41. K.A. Frederick, **J.F. O'Grady** and **P.B. Bartline**, "Measurement of Electroosmotic Flow in Dynamic Buffer Systems", Federation of Analytical Chemistry and Spectroscopic Societies, Quebec City, Quebec, Canada, October 2005.
42. **A.J. Mancuso**, **P.B. Bartline** and K. A. Frederick, "A Novel Real Time Method for Measuring Suppressed Electroosmotic Flow in Capillary Electrophoresis" The Pittsburgh Conference, Orlando, FL, March 2005.
43. **K.Y. Noonan**, **N. Wieder**, and K.A. Frederick, "Raman Spectroscopic Analysis of Illicit Drug Mixtures in Fingerprints, Paper Currency, and Plastic Bags", The Pittsburgh Conference, Orlando, FL, March 2005.
44. **P.B. Bartline**, **A.J. Mancuso**, and K.A. Frederick, "Examining the Behavior of Polyelectrolyte Multilayer Coated Capillaries in Capillary Electrophoresis", The Pittsburgh Conference, Orlando, FL, March 2005.
45. **K.G. Butler**, **A. Mancuso**, S.D. Gilman, and K.A. Frederick, "A Rapid Method for Measuring Electroosmotic Flow in Suppressed Flow Capillaries", Connecticut Separation Science Meeting, Uncasville, CT, May 2004
46. **P. McDonnell**, **A. Mancuso**, K. A. Frederick, "Applications of EOF to Measure Coating Completeness in Capillary Electrophoresis", Connecticut Separation Science Meeting, Uncasville, CT, May 2004

***Bold faced type denotes undergraduate research student**

K.A. Frederick/ Presentations Continued

47. **H. Thorpe** and K.F. Schrum, "Bioaccumulation of Heavy Metals by Plants in the San Gabriel River", American Chemical Society Meeting, New Orleans, LA, March 2003.
48. **H. Thorpe**, K.F. Schrum, J. Warrick and C. Swift, "Bioaccumulation of Heavy Metals by Plants in the San Gabriel River", Southern California Conference on Undergraduate Research, Pasadena, CA, November 2002
49. **D. Dionne, S. Siedschlag**, K.F. Schrum, J. Warrick and C. Swift, "Effects of Man-made Pools on Nutrient Concentrations in the San Gabriel River", Southern California Conference on Undergraduate Research, Pasadena, CA, November 2002.
50. **B. Stimmler**, C. Swift, K.F. Schrum and J. Warrick, "The Effect of Disturbance on Alder Communities, Southern California Conference on Undergraduate Research, Pasadena, CA, November 2002.
51. **S. Siedschlag**, K.F. Schrum, C. Swift and J. Warrick, "Effect of Small Scale Damming on Stream Channels, Southern California Conference on Undergraduate Research, Pasadena, CA, November 2002.
52. **K.A. McDonald** and K.F. Schrum, "Reduction of Fluorescence Interference in the Raman Microspectroscopic Determination of Drugs on Paper Currency", Federation of Analytical Chemistry and Spectroscopy Societies, Providence, RI, October 2002.
53. **R. Pertaub** and K.F. Schrum, "Detection and Quantitation of Illicit Drugs and Paper Currency, Southern California Undergraduate Research Conference in Chemistry and Biochemistry, Northridge, CA, May 2002.
54. **R. Pertaub, J. Hood** and K.F. Schrum, "Detection and Quantitation of Illicit Drugs on Paper Currency", The Pittsburgh Conference, New Orleans, LA, March 2002.
55. K.F. Schrum, "Teacher Training through Hands-on Activities Conducted in Local Schools: A Service Learning Activity for Future Teachers", American Chemical Meeting, San Diego, CA, March 30, 2001.
56. **S.A. Karnya** and K.F. Schrum, "The Use of Raman Spectroscopy for the Identification of Plastics", American Chemical Society Meeting, San Diego, CA, April 1, 2001.
57. **N. Wong Shi Kam** and K.F. Schrum "Non-invasive Drug Detection on Paper Currency Using Raman Spectroscopy", American Chemical Meeting, San Diego, CA, April 1, 2001.
58. **S.A. Karnya** and K.F. Schrum, "Quantitation of Ethanol in Commercial Beverages Using Raman Spectroscopy", The Pittsburgh Conference, New Orleans, LA, March 7, 2001.
59. S.D. Gilman, J.L. Pittman, K.F. Schrum, D.P. Schrum, **J.Batts**, "Studies of Electroosmotic Flow Dynamics", The Pittsburgh Conference, New Orleans, LA, March 7, 2001.
60. K.F. Schrum and **S.A. Karnya**, "Raman in the Undergraduate Lab: It is Possible!", American Chemical Society Meeting, Washington, D.C. August 21, 2000.
61. K.F. Schrum and **S.A. Karnya**, "Raman Instruments and Experiments Designed for the Undergraduate Lab", American Chemical Society Meeting, Washington, D.C. August 20, 2000
62. K.F. Schrum "Research Sites for Educators: A National Science Foundation Panel" American Chemical Society Meeting, San Francisco, CA March 2000
63. S.D. Gilman, K.F. Schrum, **J. Lancaster, S. Johnston** and A.R. Whisnant, "Improvements in Post-Column Reagent Addition for Capillary Electrophoretic Separations" The Pittsburgh Conference, New Orleans, LA, March 2000

***Bold faced type denotes undergraduate research student**

K.A. Frederick/ Presentations Continued

64. S.D. Gilman, **J. Lancaster**, J.L. Pittman, K.F. Schrum and A.R. Whisnant, "Post-Column Reagent Addition for Capillary Electrophoresis" American Chemical Society,
65. S.D. Gilman, K.F. Schrum, **J. Lancaster** and **S. Johnston** "Real-time Monitoring of Electroosmotic Flow for Capillary Electrophoretic Separations", Southeastern Association of Analytical Chemists, Mt. Pleasant, SC, Sept. 25, 1999
66. **J.L. Cotton** and K.F. Schrum, "Evaluation and Isolation of Herbal Antacids" American Chemical Society Meeting, Anaheim, CA. March 1999
67. **J.R. Stewart**, **A. Suri** and K F. Schrum, "Comparison of Synchronous Fluorescence and Raman Spectroscopy to Study Petroleum Contamination of Environmental Matrices", The Pittsburgh Conference, Orlando, FL, March 1999
68. **J.L. Dunnam**, T. Bunde and K.F. Schrum, "Bioremediation of Chlorophenol Contaminated Soil with Horseradish", American Chemical Society Meeting, Dallas, TX, March 1998.
69. **C.A. Wight**, T. Bunde and K.F. Schrum, "Protein Denaturation Studies Using Synchronous Fluorescence Spectroscopy", The Pittsburgh Conference, Atlanta, Georgia, March 1997.
70. K.F. Schrum and Dor Ben-Amotz, "Depth Resolved Studies of the Raman Spectra of Diamond as a Pressure Calibrant in Diamond Anvil Cell", The Pittsburgh Conference, Atlanta Georgia, March 1997.
71. K.F. Schrum, S.H. Ko, and D. Ben-Amotz, "Simultaneous Confocal and Super-focal Fiber-Optic Fluorescence and Raman Microscopy", Conference of the Federation of Analytical Chemistry and Spectroscopy Societies, Cincinnati, OH October, 1995.
72. K.F. Schrum, F. LaPlant. S.H. Ko, and D. Ben-Amotz, "Simultaneous Confocal and Super-focal Fiber-Optic Micro-Raman Imaging", The Pittsburgh Conference, New Orleans, LA, March 1995.
73. K.F. Schrum, A. Williams and D. Ben-Amotz, "Molecular Optical Thermometry" American Chemical Society Meeting, San Diego , CA, March 1994

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