# Mark R. Anderson

College of Science and Mathematics
Kennesaw State University
MD#1201
Kennesaw GA, 30144
(770) 423-6160

## I. PERSONAL

Date of Birth: March 17, 1961
Married with 2 children

## II. PROFESSIONAL BACKGROUND

***Kennesaw State University:*** Kennesaw State University is a Carnegie classified institution, Undergraduate serving, enrolling nearly 24,000 students. It is part of the University System of Georgia, and is the third largest University in the system. KSU is also one of the fastest growning Universities in the country. Beginning in 2012, the College of Science and Mathematics began offering 2 new M.S. programs – one in Integrative Biology and the other in Computer Science. These are the first two graduate programs offered by the College. The college awards 8 undergraduate degrees, has ~150 faculty members, and enrolls nearly 4,000 majors. The budget for the college is ~$15,000,000 managed out of the College office

Dean – College of Science and Mathematics, Kennesaw State University, Kennesaw, GA 30144-5591 (July 2012 – present)

*Responsibilities:* Supervise a staff of 13, a college faculty of ~150, and have primary budget authority (~$15,000,000 annual expenditures). Coordinate the curriculum, research, outreach, personnel, and alumni activities of the college.

*Report:* I report to the Vice President of Academic Affairs (Provost of the Univerity)

*Accomplishments:*

Professor of Chemistry

***University of Colorado Denver:*** The University of Colorado Denver is a Carnegie classified institution, Research University High research activity, enrolling over 15,000 students. It is the only publicly funded University in the metropolitan Denver area, and is part of the 3-campus University of Colorado system. The downtown campus of UC Denver consolidated with the Health Sciences campus in 2004, and since that time the mission of departments on the downtown campus has changed to be much more research focused. Prior to the consolidation, the downtown campus was largely an undergraduate institution with a limited research profile. The Chemistry department has a small M.S. graduate program but does not currently offer a Ph.D. degree. I was hired as the department chair of the chemistry department in 2007 with the objective of enhancing the research profile of the department with the long-term objective of developing an interdisciplinary Ph.D. program. Since being hired, the chemistry department's grant production has increased 100%, and the number of papers published by chemistry faculty has increased nearly 2-times. In the same time, student credit hours generated by the chemistry department is up nearly 100% (over AY 2006-2007 levels), and the department has hired 8 new faculty.

Department Chair – Department of Chemistry, University of Colorado Denver, Denver, CO 80217-3364 (August 2007 – present)

*Responsibilities:* Supervise a staff of 2 and a faculty of 12, have primary budget (~$1.7 million annual expenditures) authority and responsibility, coordinate the curriculum and teaching of the department, write the annual outcomes assessment report, oversee all personnel actions in the department

*Report:* I report to the Dean of the College of Liberal Arts and Sciences

*Accomplishments:*

i. Established a flexible model of allocation of research space prior to moving into a new laboratory facility,
ii. Coordinated the hiring of 8 new members of the faculty,

iii. The chemistry department was the first in the College of Liberal Arts and Sciences to contribute to new faculty start-up packages – resulting in a significant improvement in the ability of the department to fund new faculty research programs.
iv. Grant production and funding by department faculty has increased nearly 100% and publications by faculty in the department have increased nearly 2X since 2007
v. Student credit hours generated by the department increased by ~80% since 2007
vi. Implemented a new Honors curriculum
vii. Established a new biochemistry option to our undergraduate curriculum

Professor of Chemistry – Department of Chemistry, University of Colorado Denver, Denver, CO 80217-3364 (August 2007 – present)

Director of CASMIC, the Center for Applied Science and Mathematics for Innovation and Competitiveness (May 1, 2008 – December 1, 2010)

*Responsibilities*: Supervise the staff director, coordinate proposal submission, coordinate participation of academic units in STEMapalooza (annual STEM K-12 outreach activity), participate in the Math and Science Education and Learning signature area, oversee an operating buget of ~$100,000.

*Report*: I report to the Vice-Chancellor for Research and Education

*Accomplishments*: Established STEMapalooza as a signature event for the University's math and science outreach, established a summer research program to help transition community college transfer students to the UC Denver campus community

***Virginia Polytechnic Institute and State University*** Virginia Tech is a Carnegie classified institution, Research University Very High research activity, enrolling nearly 27,000 students. The Chemistry department has a graduate program offering a Ph.D. in Chemistry, has ~150 graduate students in the program, and is typically ranked among the top 60 chemistry departments in annual research expenditures. During my last 3 years at Virginia Tech I was the Director of the Chemistry graduate program. In that role, I oversaw a program of nearly 150 graduate students and a buget of just under $1,000,000. I was the primary advisor to all 1st year graduate students, and was the supervisor to ~70 teaching assistants.

Associate Professor of Chemistry - Department of Chemistry, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061-0212 (August 1995 – July 2007)

*Responsibilities:* Director of Graduate Studies (2004-2007), oversaw a graduate program of ~150 graduate students, 1st year advisor of all new graduate students, supervisor to an administrative assistant and ~71 graduate teaching assistants, administered all graduate admissions

*Report:* I reported to the Chair of the Chemistry department

*Accomplishments:*

i. Awarded the College of Science Certificate of Teaching Excellence (2004),
ii. Awarded the Chemistry department's Faculty Teaching award (2003),
iii. Recipient of the 1995 Society for Electroanalytical Chemistry Young Investigator Award.
iv. Organized and coded the department's graduate student admissions/progress database (updated, and still in use today)

Visiting Scholar – Department of Chemistry, University of North Carolina, Chapel Hill, NC 27516 (January 2000 – August 2000)

Assistant Professor of Chemistry - Department of Chemistry, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061 (August 1989 - July 1995).

Post Doctoral Fellow - Department of Chemistry, University of Utah, Salt Lake City, UT 84106 (August 1987 - July 1989).

Graduate Research Assistant - Department of Chemistry, University of Wisconsin-Madison, Madison WI 53706 (June 1984 - August 1987)

Graduate Teaching Assistant - Department of Chemistry, University of Wisconsin - Madison, Madison, WI 53706 (August 1983 - May 1984), TA for Chemistry 223, Chemistry majors section of Quantitative Analysis

## III. EDUCATION

Ph. D. - University of Wisconsin-Madison, Madison, WI 53706 (August 1983 - August 1987).
Ph. D. Thesis Title: Surface Enhanced Raman Studies of the Electroactive Forms of Some Substituted Pyridines.
Advisor: Dennis H. Evans (retired)

B. S. - Indiana University, Bloomington, IN 47405 (August 1979 - May 1983),
Research Area: Electrochemical reduction of Cumulenes and Allenes, Electrochemical Reduction of Alkyl Halides.
Undergraduate Thesis Title: Electrochemical Reduction of tert-Butyl Bromide at Vitreous Carbon Electrodes.
Advisor: Dennis G. Peters

## IV. HONORS, AWARDS, and NOMINATIONS

2004 Virginia Tech, College of Science Certificate of Teaching Excellence
2003 Virginia Tech Department of Chemistry Faculty Teaching Award
1995 Recipient of the Society for Electroanalytical Chemistry Young Investigator Award
McElvain Scholar, 1983-1984
Phi Beta Kappa, elected 1983
Departmental Award for the top Senior Professional Chemistry Major, 1983
The American Institute of Chemists Student Award, 1983
Courson Greeves Award for the Outstanding Junior Chemistry Major, 1982
Sigma Xi-Undergraduate Research Recognition Award, 1982
ACS Division of Analytical Chemistry Undergraduate Award, 1982
R. J. Grim Scholarship for Chemistry Majors, 1981-1982
Ira E. Lee Scholarship for summer undergraduate research, 1980, 1981

## V. CURRENT RESEARCH INTERESTS

Modified Interfaces: Utilizing electrochemistry, infrared spectroscopy, surface-plasmon resonance, and the quartz crystal microbalance to understand the interaction of surface modification layers with electrolyte solution. Studying molecular self-assembly as a way of controlling interfacial molecular structure.

Surface Spectroscopy: *In situ* infrared spectroscopic studies of interfaces. Studying processes that occur at solid-liquid electrochemical interfaces using electrochemical and spectroelectrochemical methods. Utilization of potential and polarization modulation infrared spectroscopy for interfacial characterization.

Capillary Electrophoresis Chemical modification of the interior walls of fused silica capillaries for the selective separation and detection of molecules of biological importance. Development of sensitive and selective electrochemical detection coupled to capillary separations.

Adhesion: Studies of the adhesion of materials to interfaces to understand the chemical, physical, and structural properties of interfaces that lead to strong adhesive interactions.

## VI. PROFESSIONAL MEMBERSHIPS

American Chemical Society
Electrochemical Society
Society for Electroanalytical Chemistry

**VII. PUBLICATIONS (refereed journals, corresponding author in bold print. in reverse chronological order)**

*2010*

50. "The Effect of Ion-Pairing on the Open Circuit Potential of 3-Mercaptoproprionic acid Modified Gold Electrodes", Mark R. Anderson and Alice C. Harper, *ECS Transactions*, 2010, *28(18)I, 3-10*.

49. "Electrochemical Glucose Sensors – Developments using Electrostatic Assembly and Carbon Nanotubes for Biosensor Construction", Alice Harper and **Mark R. Anderson**, *Sensors*, 2010, *10(9)*, 8248-8274.

48. "Potential Driven Deposition of Polyelectrolytes onto the Surface of Cysteine Monolayers Assembled on Gold", Wesley Sanders and **Mark R. Anderson**, *Journal of Colloid and Interface Science*, 2010, *342(2)*, 499-504.

*2009*

47. "Comparison of the Electrochemical Impedance Spectroscopy of n-Alkanethiol Monolayers Prepared by Contact Printing and Solution Adsorption", Leslie A. Adamczyk and **Mark R. Anderson**, *Journal of Colloid and Interface Science*, **2009**, *336(2)*, 761-765.

46. "Electrostatic Deposition of Polycations and Polyanions onto Cysteine Monolayers", Wesley Sanders and **Mark R. Anderson**, *Journal of Colloid and Interface Science*, **2009**, *331(1)*, 318-321.

*2008*

45.* "Potential Dependent Deposition of Poly(diallyldimethylammonium) chloride onto the Surface of 3-Mercaptopropionic Acid Monolayers Assembled on Gold", Wesley Sanders, and **Mark R. Anderson**, *Langmuir*, **2008**, *24(22)*, 12766-12770.

44. "Characterization of Carboxylic Acid Terminated Self-Assembled Monolayers by Electrochemical Impedance Spectroscopy and Scanning Electrochemical Microscopy", Wesley Sanders, Ricardo Vargas, and **Mark R. Anderson**, *Langmuir*, **2008**, *24(12)*, 6133-6139.

43.* "Simultaneous Determination of Glucose and L-Glutamate using a Capillary Enzyme Reactor with Electrochemical Detection", Stephanie E. Hooper and **Mark R. Anderson**, *Electroanalysis*, **2008**, *20(9)*, 1032-1034.

42. "Selective Formation of a Symmetric $ScN@C_{78}$ Bisadduct: Adduct Docking Controlled by an Internal Trimetallic Nitride Cluster", Ting Cai, Liaosa Xu, Chunying Shu, Hunter A. Champion, Jonathan E. Reid, Clemens Anklin, Mark R. Anderson, **Harry W. Gibson**, and **Harry C. Dorn**, *Journal of the American Chemical Society*, **2008**, *103(7)*, 2136-2137.

41.* "Application of a Square-Wave Potential Program for Electrochemical Detection in Capillary Electrophoresis", Stephanie Hooper, David Roach, and **Mark R. Anderson**, *Electroanalysis*, **2008**, *20(1)*,102-106.

*2007*

40. "Analytical Chemistry: Theoretical and Metrological Fundamentals" – review of a new text book, **Mark R. Anderson**, *Journal of the American Chemical Society*, **2007**, *129(31)*, 9829-9830.

39.* "Modification of a Capillary for Electrophoresis by Electrostatic Self-Assembly of an Enzyme for Selective Determination of the Enzyme Substrate", Stephanie E. Hooper and **Mark R. Anderson**, *Electroanalysis*, **2007**, *19(6)*, 652-658.

*2006*

38.* "Electrostatic Assembly of a Redox Catalysis System for Detection of Glutamate", Alice C. Harper and **Mark R. Anderson**, *Electroanalysis*, **2006**, *18(24)*, 2397-2404.

37.* "Structure and enhanced reactivity rates of the D-5h Sc3N@C-80 and Lu3N@ C-80 metallofullerene isomers: The importance of the pyracylene motif", Ting Cai, Liaosa Xu, Mark R. Anderson, Harry W. Gibson, **Harry C. Dorn**, *Journal of the American Chemical Society*, **2006**, *128(26)*, 8581-8589.

*2005*

36.* "Optimization of Electrode Alignment for Electrochemical Detection in Capillary Electrophoresis using a Scanning Electrochemical Microscope", David M. Roach, Stephanie E. Hooper, **Mark R. Anderson**, *Electroanalysis*, **2005**, *17(24)*, 2254-2259.

*2004*

35.* "Comparison of the Structure and Stability of Monolayers prepared with 12-Phenyl-dodecylmercaptan and 11-Phenoxy-undecylmercaptan", Francisco Cavadas and **Mark R. Anderson**, *Journal of Colloid and Interface Science*, **2004**, *274(2)*, 365-370.

*2003*

34.* "Surface Energy Differences I Monolayers Prepared with Isomers of 3- and 4-(12-Mercaptododecyl)-phenol", Francisco Cavadas and **Mark R. Anderson**, *Langmuir*, **2003**, *19(23)*, 9724-9729.

33.* "Reductive Desorption of 11-Mercaptoundecanoic Acid Monolayers Modified by Covalent Attachment of 1,3- and 1,4-Phenylenediamine", **Mark R. Anderson** and Richard Baltzersen, *Journal of Colloid and Interface Science*, **2003**, *263*, 516-521.

*2002*

32.* "Self-Assembled Monolayers of Positional Isomers of (12-Mercaptododecyloxy)Phenol: The Role of Molecular Structure on Interfacial Properties", C. Douglas Taylor and **Mark R. Anderson**, *Langmuir*, **2002**, *18(1)*, 120-126.

*2001*

31.* "Thin Polyimide Films Prepared by Ionic Self-Assembly", **Mark R. Anderson**, Richey M. Davis, C. Douglas Taylor, Michaiah Parker, Spencer Clark, Daniela Marciu, and Michael Miller, *Langmuir*, **2001**, *17(26)*, 8380-8385.

30. "Dopamine Adsorption at Surface Modified Carbon-Fiber Electrodes", Bradley D. Bath, Heidi Martin, R. Mark Wightman, and **Mark R. Anderson**, *Langmuir*, **2001**, *17(22)*, 7032-7039.

*2000*

29.* "Making Connections between Metallofullerenes and Fullerenes: Electrochemical Investigations", **Mark R. Anderson**, Harry C. Dorn, and Steven A. Stevenson, *Carbon*, **2000**, 11-12, 1663-1670.

28.* "Infrared Spectroelectrochemistry", **Mark R. Anderson** and C. Douglas Taylor, in The Encyclopedia of Analytical Chemistry, R. A. Meyers, Editor, John Wiley and Sons Ltd. **2000**, p. 9849-9878.

*1998*

27.* "Isolation and Structure of $Sc_2@C_{74}$ and $Sc_2@C_{76}$", H. C. Dorn, S. Stevenson, P. Burbank, K. Harich, Z. Sun, T. Glass, M. Anderson, D. S. Bethune, and M. Sherwood, in Recent Advances in the Chemistry and Physics of Fullerenes and Related Materials, K. M. Kadish and R. S. Ruoff, Editors, **1998**, *Volume 6*, 990 – 1002.

26*. "The Voltammetry of Isomers of $C_{84}$", **Mark R. Anderson**, James R. Gibson, Susanne M. Dana, Harry C. Dorn, Steven A. Stevenson, *J. Electroanal. Chem.* **1998**, *444*, 151-154. (9 Citations)

*1997*

25*. "Voltammetric Studies of $M_n@C_{82}$", **Mark R. Anderson**, Harry C. Dorn, Paul M. Burbank, and James R. Gibson, in Recent Advances in the Chemistry and Physics of Fullerenes and Related Materials, K. M. Kadish and R. S. Ruoff, Editors, **1997,** *Volume 97-14*, 448-456.

24*. "The Electrochemistry of $Sc_3@C_{82}$", **Mark R. Anderson**, Harry C. Dorn, Paul M. Burbank, Steven Stevenson, and James R. Gibson, *J. Am. Chem. Soc.*, **1997**, *119*, 437-438.

*1996*

23*. "Development and evaluation of Internet-based hypermedia chemistry tutorials", **Brian M. Tissue**, Ronald L. Earp, C. W. Yip, and Mark R. Anderson, *J. Chem. Ed.*, **1996**, *73(5)*, 446-446.

22*. "Electrochemistry of $C_{82}$: Relationship to Metallofullerene Electrochemistry", Paul M. Burbank, James R. Gibson, Harry C. Dorn, and **Mark R. Anderson**, *J. Electroanal. Chem.*, **1996**, *417*, 1-4.

21*. "The Influence of Solvent on the Interfacial Structure of Self-Assembled Alkanethiol Monolayers", **Mark R. Anderson**, Mark N. Evaniak, and Minhui Zhang, *Langmuir*, **1996**, *12*, 2327-2331.

*1994*

20*. "Investigation of the Charge Transfer Properties of Electrodes Modified by the Spontaneous Adsorption of Unsymmetrical Dialkyl Sulfides", Minhui Zhang and **Mark R. Anderson**, *Langmuir*, **1994**, *10*, 2807-2813.

19*. "Application of the Quartz Crystal Microbalance to Characterize the Interaction of Solutes with Modified Interfaces"; John A. Roush, David L. Thacker, and **Mark R. Anderson**, *Langmuir*, **1994**, *10*, 1642-1646.

18*. "Effect of Applied Potential Upon the *In Situ* Structure of Self-Assembled Monolayers on Gold Electrodes"; **Mark R. Anderson** and Marilyn Gatin, *Langmuir*, **1994**, *10*, 1638-1641.

*1993*

17*. "Micellar Electrokinetic Capillary Chromatography of Pungent Compounds Using Simultaneous Online Ultraviolet and Electrochemical Detection"; Maha Y. Khaled, **Mark R. Anderson**, and **Harold M. McNair**, *J. Chromatogr. Sci*. **1993**, *31*, 259-264.

16*. "Application of Square Wave Voltammetry for Electrochemical Detection in Gradient Elution HPLC"; John A. Roush and **Mark R. Anderson**, *J. Liquid Chrom.* **1993**, *16*, 3887-3901.

15*. "Application of Polarization Modulation Fourier Transform Infrared Spectroscopy for the In Situ Study of Spontaneously Adsorbed Monolayers "; Marilyn Gatin and **Mark R. Anderson**, *Vib. Spectrosc*. **1993**, *5*, 255-261.

14*. "Quantitative Determination of Surface Excess by the Semiintegral Method"; Susanne M. Dana, Mathew E. Jablonski, and **Mark R. Anderson**, *Anal. Chem*. **1993**, *65*, 1120-1122.

*1991*

13*. "The Influence of Cation Size Upon the Infrared Spectrum of Carbon Monoxide Adsorbed on Platinum Electrodes"; **Mark R. Anderson** and Jimin Huang, *J. Electroanal. Chem*. **1991**, *318*, 335-347.

12. "SNIFTIRS Study of the Behavior of the Spectrum of Carbon Monoxide Adsorbed on a Platinum Electrode in Alcoholic Solvents"; Andrea E. Russell, Daniel Blackwood, Mark R. Anderson, and **Stanley Pons**, *J. Electroanal. Chem*. **1991**, *304*, 219-231.

*1990*

11. "Infrared Spectroelectrochemical Measurements of the Electrochemical Double Layer: Using Carbon Monoxide as a Double Layer Probe Molecule"; Andrea E. Russell, **Stanley Pons**, and **Mark R. Anderson**, *Chem. Phys*. **1990**, *141*, 41-49.

*1989*

10. "The Activation of Carbon Fluorine Bonds by Oxidative Addition at Tungsten(0): An Electrochemical Study"; Andrea E. Russell, Carolyn E. Osterberg, Daniel J. Blackwood, Mark R. Anderson, Thomas G. Richmond, and **Stanley Pons**, *J. Electroanal. Chem*. **1989**, *258*, 139-146.

*1988*

9. "The Effect of Solvent Type on the Infrared Spectrum of Carbon Monoxide Adsorbed at Platinum Electrodes"; Mark R. Anderson, Daniel Blackwood, Thomas G. Richmond, and **Stanley Pons**, *J. Electroanal. Chem*. **1988**, *256*, 397-403.

8. "The Behavior of the Infrared Spectrum of Carbon Monoxide Adsorbed at Platinum Electrodes from Nonaqueous Solvents"; Mark R. Anderson, Daniel Blackwood, and **Stanley Pons**, *J. Electroanal. Chem*. **1988**, *256*, 387-395.

7. "Surface Enhanced Raman Study: Effect of pH and Electrode Potential on the Interfacial Behavior of Some Substituted Pyridines"; Mark R. Anderson and **Dennis H. Evans** in Electrochemical Surface Science, Manual P. Soriaga, ed., ACS Symposium Series 378, 1988, p. 383-397.

6. "Surface Enhanced Raman Study of the Effect of Electrode Potential and Solution pH upon the Interfacial Behavior of 4-Pyridinecarboxaldehyde"; Mark R. Anderson and **Dennis H. Evans**, *J. Am. Chem. Soc*. **1988**, *110*, 6612-6617.

*1987*

5. "Determination of Electrochemical Kinetic Parameters Using the Bond-Henderson-Oldham Global Analysis"; Mark R. Anderson and **Dennis H. Evans**, *J. Electroanal. Chem*. **1987**, *230*, 273-280.

4. "Electrochemical Reduction of 1,1,4,4-Tetraphenylbutatriene"; Tsu-Yu Raymond Chen, Mark R. Anderson, and **Dennis G. Peters**, *J. Electroanal. Chem.* **1987**, *222*, 257-270.

3. "Electrochemical Reduction of Phenylpropadiene at Mercury Cathodes in Dimethylformamide: Isomerization of the Allene to 1-Phenyl-1-Propyne"; Tsu-Yu Raymond Chen, Mark R. Anderson, Steven Grossman, and **Dennis G. Peters**, *J. Org. Chem.***1987,** *52*, 1231-1236.

*1986*

2. "Electrochemical Reduction of Alkyl Halides at Vitreous Carbon Cathodes in Dimethylformamide"; James A. Cleary, Mohammed S. Mubarak, Kenneth L. Vieira, Mark R. Anderson, and **Dennis G. Peters**, *J. Electroanal. Chem.* **1986, *198***, 107-124.

1. "Electrochemistry of 1,1,4,4-Tetraphenyl-1,3-butadiene, 1,1,4,4-Tetraphenyl-1,2-butadiene, and 1,1,4,4-Tetraphenyl-1-butene in Dimethylformamide"; Tsu-Yu Raymond Chen, Mark R. Anderson, and **Dennis G. Peters**, *J. Electroanal. Chem.* **1986, *197***, 341-358.

## VIII. PRESENTATIONS

### a. Invited Lectures at Universities, Colleges, Companies

*2011* Mark R. Anderson, "Experimental Manipulation of Interfacial Molecular Assemblies: Using Macroscopic Processes to Create Defined Interfacial Structure and Properties", Hunan University, Changsha, China, June 16, 2001.

*2008*

27. Mark R. Anderson, "Potential Driven Polyelectrolyte Adsorptoin onto Monolayer Modified Electrodes", University of Denver, Denver, CA, October 7, 2008.

26. Mark R. Anderson, "Manipulating Interfacial Structure and Properties" Berry College, Rome, GA, March 27, 2008.

*2005*

25. Mark R. Anderson, "Studies Toward Understanding the Role of Molecular Structure and Bulk Interfacial Properties", Grambling State University, Ruston, LA, February 21, 2005.

24. Mark R. Anderson, "Studies of the Relationship between the Structure and Properties of Interfacial Thin Films", Columbus State University, Columbus, GA, January 28, 2005.

*2004*

23 Mark R. Anderson, "Studies of the Relationship between the Structure and Properties of Interfacial Thin Films", East Tennessee State University, Johnson City, TN, October 1, 2004.

*2003*

22. Mark R. Anderson, "Rust, Glue, and Molecules – Understanding the Role of Molecular Structure on Macroscopic Interfacial Properties", Appalachian State University, Boone, NC, October 25, 2003.

*2002*

21. Mark R. Anderson "Studies of the Relationship between the Structure and Properties of Interfacial Thin Films", The University of Delaware, Newark, DE, September 11, 2002.

*2000*

20. Mark R. Anderson, "The Role of Monolayer Structure on Interfacial Phenomena", University of North Carolina – Chapel Hill, April 4, 2000.

19. Mark R. Anderson, "Characterizing the Structure of Polyimide Model Compounds at Metallic Interfaces", Hewlett Packard, Corvallis, OR, Jan. 10, 2000.

*1998*

18. Mark R. Anderson, "The Voltammetry of Fullerenes and Metallofullerenes", West Virginia University, Morgantown, WV, Oct. 7, 1998.

17. Mark R. Anderson, "The Voltammetry of Metallofullerenes", Seton Hall University, South Orange, NJ, September, 15, 1998.

16. Mark R. Anderson, "The Electrochemistry of Fullerenes and Metallofullerenes", Indiana University, Bloomington, IN April 14, 1998.

*1997*

15. Mark R. Anderson, "Voltammetric Studies of Metallofullerenes", University of Maryland - Baltimore County, Baltimore, MD, September 30, 1997.

*1996*

14. Mark R. Anderson, "Electrochemical and Infrared Studies of Model Membrane Systems, Instituto de Engenharia Biomedica, University of Porto, Porto, Portugal, May 23, 1996.

*1994*

13. Mark R. Anderson, “Studies Toward Understanding the Relationship Between Structure and Function of Modified Electrodes”, Virginia Polytechnic Institute and State University, Blacksburg, VA, September 9, 1994.

12. Mark R. Anderson, “The Relationship between Structure and Function of Modified Interfaces”, James Madison University, Harrisonburg, VA, July 20, 1994.

*1993*

11. Mark R. Anderson, "Infrared Spectroscopy of the Electrochemical Interface", University of South Dakota, Vermillion, SD, October 4, 1993.

10. Mark R. Anderson, "Infrared Spectroscopy of the Electrochemical Interface", Creighton University, Omaha, NE, October 1, 1993.

9. Mark R. Anderson, "Infrared Spectroscopy of the Electrochemical Interface", University of Nebraska-Omaha, Omaha, NE, September 30, 1993.

8. Mark R. Anderson, "Use of Infrared Spectroscopy to Probe Analytical Surfaces", St. John Fischer College, Rochester, NY, February 18, 1993.

7. Mark R. Anderson, "Use of Infrared Spectroscopy to Probe Analytical Surfaces", State University of New York at Brockport, Brockport, NY, February 18, 1993.

*1992*

6. Mark R. Anderson, "Characterization of the Electrochemical Interface by Infrared Spectroscopy", Norfolk State University, Norfolk, VA, October 16, 1992.

5. Mark R. Anderson, "Investigations of Analytical Surfaces by Fourier Transform Infrared Spectroscopy", Concordia University, Montreal, Quebec, Canada, May 18, 1992.

*1991*

4. Mark R. Anderson, "Electrochemical and Spectroscopic Investigations of the Properties of Electrified Interfaces", University of Delaware, Newark, DE, November 25, 1991.

3. Mark R. Anderson, "Characterization of Adsorption by Electrochemical and Spectroscopic Methods", R. J. Reynolds Company, Winston-Salem, NC, July 12, 1991.

*1990*

2. Mark R. Anderson, "Vibrational Spectroscopic Investigations of the Electrochemical Interface", Old Dominion University, Norfolk, VA, February 21, 1990.

1. Mark R. Anderson, "Vibrational Spectroscopic Investigations of the Electrochemical Interface", Air Products and Chemicals Analytical Roundtable, Allentown, PA, January 15, 1990.

**b. National and International Meetings (Presenter is underlined, the senior author is in bold)**

*2010*

53. Alice C. Harper and **Mark R. Anderson**, "The Effect of Ion-Pairing on the Open Circuit Potential of 3-Mercaptoproprionic Acid Modified Gold Electrodes" The 217th meeting of the Electrochemical Society, Vancouver, BC, Canada, April 25, 2010.

52. **Mark R. Anderson**, "Experimental Manipulation of Interfacial Molecular Assemblies", The 217th meeting of the Electrochemical Society, Vancouver, BC, Canada, April 25, 2010.

*2008*

51. Leslie A. Adamczyk and **Mark R. Anderson**, "Impedance of Contact-Printed Alkanethiol Self-Assembled Monolayers on Gold", The 214th meeting of the Electrochemical Society, Honolulu, HI, October 14, 2008.

50. **Mark R. Anderson** and Wesley Sanders, "Potential Driven Polyelectrolyte Adsorption onto Monolayer Modified Electrodes", The 214th meeting of the Electrochemical Society, Honolulu, HI, October 14, 2008.

*2007*

49. Leslie A. Adamczyk and **Mark R. Anderson**, "Differences in Electrochemical Properties of Contact Printed and Solution Adsorbed Alkanehtiol Self-Assembled Monolayers on Gold", 2007 Southeast Regional Meeting of the American Chemical Society, Greenville, SC October 26, 2007.

48. Wesley C. Sanders and **Mark R. Anderson**, "Effects of Potential on Ionic Self-Assembly of Carboxylic Acid Terminated Monolayers", 2007 Southeast Regional Meeting of the American Chemical Society, Greenville, SC October 26, 2007.

47. **Mark R. Anderson** and Wesley Sanders, "Electrochemical Impedance Spectroscopy to Evalutate the Effects of pH Variations and Ionic Self-Assembly on Undecanoic Acid Monolayers Immobilized on Gold", The 2007 Pittsburgh Conference, Chicago, IL, Feb. 26, 2007.

*2006*

46. T. Cai, L. Xu, **M. R. Anderson**, S. Carla, A. Balch, M. Olmstead, H. Gibson, and H. Dorn,"Synthesis and Characterization of Regio-Interconvertible N-tritylpyrrolidino Derivatives of Sc3Na@C80 Ih isomer", The 209th meeting of the Electrochemical Society, Denver, CO, May 10, 2006.

45. L. Xu, T. Cai, **M. R. Anderson**, and H. Dorn, "An Electronic and Vibrational Study of Sc3N@C68", The 209th meeting of the Electrochemical Society, Denver, CO, May 9, 2006.

44. **Mark R. Anderson**, David Roach, and Stephanie E. Hooper, "Site-Selective Reductive Desorption used for Interfacial Patterning of Substrates", The 209th meeting of the Electrochemical Society, Denver, CO, May 9, 2006.

43. Stephanie E. Hooper and **Mark R. Anderson,** "Ionic Self-assembly of an ON-Column Enzyme Reactor for Capillary Separations: Detection of Glucose and Glutamate", The 209th meeting of the Electrochemical Society, Denver, CO, May 8, 2006.

*2005*

42. David Roach and **Mark R. Anderson**, "Electrode Placement Optimization for Capillary Electrophoresis Using a Scanning Electrochemical Microscope", The Pittsburgh Conference, Orlando, FL, February 28, 2005.

41. Alice Harper and **Mark R. Anderson**, "Modified Electrodes for Mediated Electron Transport: Detection of Glucose and Glutamate", The Pittsburgh Conference, Orlando, FL, March 1, 2005.

*2004*

40. **Mark R. Anderson**, "Studies Toward Understanding the Relationship Between Molecular Structure and Macroscopic Properties of Interfaces", Electrochemical Society Meeting, San Antonio, TX, May 14, 2004.

*2003*

39. Alice Harper and **Mark R. Anderson**, "Electrochemical Detection of Oxidative Stress", 2003 Pittsburgh Conference, Orlando, FL, March 12, 2003.

38. Huimin Li and **Mark R. Anderson**, "Studies of Monolayer Films as Adhesion Promoters", 2003 Pittsburgh Conference, Orlando, FL, March 11, 2003

*2002*

37. Francisco T. Cavadas and **Mark R. Anderson**, "Structure, Wettability, and Reductive Desorption of Self-Assembled Monolayers of Positional Isomers of (12-mercaptododecyl)phenol", 2002 Southeast Regional Meeting of the American Chemical Society, Charleston, SC, November 14, 2002.

36. **Mark R. Anderson**, "Application of Steaming Video and Flash Animation for Teaching Analytical Chemistry" 2002 FACSS meeting, Providence RI, October 15, 2002.

*2001*

35.* **Mark R. Anderson,** "Interactive Multimedia over the Internet for Teaching Analytical Chemistry" 2001 FACSS meeting, Detroit, MI, October 8, 2001.

34.* Gary Long, Mark R. Anderson, Brian Tissue, and John Morris, "Teaching Analytical Chemistry to the Masses: How we went from 2 courses to 7 courses in 10 years", 2001 FACSS meeting, Detroit, MI, October 8, 2001.

33.* **Mark R. Anderson, "**Using Flash Animation and Streaming Video for Laboratory/Lecture Demonstrations in Large Enrollment Courses**",** Spring 2001 ConfChem (on-line Conference on Lecture Demostrations in Chemistry on the World Wide Web), March 28 – April 20, 2001.

*1999*

32.* **Mark R. Anderson and Brian M. Tissue**, "Development and Student use of Web-Based Prelabs in Analytical Chemistry Courses", ConfChem 99 (on-line conference on Teaching Spectroscopy), October 1999.

31.* **Mark R. Anderson**, "Making Connections between Metallofullerenes and Fullerenes: Electrochemical Investigations", Fullerenes '99, Toulouse France, August 30, 1999.

30*. **Mark R. Anderson**, H. C. Dorn, S. Stevenson, and S. Dana, "Voltammetry of Metallofullerenes and Higher Fullerenes" 195th Electrochemical Society Meeting, Seattle, WA, May 5, 1999.

*1998*

29*. **H. Dorn**, S. Stevenson, P. Burbank, K. Harich, Z. Sun, T. Glass, M. Anderson, D. S. Bethune and M. Sherwood, "Isolation and Structure of $Sc_2@C_{74}$" , 193rd Electrochemical Society Meeting, San Diego, CA, May 3, 1998.

28*. **Mark R. Anderson**, C. Douglas Taylor, and Cynthia T. Kraft, "Spectroscopic Probes of Bonded Interfaces", Center for Adhesive and Sealant Science Technical Conference, Blacksburg, VA, April 20, 1998.

*1997*

27*. **Mark R. Anderson**, Harry C. Dorn, Paul M. Burbank, and James R. Gibson, "Voltammetry and Spectroelectrochemistry of Metallofullerenes", Joint meeting of the Electrochemical Society and the International Society of Electrochemistry, Paris, France, September 5, 1997.

26*. **Mark R. Anderson**, Harry C. Dorn, Paul M. Burbank, and James R. Gibson, "The Voltammetry of $M_n@C_{82}$" Spring meeting of the Electrochemical Society, Montreal, Quebec, Canada, May 14, 1997.

*1996*

25*. **Mark R. Anderson**, “Characterization of Modified Interfaces by Infrared Spectroscopy”, Meeting of the National Society of Chemistry of Portugal, Porto, Portugal, May 23, 1996.

*1995*

24*. **Mark R. Anderson**, “Application of Polarization Modulation Infrared Reflection Absorption Spectrscopy to Study the *In Situ* Structure of Electrodes Modified with Alkanethiols”, 1995 joint meeting of the Southeast/Southwest Regions of the American Chemical Society, Memphis, TN, November 30, 1995.

23*. Jimin Huang and **Mark R. Anderson**, “Electrochemical and Infrared Spectroscopic Study of Electrodes Modified by Alkoxyalkanethiols”, 1995 FACSS meeting, Cincinnati, OH, Oct. 19, 1995.

22*. **Brian M. Tissue**, Ching-Wan Yip, Yue-Ling Wong, and **Mark R. Anderson**, “Designing Chemical Education Hypermedia for the World-Wide Web”, 1995 Fall meeting of the American Chemical Society, Chicago, IL.

21*. **Mark R. Anderson**, Minhui Zhang, Mark N. Evaniak, and Jimin Huang, “The relationship Between Interfacial Structure and Electrochemical Properties of Electrodes Modified with Organic Mercaptans”, 1995 Pittsburgh Conference, New Orleans, LA, March 8, 1995. Award Address: the Society of Electroanalytical Chemistry Young Investigator Award.

*1994*

20*. **Mark R. Anderson** and Minhui Zhang, “Characterization of Surface Structure and Interactions by Polarization Modulation FTIR and the Quartz Crystal Microbalance”, 1994 FACSS meeting, St. Louis, MO, October 7, 1994.

19*. **Mark R. Anderson**, Mark Evaniak, and Minhui Zhang,"Application of Polarization Modulation Infrared Reflection Absorption Spectroscopy to Study the *In Situ* Structure of Monolayers Prepared by Spontaneous Adsorption", 185th meeting of the Electrochemical Society, San Francisco, CA, May 23, 1994.

18*. **Mark R. Anderson** and Minhui Zhang, "Charge Transport Properties of Electrodes Modified by the Spontaneous Adsorption of Asymmetric Dialkylsulfides", 1994 Pittsburgh Conference, Chicago, IL March 3, 1994.

*1993*

17*. **Mark R. Anderson**, Susanne D. Feltovich, Minhui Zhang, and Mark Evaniak, "Application of Potential and Polarization Modulation Infrared Reflection Absorption Spectroscopy to Study the Physical and Structural Properties of the Electrochemical Interface", 1993 FACSS meeting, Detroit, MI, October 19, 1993.

*1992*

16*. **Mark R. Anderson**, John A. Roush, and David Thacker, "Selectivity in Detection of Analytes in Flowing Streams using Piezoelectric Quartz", 203rd National meeting of the American Chemical Society, San Francisco, CA, April 5-10, 1992.

15*. **Mark R. Anderson**, "Characterization of Electrochemical Double Layer from the Infrared Spectroscopic Behavior of Adsorbed Carbon Monoxide", 203rd National meeting of the American Chemical Society, San Francisco, CA, April 5-10, 1992.

14*. **Mark R. Anderson** and Marilyn O'Grady, "Application of Polarization Modulation Infrared Reflection-Absorption Spectroscopy to Model Liquid Chromatographic Surfaces", 1992 Pittsburgh Conference, New Orleans, LA, March 9-13, 1992.

*1991*

13*. John A. Roush and **Mark R. Anderson**, " Voltammetric Detector for HPLC and Flow Injection Analysis", 1991 meeting of the Southeast Region of the American Chemical Society, Richmond, VA, November 15, 1991.

12*. Marilyn O'Grady and **Mark R. Anderson**, "Spectroelectrochemical Analysis of Spontaneously Adsorbed Monolayers ", 1991 meeting of the Southeast Region of the American Chemical Society, Richmond, VA, November 15, 1991.

11*. Marilyn O'Grady and **Mark R. Anderson**, "Spectroelectrochemical Analysis of Metal Surfaces Modified with Thin Organic Films". FACCS meeting, Anaheim, CA, Oct. 5-10, 1991.

10*. **Mark R. Anderson** and Jimin Huang, "The Influence of Cation Size Upon the Infrared Spectrum of Carbon Monoxide Adsorbed on Platinum Electrodes", LabTech 91, Atlantic City, NJ, June 13, 1991.

9*. **Mark R. Anderson** and Jimin Huang, "The Influence of Cation Size Upon the Infrared Spectrum of Carbon Monoxide Adsorbed on Platinum Electrodes", 179th meeting of the Electrochemical Society, Washington, D.C. May 8, 1991.

*1990*

8*. **Mark R. Anderson**, "Spectroelectrochemical Investigation of the Double Layer Structure and Properties", 200th American Chemical Society National Meeting, Washington DC, August 1990, Invited Talk in Dennis G. Peters' Award Symposium.

7*. **Mark R. Anderson**, "Quantitative Determination of Adsorption Using a Semi-Integral Method", 177th meeting of the Electrochemical Society, Montreal, Quebec, Canada, May 11, 1990.

*1989*

6. Mark R. Anderson, Daniel Blackwood, Thomas G. Richmond, and **Stanley Pons**, "The Electrochemical and SNIFTIRS Behavior of Copper(I)tetrakisbenzonitrile", 197th American Chemical Society National Meeting, Dallas Texas, May, 1989.

*1988*

5. **Stanley Pons**, Mark R. Anderson, and Daniel Blackwood, "The Effect of Solvent Type on the Infrared Spectrum of Carbon Monoxide Adsorbed on a Platinum Electrode", 39th meeting of the International Society of Electrochemistry, Glasgow, Scotland, September 5-10, 1988.

*1987*

4. **Dennis H. Evans** and Mark R. Anderson, "Surface-Enhanced Raman Study of the Effect of pH and Electrode Potential on the Surface Concentrations of the Electroactive Forms of Pyridinecarboxaldehydes", 194th American Chemical Society National Meeting, New Orleans Louisiana, September, 1987.

*1985*

3. **Dennis H. Evans** and Mark R. Anderson, "Evaluation of Electrochemical Kinetic Parameters using the Bond-Henderson-Oldham Global Analysis", 190th American Chemical Society National Meeting, Chicago Illinois, September, 1985.

2. **Dennis G. Peters**, Tsu-Yu Raymond Chen, and Mark R. Anderson, "Electrochemical Reduction of 1,1,4,4-Tetraphenylbutatriene in Dimethylformamide", 36th Pittsburgh Conference, New Orleans Louisiana, February, 1985.

*Before 1984*

1. **Dennis G. Peters**, Tsu-Yu Raymond Chen, Mark R. Anderson, and Steven Grossman, "The Electrochemical Reduction of Phenylpropadiene", 179th American Chemical Society National Meeting, Houston Texas, March 1980.

**c. Papers presented as Posters**

*2007*

12. Stephanie Hooper and **Mark R. Anderson**, "Generation of an On-Capillary Enzyme Reactor coupled to Capillary Electrophoresis for the Selective Detection of the Enzyme Substrate" 2007 Pittsburgh Conference, Chicago, IL, Feb. 28, 2007.

*2003*

11. Stephanie Hooper and **Mark R. Anderson**, "Capillary Electrophoresis to Determine Oxidative Stress", 2003 Pittsburgh Conference, Orlando, FL, March 11, 2003.

*1998*

10* C. Douglas Taylor, and **Mark R. Anderson**, "Studies of Molecular Priming for Adhesive Interactions", Center for Adhesive and Sealant Science Technical Conference, Blacksburg, VA, April 20, 1998.

9*. C. Douglas Taylor, and **Mark R. Anderson**, "Studies of Molecular Priming for Adhesive Interactions", 21st Annual meeting of the Adhesion Society, Savannah, GA, February 22-25, 1998.

*1996*

8*. Cynthia T. Kraft and **Mark R. Anderson**, "Studies of the Importance of Molecular Structure and Orientation to Adhesive Interactions at Interfaces", 1996 meeting of the Adhesion Society, February 19, 1996, Myrtle Beach, SC.

*1995*

7*. Cynthia T. Kraft and **Mark R. Anderson**, "Studies of the Role of Interfacial Molecular Structure to Adhesive Interactions", 1995 Adhesion and Sealant Council Meeting, October 31, 1995, Indianapolis, IN.

*1994*

6*. Mark Evaniak and **Mark R. Anderson**, "In Situ Structural Characterization of Modified Surfaces by Polarization Modulation FTIR Reflection Absorption Spectroscopy", 1994 Pittsburgh Conference, March 2, 1994, Chicago, IL.

*1993*

5*. M. Y. Khaled, M. R. Anderson, L. C. Marquez, and **H. M. McNair**, "Microscale-Liquid Chromatographic Determination of Pungent Compounds", 1993 Pittsburgh Conference, March 7-13, 1993, Atlanta GA.

*1989*

4. Mark R. Anderson, Andrea E. Russell, and **Stanley Pons**, "Infrared Spectroelectrochemical Measurements of the Electrochemical Double Layer: Using Carbon Monoxide as a Double Layer Probe Molecule", 1989 Summer Analytical Symposium, Blacksburg Virginia, July 1989.

*1988*

3. Mark R. Anderson, Daniel Blackwood, and **Stanley Pons**, "The Infrared Spectra of Carbon Monoxide Adsorbed on a Polycrystalline Platinum Electrode from Nonaqueous Solutions", NATO Advanced Study Institute on "Spectroscopic and Diffraction Techniques in Interfacial Electrochemistry", Puerto de La Cruz, Canary Islands, Spain, July 3-15, 1988.

*1987*

2. Mark R. Anderson, **Dennis H. Evans**, and Mary J. Wirth, "Indirect Determination of a Local pH Change by Surface-Enhanced Raman Spectroscopy", Optical Society of America Topical meeting on the Application of Lasers to Chemical Analysis, Incline Village Nevada, January 26-29, 1987.

*1985*

1. **Dennis H. Evans** and Mark R. Anderson, "Evaluation of Electrochemical Kinetic Parameters Using the Bond-Henderson-Oldham Global Analysis", International Society of Electrochemistry meeting, Madrid Spain, 1985.

## IX. RESEARCH SUPPORT

### a. Funded

Agency: National Science Foundation
Amount: $2,905,834
Duration: January 1, 2008 – December 31, 2013
Title: New, GK-12: Transforming Experiences: Interdisciplinary Teams of GK-12 Fellows Linking Teacher Professional Development, Middle School

Agency: Jeffress Memorial Trust
Amount: $10,000
Duration: January 1, 2006 – December 31, 2006
Title: Renewal of Development and Characterization of a Multisensor Array for Biosensing

Agency: Jeffress Memorial Trust
Amount: $30,000
Duration: January 1, 2005 – December 31, 2005
Title: Development and Characterization of a Multisensor Array for Biosensing

Agency: National Science Foundation
Amount: $63,347 (with Gary Long)
Duration: July 1, 2003 – June 30, 2005
Title: Integration of Plasma Emission Spectrometry into Undergraduate Analytical and Environmental Chemistry

Agency: National Science Foundation
Amount: $218,468
Duration: February 1, 2003 – January 31, 2006
Title: Research Experiences for Undergraduates in Chemistry at Virginia Tech (REU)

Agency: ASPIRES, Virginia Tech
Amount: $8,000
Duration: February 1, 2003 – January 31, 2004
Title: "Purchase of an Electrochemical Impedance Analyzer"

Agency: Center for Innovative Learning, Virginia Tech
Amount: $29,000
Duration: July 1, 2001 – June 20, 2002
Title: Creation of On-Line Interactive Multimedia Modules for Distributed Learning in Analytical Chemistry

Agency: ASPIRES, Virginia Tech
Amount: $32,000 (with 2 other PI's)
Duration: January 1, 1999 – December 31, 1999
Title: Preparation and Detailed Characterization of Well-Defined Surface-Constrained Metallocene Olefin Polymerization Catalysts

Agency: Center for Adhesion and Sealant Science, Adhesives and Sealant Council Education Foundation
Amount Fellowship Support For C. Douglas Taylor,
Duration: 1/1/99- 6/15/99
Title: Studies of Molecular Priming for Adhesive Interactions, Renewal

Agency: Hewlett Packard
Amount: $50,000
Duration: June 1, 1999 – May 31, 2000
Title: Polarization Modulation FTIR to Study Phase-Segregation of Polymer Blends at Metallic Interfaces.

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| Agency: | SBIR from Air Force Office of Research (MRA is subcontractor to F&S Corporation) |
| Amount | $10,500 |
| Duration: | 9/1/98- 12/31/98 |
| Title: | Corrosion Inhibition by ISAM layers |
| | |
| Agency: | Center for Adhesion and Sealant Science, Adhesives and Sealant Council Education Foundation |
| Amount: | Fellowship Support For C. Douglas Taylor |
| Duration: | 1/1/98- 12/31/98 |
| Title: | Studies of Molecular Priming for Adhesive Interactions, Renewal |
| | |
| Agency: | Center for Adhesion and Sealant Science, Adhesives and Sealant Council Education Foundation |
| Amount: | Fellowship Support For C. Douglas Taylor |
| Duration: | 7/1/97 - 12/31/97 |
| Title: | Studies of Molecular Priming for Adhesive Interactions |
| | |
| Agency: | Hewlett Packard |
| Amount: | $7000 |
| Duration: | January 1, 1998 - June 30, 1998 |
| Title: | Surface Enhanced Raman Studies of Polymers coated onto Metallic Substrates |
| | |
| Agency: | National Science Foundation |
| Amount: | $80,000 (Co-PI with Professor Brian Tissue) |
| Duration: | 2 years (1/1/95 - 12/31/96) |
| Title: | Development and Evaluation of Internet Based Hypermedia Chemistry Tutorials |
| | |
| Agency: | Jeffress Trust |
| Amount: | $21,969 |
| Duration: | 1 years (1/1/93 - 12/31/93) |
| Title: | Renewal of "In Situ Characterization of the Structure and Charge Transfer Properties of Self Assembled Monolayer Films. |
| | |
| Agency: | American Chemical Society: Petroleum Research Fund, Type G supplement |
| Amount: | $3,000 |
| Duration: | 2 years (9/1/91 - 8/31/93) |
| Title: | Undergraduate Research Supplement |
| | |
| Agency: | Jeffress Trust |
| Amount: | $31,450 |
| Duration: | 1 year (1/1/91 - 12/31/91) |
| Title: | In Situ Characterization of the Structure and Charge Transfer Properties of Self Assembled Monolayer Films. |
| | |
| Agency: | American Chemical Society: Petroleum Research Fund (Type G) |
| Amount: | $18,000 |
| Duration: | 2 years (9/1/91 - 8/31/93) |
| Title: | Temperature Dependence of the Intermediate Structure in the Catalytic Oxidation of Methanol. |
| | |
| Agency: | College of Arts and Sciences Pilot Research Project |
| Amount: | $2,170 |
| Duration: | 2 years (12/1/90 - 11/31/92) |
| Title: | Development of a Detector for HPLC Based Upon the Quartz Crystal Microbalance. |
| | |
| Agency: | Biomedical Research Support Grant |
| Amount: | $4,016 |

Duration: 1 year (3/1/90 - 2/28/91)
Title: Spectroscopic Study of Ionic Transport Across Liquid-Liquid Interfaces: A Chemical Model of Biological Membranes.

## X. RESEARCH STUDENTS

### A. Doctoral

| | |
|---|---|
| Marilyn Gatin | Ph. D. Degree, July 1992.<br>Dissertation: Spectroelectrochemical Analysis of Self-Assembled Monolayers on Gold<br>Awards: 1991 Thomas Hirschfeld award from the Federation of Analytical Chemistry and Spectroscopy Societies<br>Formerly Division Head, Roche Scientific, Indianapolis, IN<br>Currently: Self-employed |
| John A. Roush | Ph. D. Degree, September 1992.<br>Dissertation: Development and Characterization of Novel Detectors for Use in Flow Injection Analysis or Liquid Chromatography<br>Currently Research Chemist at Smithkline Beecham, Bristol, TN |
| Jimin Huang | Ph. D. Degree, August 1996.<br>Dissertation: Characterization of Electrochemical Interfaces by Infrared Spectroscopy<br>Currently Research Analytical Chemist, Roche Scientific, Indianapolis, IN. |
| C. Douglas Taylor | Ph. D. Degree, August 2000.<br>Dissertation: Influence of Molecular Orientation and Surface Coverage of ω-Functionalized Mercaptans on Surface Acidity<br>Currently: Senior Research Scientist at Micelle, Inc., Research Triangle Park, NC |
| Francisco Cavadas | Ph. D. Degree, June 2003.<br>Dissertation: Spectroscopic and Electrochemical Investigation of Phenyl, Phenoxy, and Hydroxyphenyl Terminated Alkanethiol Monolayers.<br>Currently: Analytical Chemist, DuPont Chemical Company, Willmington, DE. |
| Huimin Li | Ph. D. Degree, September 2004<br>Dissertation: Relationship Between Molecular Structure and Surface Properties of Self-Assembled Monolayers<br>Currently: Assistant Professor of Chemistry at Hunan University, Changsha, China |
| Richard Baltzersen | Ph. D. Candidate, August 2000 – September 2003 (left without defending dissertation)<br>Project: Analytical Applications of Au and Ag Nanoclusters.<br>Currently: Special Agent with the Federal Bureau of Investigations (New York City, NY) |
| Alice Harper | Ph. D. Degree, January 2001 – June 2005.<br>Dissertation: Modified Electrodes for Amperometric Determination of Glucose and Glutamate using Meidated Electron Transport<br>Currently: Assistant Professor of Chemistry, Berry College, Rome, GA |
| Stephanie E. Hooper | Ph. D. Degree, August 2005 – June 2007<br>Dissertation: Development of an Ionically-Assembled on-Column Enzyme Reactor for Capillary Electrophoresis<br>Currently: Assistant Professor of Chemistry, Methodist University, Fayetteville, NC |
| Wesley Sanders | Ph. D. Degree, August 2005 – November 2008<br>Dissertation: Examining the Effects of Applied Potential on the Surface Charge of Functionalized Monolayers for Site-Directed Ionic Self Assembly<br>Currently: ASEE Post-Doctoral Fellow at the Naval Research Laboratories. |
| Leslie Adamczyk | Ph. D. Degree, January 2006 – May 2009 |

Dissertation: Understanding the Structure and Properties of Self-Assembled Monolayers for Interfacial Patterning
Currently: Post-Doctoral Fellow at Oak Ridge National Laboratories

**B. Masters**

Jimin Huang
M. S. degree, July 1991.
Thesis: Influence of Cation Size and Surface Coverage Upon the Infrared Spectrum of Adsorbed Carbon Monoxide.
Ph. D. in Chemistry, Virginia Polytechnic Institute and State University, 1996.

Susanne Dana
M. S. degree, September 1993
Thesis: Influence of Solvent on the Infrared Spectrum of Carbon Monoxide Adsorbed on Platinum Electrodes.
Currently a High School Chemistry Teacher, Blacksburg High School, Blacksburg, VA

Minhui Zhang
M. S. degree, September 1996
Thesis: Investigation of Structure and Permeability of Surfaces Modified with Self-Assembled Monolayers.
Currently working for the Intuit Corporation

Stephanie Hooper
M. S. Degree, August 2004
Thesis: Separation and Electrochemical Detection of 2,3-DihydroxyBenzoic Acid
Ph.D. in Chemistry, Virginia Polytechnic Institute and State University, 2007

David M. Roach
M.S. Degree, December 2005
Thesis: Application of the Scanning Electrochemical Microscope to Analyitical Chemistry
Currently working for the Barr Corporation, Lynchburg, VA. and teaching at Lynchburg Community College

Rachel Fiala
M. S. Degree, May 2010
GK-12 Fellow
Thesis: Exploration of CZE Experimental Parameters as a Function of Capillary Length for the Use of a Microfluidic Device
Currently working for Gevo, Denver Colorado (a Renewable Energy Company)

Lyubov Sichkareva
M.S. Degree, July 2010
Report: Electrochemical Characterization of the Cystamine Hydrochloride Self-Assembled Monolayer on Gold Surfaces: pH Driven Polyelectrolyte Deposition
Currently an Analytical Chemist at Forensic Laboratories, Denver Colorado

Stanley Gladyche
M.S. Degree Candidate, August 2009 – present

Nicholas DeMuth
M.S. Degree Candidate, January 2010 - present

**C. Post Doctoral Fellows**

James Hoyt Meyer
August 2008 – August 2011
"Preparation and Characterization of Surface-confined Host-Guest complexes"
Currently Assistant Professor of Chemistry, Loyola University, New Orleans, LA

**D. Undergraduate**

David Thacker*
August 1990 - May 1991, B. S. Degree

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|---|---|
| | Chromatography Supervisor, Georgetown University, Laboratory of Drug Analysis and Molecular Genotyping. |
| Susanne Dana* | May 1991 - December 1991, B. S. Degree<br>MS in Chemistry at Virginia Tech, 1993.<br>Chemistry Teacher, Blacksburg High School |
| Mathew Jablonski* | August 1991 - May 1992, B. A. Degree , transferred to Univ. of South Florida, fall 1992. |
| Alison Grieshaber | January 1992 - May 1992, January 1993 - May 1993, B. S. Degree in Chemistry, May 1994.<br>M. S. in Forensic Science from George Washington University, Forensic Chemist with Prince George's County Police Department. |
| Mimi Buchanan | May 1992 - December 1992, B. A. Degree 1993.<br>Akzo-Novell, Roanoke,VA. |
| Rebecca Reitmeyer | August 1992 - May 1993, B. A. Degree 1993.<br>Ph.D. in Chemistry at the University of Hawaii.<br>Oracle Corp. |
| Jeffrey Schmeltz | August 1992 - May 1993 , B. S. Degree in biology 1993.<br>M. S. in Biology at Chicago State University. |
| Mike Terapane | August 1992 - August 1993, B. S. Degree in Chemistry, B. S. Degree, 1994.<br>Ph. D. in Chemistry from the Georgia Institute of Technology, January 2000<br>Assistant Professor of Chemistry, Salem College, Winston Salem NC |
| Sarah Etania | August 1992 - May 1993, B. S. Degree in Chemistry, May 1994.<br>Polymer Solutions, Blacksburg, VA |
| Paul Bender | August 1992 - May 1995, B. S. Degree in Chemistry, May 1995. |
| Joshua Joseph | January 1993 - May 1995, B. S. Degree in Chemistry, May 1995.<br>Ph. D. in Chemistry at the University of North Carolina-Chapel Hill, 2000.<br>Procter and Gamble |
| Tracy Baker | January 1993 - May 1993, B. S. Degree in Biology, May 1994.<br>Attended Pharmacy School at the Medical College of Virginia, Richmond, VA. |
| Mark Scalf | January 1993 - May 1995, B. S. Degree in Chemistry, May 1995.<br>Ph. D. in Chemistry at the University of Wisconsin-Madison, 1999. |
| Nicole Cook | August 1993 - May 1994, B. S. Degree in Environmental Science, May 1994.<br>M. S. in Environmental Science from Virginia Tech. |
| Alan Peters | January 1994 - May 1994, B. S. Degree in Chemical Engineering, May 1994. |
| Joon Lee* | January 1994 - May 1994, B. S. Degree in Chemical Engineering, May 1994.<br>AMP Corporation. |
| Scott Anders | August 1994 - December 1994, B. A. Degree in Chemistry, December 1994. |
| George Manning | January 1994 - January 1995, B. S. Degree in Chemistry, May 1995.<br>Varian Instruments |
| Richard Anderson | August 1994 - May 1996, B. S. Degree in Chemistry, May 1996.<br>Ph. D. in Chemistry at the Georgia Institute of Technology. |
| Cindy Kraft* | August 1994 - May 1996, B. S. Degree in Chemistry, May 1996.<br>M. S. in Chemistry from the University of North Carolina-Chapel Hill.<br>Forensic Chemistry with the F. B. I. |
| Henry Jackson | May 1995 - May 1996, B. S. Degree in Chemistry, May 1996. |
| Michael Lovrencik | August 1995 - December 1996, B. S. Degree in Chemistry , May 1997.<br>M.S. in Chemistry, University of Pittsburgh.<br>High School Chemistry Teacher |
| James R. Gibson* | January 1996 - present, B. S. Degree in Biochemistry, May 1997.<br>U. S. Marine Corps. |
| Alison Stone | May 1996 - August 1996, B. A. Degree in Chemistry, August 1996. |
| Jenny Ferrell | August 1996 - December 1996, B. S. Degree in Biochemistry, May 1997.<br>M. S. in Education from Lynchburg College<br>High School Chemistry Teacher/Assistant Principle in Richmond VA. |
| Matt King | August 1996 - December 1996, B. S. Degree in Chemistry, May 1998.<br>MBA from the University of Maryland |
| Mike Nuchols | August 1996 - December 1996, B. S. Degree in Chemistry, May 1997. |

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|---|---|
| Erin Graham | August 1996 - May 1997, B. S. Degree in Chemistry, May 1998.<br>Medical School. |
| Lynn Beeler | August 1996 - December 1996, B. S. Degree in Chemistry, May 1997. |
| Ron Davis | August 1997 - May 1999, B. S. Degree in Chemistry, December 1998.<br>Ph.D. in Chemistry, Penn State University |
| Zoe Burgess | January 1998 - May 1998, B. S. Degree in Chemistry, May 2000. |
| Kathleen Kelly | August 1998 - May 1999, B. S. Degree in Chemistry, May 2001.<br>Peace Corps following graduation |
| Michiaha Parker* | August 1998 - present, B. S. Degree in Biology, May 2001.<br>M. S. in Education, Virginia Tech<br>PharmD, Virginia College of Medicine. |
| Kim Hahn Ngyun | August 1998 - January 1999, B. S. Degree in Biology, May 2001. |
| Lindsay Santini | May 1999 – May 2000, B. A. Degree in Chemistry, December 2000. |
| Jill Ennis | August 2000 –May 2001, B. S. Degree in Chemistry, May 2001.<br>M. S. in Forensic Science, John Jay University (CCNY) |
| David Roach | January 2004 – present, B. S. Degree in Chemistry, May 2004.<br>M.S. in Chemistry, Virginia Tech, December 2005.<br>Analytical Chemist with Bahr Pharmaceuticals |
| Hunter Champion | Summer 2004 – REU student<br>Columbus State University, Columbus, GA<br>Currently pursuing PhD at Virginia Tech |
| Jane Skalski | Summer 2005 – REU student<br>Summer 2006 – REU student<br>Columbus State University, Columbus, GA |
| Ashlin Bollacker | Summer 2005 – REU student<br>Virginia Tech |
| Ricardo Vargas | Summer 2006 – REU student<br>Fall 2006,Virginia Tech |
| Emily Chen | Summer 2006, Virginia Tech, B. S. in Biochemistry, May 2006.<br>Ph.D. in Biotechnology, Northwestern University |
| Jeremy Jones | August 2006 – May 2007, Virginia Tech |
| Jonathon Meyers | January 2007 – May 2007, Virginia Tech |
| Victoria Lowe | August 2008 – December 2008, University of Colorado Denver |
| Christopher Atcherly | January 2009 – May 2009, University of Colorado Denver, B.S. in Chemistry, May 2009<br>Currently pursuing Ph.D. in Chemistry, University of Arizona |
| Hunter Neilson | June 2010 – December 2010, University of Colorado Denver, B. S. in Chemistry, May 2011,<br>Currently pursuing Ph.D. in Environmental Science, University of California San Diego |
| Nicole DuFour | June 2010 – December 2010, University of Colorado Denver, B. S. in Chemistry, May 2011 |
| Morgan Anderson | June 2010 – present, University of Colorado Denver, B. S. in Chemistry, May 2011, Currently pursuing Ph.D. in Chemistry, University of Texas |
| Heather Barody | June 2010 - present, University of Colorado Denver, B. S. in Chemistry, May 2011 |
| Ryan Borman | August 2010 – present, University of Colorado Denver |
| Thomas Grushka | August 2011 – present, University of Colorado Denver |

**XI. TEACHING**

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|---|---|
| Spring 1990 | Chemistry 5114, Graduate Analytical Chemistry II, 20 students, 3.3 overall student rating (out of a possible 4.0). |
| Fall 1990 | Chemistry 4114, Instrumental Analysis, 15 students 3.1 overall student rating. |
| Spring 1991 | Chemistry 5114, Graduate Analytical Chemistry II, 7 students, 3.1 overall student rating. |
| | Chemistry 1036, General Chemistry, 170 students, 2.6 overall student rating. |

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| Summer 1991 | Chemistry 1036, General Chemistry, 49 students, 3.4 overall student rating. |
| Fall 1991 | Chemistry 2114, Analytical Chemistry Laboratory Sections, 72 students. |
| Spring 1992 | Chemistry 2114, Analytical Chemistry, 77 students, 3.7 overall student rating. |
| | Chemistry 5114, Graduate Analytical Chemistry II, 12 students, 3.5 overall student rating. |
| Fall 1992 | Chemistry 2114, Analytical Chemistry, 166 students, 3.3 overall student rating. |
| Spring 1993 | Chemistry 5114, Graduate Analytical Chemistry II, 29 students, 3.5 overall student rating. |
| Summer 1993 | Chemistry 2114, Analytical Chemistry, 46 students, 3.3 overall student rating. |
| Fall 1993 | Chemistry 2114, Analytical Chemistry, 175 students, 3.6 overall student rating. |
| Spring 1994 | Chemistry 5114, Graduate Analytical Chemistry II, 29 students, 3.7 overall student rating. |
| Fall 1994 | Chemistry 2114, Analytical Chemistry, 166 students, 3.5 overall student rating. |
| Spring 1995 | Chemistry 5114, Graduate Analytical Chemistry II, 15 students, 3.6 overall student rating. |
| Summer 1995 | Chemistry 2114, Analytical Chemistry, 35 students, 3.6 overall student rating. |
| Fall 1995 | Chemistry 2114, Analytical Chemistry-Major's Course, 66 students, 3.5 overall student rating. |
| Spring 1996 | Chemistry 2114, Analytical Chemistry- Freshman Major's Course, 52 students, 3.4 overall student rating. |
| Fall 1996 | Chemistry 5114, Advanced Analytical Chemistry II, 28 students, 3.6 overall student. |
| Spring 1997 | Chemistry 2114, Analytical Chemistry- Freshman Major's Course, 54 students, 3.6 overall student rating. |
| Summer 1997 | Chemistry 3114, Analytical Chemistry for Life Sciences, 80 students, 3.7 overall student rating. |
| Fall 1997 | Chemistry 1035, General Chemistry I, 110 students, 3.8 overall student rating |
| Spring 1998 | Chemistry 5114, Advanced Analytical Chemistry II, 13 students, 3.6 overall student rating. |
| Fall 1998 | Chemistry 5664, Surface and Colloid Chemistry, 20 students, 3.1 overall student rating. |
| Spring 1999 | Chemistry 2114, Analytical Chemistry, 86 students, 3.2 overall student rating. |
| Fall 1999 | Chemistry 5114, Advanced Analytical Chemistry,22 students, 3.5 overall student rating. |
| Fall 2000 | Chemistry 4114, Instrumental Analysis, 23 students, 3.5 overall student rating. |
| Spring 2001 | Chemistry 5114, Advanced Analytical Chemistry, 11 students, 3.6 overall student rating. |
| Fall 2001 | Chemistry 4114, Instrumental Analysis, 15 students, 3.5 overall student rating. |
| Spring 2002 | Chemistry 2124, Analytical Chemistry Laboratory, 101 students, 3.5 overall student rating. |
| Fall 2002 | Chemistry 4114, Instrumental Analysis, 18 students, 3.5 overall student rating. |

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| | Chemistry 4124, Instrumental Analysis Laboratory, 3 sections. |
| Spring 2003 | Chemistry 5114, Advanced Analytical II, 18 students, 3.8 overall student rating. |
| Fall 2003 | Chemistry 4114, Instrumental Analysis.<br>Chemistry 4124, Instrumental Analysis Laboratory |
| Spring 2004 | Chemistry 1035, General Chemistry II, 210 students, 3.5 overall student rating. |
| Fall 2004 | Chemistry 3114, Analytical Chemistry for the Life Sciences, 115 students, 2.9 overall student rating.<br>Chemistry 5904, Project and Report – Literature Review and Research Summary, 21 students<br>Chemistry 5944, Graduate Seminar, 20 students |
| Spring 2005 | Chemistry 5114, Advanced Analytical II, 19 students.<br>Chemistry 5904, Original Research Proposal, 21 students<br>Chemistry, Graduate Seminar, 12 students. |
| Fall 2005 | Chemistry 3114, Analytical Chemistry for the Life Sciences, 157 students, 3.3 overall student rating<br>Chemistry 5904, Project and Report – Literature Review and Research Summary, 24 students<br>Chemistry 5944, Graduate Seminar |
| Spring 2006 | Chemistry 3114/2114, Analytical Chemistry for the Life Sciences, 90 students, 3.0 overall student rating<br>Chemistry 5904, Project and Report – Original Research Proposal, 15 Students<br>Chemistry 5944, Graduate Seminar |
| Fall 2006 | Chemistry 5904, Project and Report – Literature Review and Research Summary<br>Chemistry 5904, Project and Report – Original Research Proposal<br>Chemistry 5944, Graduate Seminar |
| Spring 2007 | Chemistry 5114, Advanced Analytical Chemistry II, 30 students<br>Chemistry 5904, Project and Report – Literature Review and Research Summary<br>Chemistry 5944, Graduate Seminar |
| Spring 2008 | Chemistry 1130, Engineering General Chemistry, 40 students, |
| Fall 2008 | CHEM 4518, Physical Chemistry laboratory I, 18 students. |
| Spring 2009 | CHEM 4538, Physical Chemistry laboratory II, 18 students.<br>CHEM 5110, Advanced Analytical Chemistry, 12 students. |
| Fall 2009 | CHEM 4518, Physical Chemistry laboratory I, 24 students |
| Spring 2010 | CHEM 4518, Physical Chemistry laboratory II, 19 students<br>CHEM 2038, 2068, General Chemistry I and II laboratories (~300 students total) |
| Fall 2010 | CHEM 4518, Physical Chemistry laboratory I, 23 students<br>CHEM 3118, Analytical Chemistry laboratory, 28 students<br>CHEM 2038, General Chemistry I laboratory (~300 students) |
| Spring 2011 | CHEM 4538, Physical Chemistry laboratory II, 23 students<br>CHEM 4128, Instrumental Analysis laboratory, 16 students<br>CHEM 2038, General Chemistry I laboratory (~300 students) |

## XII. SERVICE

### a. Professional

Board of Directors – Member at large, Electrochemical Society, Physical andAnalytical Division, Elected Terms 2009 – 2011, 2011-2013

Membership committee Electrochemical Society membership committee, 2009- present

David C. Grahame Award selection committee Electrochemical Society, 2011- present

Reviewer for:
Journal of the American Chemical Society
Analytical Chemistry
Analytical Methods
Journal of the Chemical Society, Faraday Transactions
Journal of the Chemical Society, Perkin Transactions
Journal of Physical Chemistry - B
Journal of the Electrochemical Society
Solid State Communications
Electrochemistry Letters
Langmuir
Mikrochimica Acta
Natural Products
Physical Chemistry Chemical Physics
Talanta
Journal of Colloid and Interface Science
Analyst
Analytical Methods
Applied Materials and Interfaces
Electroanalysis
Electrochemistry Communications
Journal of Experimental Nanoscience
New Journal of Chemistry
Royal Society Reviews
Sensors
Spectroscopy Letters

National Science Foundation
American Chemical Society - Petroleum Research Fund
National Science and Engineering Research Council of Canada
Waste Policy Institute
U. S. Army Research Office
Jeffress Memorial Trust

### b1. University (University of Colorado Denver)

Post-Tenure Review (PTR) Committee: Member, August 2010 – May 2011

Director Center for Applied Science and Mathematics for Innovation and Competitveness (CASMIC):
May 2008 – December 2010

Task Force on the Clinical Teaching Track Faculty: September 2008-May 2009

College of Liberal Arts and Sciences Diversity Committee: May 2009 – present

Department of Electrical Engineering Retention Tenure and Promotion (RTP) committee: October 2007 – January 2008.

Search Committee, College of Liberal Arts and Sciences Dean Search Committee: September 2007 – February 2008.

**b2. University (Virginia Tech)**
University Council

Phi Beta Kappa, Academic Honor Society Selection Committee – January 2004 – May 2007

College of Science, Personnel Committee – August 2004 – May 2007.

College of Science, Diversity Committee – August 2004 – May 2007.

College of Science, Curriculum Committee – August 2003 – May 2004.

College of Arts and Sciences, Curriculum Committee- January 1998 - May 2001.
Ad Hoc committee to review Restricted Majors, Spring semester 2001.

Graduate School, Curriculum Committee, January 1998 – May 2001.

University Undergraduate Student Honor System
Faculty Panel member, August 1992 - May 1994, August 1994 – May 2007.

University Graduate Student Honor System, Faculty member, September 1994 – May 2007.

Alpha Chi Sigma Professional Chemistry Fraternity, Faculty Advisor, August 1995 – January 2000.

**c1. Department (University of Colorado Denver)**

Department Chairman, August 1, 2007 – present

Faculty Recruiting committee:
Organic Tenure Track position, 2007-2008
Instructor, Spring 2008
Physical Chemistry Tenure Track position, 2008-2009

**c2. Department (Virginia Tech)**

Director of Graduate Studies, August 2004 – May 2007

Graduate Education Committee, August 1992 – May 2002, August 2004 – May 2007
- Chairman, January 1998 – May 2002

Graduate Recruting Committee, August 2004 – May 2007
- Chairman, August 2004 – May 2007

Undergraduate Education Committee, August 1992- August 1993; August 2004 – May 2007
- Chairman, August 2004 – May 2005

Chemistry Department Personnel Committee (elected terms listed below):
- August 1996 - August 1998.
- August 1998 - August 2000.

Chemistry Department Executive Committee (elected terms listed below):
- August 2000 – May 2002.

Ad Hoc Committee on Departmental Governance, Vice-Chairman, June 1995 - September 1995.

Physics Mechanical Shop Committee, Chemistry Department Representative, August 1995 – May 2007.

Graduate Student Recruiting Committee, member, August 1989 - August 1992

Analytical Division Group Coordinator, AY 1990-1991, AY 1995-1996, AY 2003-2004.

Faculty Recruiting Committee

- August 1992 - January 1993.
- August 1998 – May 2003.

Departmental Seminar/Colloquium Committee, August 1993 - August 1997.

Graduate Student Advisory Committees:

Have served on graduate examination committees for over 50 students

Undergraduate Student Advisor:

Course Advisor for 30 Undergraduate Chemistry Majors

**d. Other**

Interview with KMGH about Bisphenol-A and water bottle recall (aired 10/9/2009; http://www.thedenverchannel.com/news/21254687/detail.html)

Interview with Rocky Mountain News

Interview with KCNC about Bisphenol-A (aired 5/11/2008)

Interview with the Rocky Mountain News (5/5/2008)

Virginia Water Resources Technical Advisory Committee, August 1989 - August 1992.

Judge for the Southwest Virginia High School Student Science Fair, Wytheville, VA April 1993, April 1994, April 1995, March 1996, April 1997, April 1998