

Alexander Scheeline

Department of Chemistry, School of Chemical Sciences
University of Illinois at Urbana-Champaign
600 S. Mathews Ave.
Urbana, IL 61801

Phone: (217) 333-2999
FAX: (217) 265-6290
email: scheelin@illinois.edu
Scheeline.scs.illinois.edu
Spectroclick.com

Personal Information:

| | | | |
|-----------------|-------------------|-----------------|-----------------------|
| Date of birth: | June 6, 1952 | Nationality: | United States Citizen |
| Place of birth: | Hollidaysburg, PA | Marital Status: | Married |

Education:

- Ph. D. University of Wisconsin, Madison, 1978. Major: analytical chemistry; minor: physical chemistry. Thesis director: John P. Walters. Thesis title: "Techniques for Observation and Control of High Voltage Spark Discharge."
- B. S. Michigan State University, East Lansing, 1974. Major: chemistry. Thesis director: Stanley R. Crouch. Thesis title: "Formation of 12-molybdophosphate in Acidic Solution and an Automated Computer Interfaced Stopped-Flow Spectrophotometer."

Professional Experience:

Professor Emeritus, University of Illinois Department of Chemistry, 2012-
Professor, University of Illinois Department of Chemistry, 1998-2012.
Founder, SpectroClick Inc., 2011-
Founding Partner, Anchor Science LLC, 2005-. Vice-President 2012-
Director of Graduate Studies, University of Illinois Department of Chemistry, 2005-2008.
Visiting Research Scientist, Christchurch School of Medicine, 2002.
Visiting Research Scientist, Purdue University, 2002.
Visiting Research Professor, University of South Carolina, 2001.
Departmental Affiliate, University of Illinois Department of Mechanical and Industrial Engineering, 1999-2007
Professor, University of Illinois Beckman Institute, 1998-1999.
Associate Professor, University of Illinois Beckman Institute, 1990-1997.
Program Officer, Chemistry Division, National Science Foundation, 1990-1991.
Associate Professor, University of Illinois School of Chemical Sciences, 1987-1998.
Assistant Professor, University of Illinois School of Chemical Sciences, 1981-1987.
Assistant Professor, University of Iowa Department of Chemistry, 1979-1981.
National Research Council Post-Doctoral Fellow, National Bureau of Standards, 1978-1979.
Intern, Jarrell-Ash Division, Fisher Scientific Co., Waltham, MA, 1977.
Teaching Assistant, University of Wisconsin, 1974.
Teaching Assistant, Michigan State University, 1972-1973.

Honors:

AE50 Award, American Society of Agricultural and Biological Engineers, 2017
Honorary Member, Society for Applied Spectroscopy, 2015
Commander's Public Service Award (Army) and Commander's Award for Public Service (Air Force),
University of Illinois ROTC, 2014
Innovation Award, FACSS, 2013 (joint with Bui Anh Thu)
Distinguished Service Award, FACSS, 2010
Distinguished Service Award, Society for Applied Spectroscopy, 2010
Fellow, Society for Applied Spectroscopy, 2008
ACS Newsmaker Award, American Chemical Society, 2000
Alpha Chi Sigma (Zeta Chapter) Outstanding Faculty Award, 1999.
Outstanding paper, *Spectrochimica Acta, Part B* (joint with J. C. Travis, M. L. Salit, B. J. Wythoff, and M.
R. Winchester), 1993.
Society for Applied Spectroscopy Special Publications Award, 1992
W. F. Meggers Award, Society for Applied Spectroscopy, 1991
W. F. Meggers Award, Society for Applied Spectroscopy (joint with John P. Walters), 1979.
University of Iowa Old Gold Summer Fellow, 1980.
National Research Council Post-Doctoral Fellow, 1978-1979.
Samuel E. McElvain Outstanding Graduate Student Award, University of Wisconsin, Department of
Chemistry, 1978.
Dow Chemical Fellow, 1977-1978
ACS Analytical Division Summer Fellow, 1977.
NSF Graduate Fellow, 1974-1977.

Consultantships:

GFS Inc., 1995 LECO Inc. 1995 Spectral Sciences Inc., 1983-1985; 1988
Biotronics Technologies, Inc., 1993-1994. Visual Imagineering Inc., 1993
National Bureau of Standards, 1980-91 Dickey-John Corp., 1993 Hamamatsu, 2004-2009, 2012-
Foresight Solutions 2006-2008 Dole Fresh Vegetables, 2013 MOA Instruments 2014

Research Grants:

Petroleum Research Fund, American Chemical Society, "Stark Broadening Diagnostics of High Voltage
Spark Discharges," \$10,000, 1979-1981.
Research Corp., "Light Scattering Observation of Particulates in Spark Discharges," \$11,475,
7/1/80-7/1/83.
National Science Foundation, "Properties of Free Electrons in Analytically Useful Electrical Discharges,"
\$120,000, 6/1/80-9/30/83.
National Science Foundation, "Simulation of Experimentally Observable Processes in Pulsed Analytical
Discharges," \$115,700, 6/1/82-11/30/85.
U. S. Department of Energy, "Theta Pinch Discharges for Solids Vaporization and Elemental Analysis,"
\$198,000, 4/15/84-4/14/87.
IBM/Project EXCEL (University of Illinois instructional computing program), "Electronics and
Instrumentation for Scientists" \$237,000, 7/1/86-6/30/87.
National Science Foundation, "Scattering and Emission Diagnostics of the High Voltage Spark Discharge,"
\$222,000, 12/1/86-11/30/89.
U. S. Department of Energy, "Theta Pinch Discharges for Emission Spectrochemical Analysis," \$306,000,
4/15/87-11/14/92.
British Petroleum Research and Development, "Quantitative Analysis with a Theta Pinch Discharge," \$3,500,
2/15/88-3/31/88.

National Science Foundation, "Scattering and Emission Diagnostics of the High Voltage Spark Discharge," \$47,000, 12/1/89-5/31/92.

Educational Technologies Board, University of Illinois, Instructional Computing Grant, \$6,000, September, 1992.

National Science Foundation, "Investigation of the Peroxidase-Oxidase Oscillator: Theory and Experiment," \$172,300, 7/15/93-1/15/97 (collaboration with R. Larter, total budget \$299,800).

NATO, "Mechanism of Peroxidase-Catalyzed Chemical Oscillations," \$6,200, 7/1/95-6/30/96.

Department of Energy, "Oxide Film Microstructure: The Link Between Surface Preparation Processes and Strength/Durability of Adhesively Bonded Aluminum," \$176,925, 9/15/96-7/14/99 (joint with A. J. Pearlstein, J.-K. Shang, and K. J. Hsia, total budget \$612,000).

National Science Foundation, "Speciation and Dynamics of the Peroxidase-Oxidase Oscillator," \$272,586, 3/1/97-2/28/00.

U. S. Department of Energy, "Drop Dynamics and Speciation in Isolation of Metals from Liquid Waste by Reactive Scavenging," \$592,221 (joint with A. J. Pearlstein), 9/1/97-8/31/00 (collaboration with J. O. L. Wendt, W. P. Linak, and A. R. Kerstein, total \$1,035,000).

Educational Technologies Board, University of Illinois, Software Development Grant, \$6,000, March 1998-December 1998.

NASA Graduate Student Researchers Program, "Capillary Electrokinetic Transport for Conveying Sample to Analytical Instrumentation: Design, Development and Demonstration," \$22,000, July 1999-June 2000.

National Science Foundation, "Experimental Study of Adaptation to the Edge of Chaos and Critical Scaling in the Self-adjusting Peroxidase-oxidase Reaction," \$167,908. 7/02-6/05 (collaboration with A. Hübler).

National Organization for Hearing Research, "Reactive Oxygen Species in Cochlea: Development of *in situ* Amperometric Sensors," designated 2004 Marjorie and Max Fisher Grant in Auditory Science. \$15,000, 1/16/04 – 6/15/05 (collaboration with J. Siegel).

Research Corporation, "Levitated Drop Reactor: Towards Highly Parallel Enzyme Kinetics Measurements," \$50,000 (plus \$25,000 required matching funds from UIUC for a total of \$75,000), 6/1/04-5/31/09.

Deafness Research Foundation, "Reactive Oxygen Species in Cochlea: Development of *in situ* Amperometric Sensors," \$20,000, 7/1/04-6/30/05. (collaboration with J. Siegel)

National Science Foundation, "Collaborative Project: Assessing the User-base and Expanding the Usability/Reach of the Analytical Sciences Digital Library through Developmental Workshops," \$92,221, 9/1/04-8/31/07. (collaboration with C. Larive, T. Kuwana, and T. Chryzastowski)

Army Research Office, "Free Radical Damage and Noise-Induced Hearing Loss: *in vivo in situ* Sensing," \$48,291, 2/12/07 – 5/31/08. Supplement \$9,137 supplement extension to 12/31/08.

Army Engineering Research and Development Center, "Molecular Mechanics of Flow-Induced Sorption/Desorption Phenomena at the Liquid/Solid Interface," \$178,000, 3/1/08 – 9/30/09. Supplemented to \$678,000 through 9/30/10, then to \$895,000 through 5/31/12.

Dreyfus Corp., "Retargetable Modules for Instrumental Analysis Across Cultures and Learning Styles," \$4,300, 3/1/09 – 2/28/10, extended to 10/31/10.

National Science Foundation, "Development of Levitated Drop Reactor for Chemical, Enzyme, and Nonlinear Dynamics," \$194,539, 8/1/09 – 7/31/11.

3M Foundation, "Research Experiences for Undergraduates," \$50,000 per annum, 2011-2014.

National Science Foundation, "Research Experiences for Undergraduates," \$302,019, 10/1/11-9/30/14, with no cost extension to 9/30/15.

Affiliations:

American Chemical Society Sigma Xi Phi Kappa Phi Society for Applied Spectroscopy
Society of Electroanalytical Chemists Optical Society of America Coblenz Society
International EPR Society American Association of University Professors Electrochemical Society
Society for Free Radical Biology and Medicine Association for Research in Otolaryngology

Courses Taught:

Chemistry 122, Quantitative Analysis (total 2 semesters)
Chemistry 123, Quantitative Analysis
Chemistry 222, Quantitative Analysis (plus 4 semesters in Hanoi, Vietnam through 2011)
Chemistry 223, Quantitative Analysis (total 2 semesters)
Chemistry 223, Quantitative Analysis Laboratory (total 5 semesters)
Chemistry 224, Quantitative Analysis Laboratory (total 2 semesters)
Chemistry 315, Instrumental Characterization of Chemical Systems Laboratory
Chemistry 321/420, Instrumental Characterization of Chemical Systems (total 8 semesters, plus 5 semesters in Hanoi, Vietnam)
Chemistry 322, Separation Methods in Chemical Analysis (total 3 semesters)
Chemistry 323, Electronics for Scientists (total 12 semesters).
Chemistry 329, Instrumental Methods of Chemical Analysis (total 4 semesters).
Chemistry 420/520, Advanced Analytical Chemistry (total 12 semesters)
Chemistry 421/522, Experimental Spectroscopy (total 11 semesters)
Chemistry 424, Special Topics in Analytical Chemistry
Chemistry 425/525, Analytical Chemistry Seminar
Chemistry 426/521, Advanced Analytical Chemistry Laboratory (total 5 semesters)
Chemistry 490, Plasma Spectroscopy
Quantitative Analysis, Hanoi University of Science, (total 4 semesters)
Instrumental Analysis, Hanoi University of Science/Vietnam National University of Science – Hanoi, (total 8 semesters)

University Activities:

Committee Service, School of Chemical Sciences and Department of Chemistry:
Budget and Operations Committee 1992-1993, 1994-2012
Safety Committee 1982-1988, 2007- (Chairperson 1983-1988, 2007-2012)
Service Facilities Committee 1981 -1990, 1991- 2007, Chairperson 1988-1990, 1998
Supplies and Services Committee 1981-1990
Machine Shop Faculty Supervisor 1981-1988, 1994-1997, 2000-2007
Drafting Facility Supervisor 1985-1988
Library Committee 1982-1990, 1995-1996, Chairperson 1996
Graduate Student Recruiting Committee 1982 -1990, 2002-2004, Chairperson 1989-1990
Ethics Committee (Chair) 2000-2012
General Chemistry, 2004-2005
Advisory Committee 2004-2006
Courses and Curriculum Committee 2006-2008
Undergraduate Awards Committee (chair) 2007-2011
Graduate Teaching Awards Committee (chair) 2007-2008
Curriculum and Teaching Advancement Collaboration with Hanoi University of Science Faculty of Chemistry 2008-2012 (co-chair 2010-2011, chair 2011-2012)
Affirmative Action officer, 2011-2012
Administer Research Experiences for Undergraduates, 2011-2013
Administrator Graduate Assistance in Areas of National Need programs, 2011-2012
Research Experiences for Undergraduates, Chair 2011-2015.

Liberal Arts and Sciences Committees:

Policy and Development Committee, 1994-1999 (Chair, 1997-99), 2003-2005
Courses and Curriculum Committee, 1995
Committee on Admissions and Academic Standards, 2001-2005.
Faculty Appeals Committee, 2003-2005.
Committee on Committees, 2005-2007, Chair 2006-2007.
Secretary of the Faculty, 2007-2012
Wall of Fame Committee, 2013

Campus Committees:

Environmental Health and Safety Committee, 1984-1990 (Chair 1987-1990)
Subcommittee on Toxic Chemical Hygiene Plan, 1986-1987 (Chair)
Biological Sciences Computer Task Force, 1984
Precalculus Mathematics Review Committee, 1991 (Chair)
Faculty Senate representative, 1996-2000, 2005-2010, Executive Committee, 2009-2011
Faculty Senate Library Committee, 1997-2000, 2005-2006, 2008-2010 (chair 1998-2000, 2008-2011)
Graduate College Engineering and Physical Sciences Area Subcommittee, 1998
Campus Library Policy Committee, 1998-2000
Library Allocation Steering Committee, 2000-2001 (Chair)
Library Long-range Planning Committee, 2002-2004.
Illini Union Bookstore Faculty Liaison Committee 2003-2005
Search Committee, Veterinary Bioscience analytical toxicologist, 2005
Search Committee, Associate Librarian for Service, 2005-2006
Military Education Council 2006-2014, Chair 2011-2014
Graduate College Committee on Electronic Thesis Deposit 2009-2010
Stewarding Excellence@Illinois, Academic Unit Reviews Project Team member 2010
Conflict of Interest Review Committee, 2009-2010

Seminars in other University of Illinois Departments:

"Nonlinear Dynamics in an RLC Relaxation Oscillator: Nonlinear Dynamics in the High Voltage Spark Source," Physics Department, 11/2/83.
"The High Voltage Spark Source as a Circle Map Machine," Physics Department, 11/8/84.
"Sensors in Automation," Agricultural Engineering Department, 2/25/86.
"The Oscillatory Reaction for Horseradish Peroxidase, NADH, and O₂," Physics Department, 3/5/86.
"Dual ICP as a Nonlinear Oscillator," Physics Department, 4/15/87.
"Oscillatory Chemical Reactions," Physics Department, 10/21/87.
"Oscillating Reactions: a Practical Application to Quantitative Enzyme Analysis?" Beckman Institute, 9/20/89.
"Oscillatory Reactions: Observation and Control" Beckman Institute, 11/2/93
"Oscillatory Reactions" Illinois EPR Research Center, 5/5/95
"Nonlinear Enzyme Chemistry: an Update," Materials Research Laboratory, 2/1/01
"Complex Enzyme Network Reveals Small Molecule Chemistry," Physics, 5/15/01
"Spectroscopic Measurements of Drop Trajectories and Soot in a Laminar Flow Combustor," Mechanical and Industrial Engineering, 10/8/02
"Differential Equations, Phase Space, Kinetics, and Chaos," Molecular and Cellular Biology 490B, 9/9/03
"A Random Walk Through Nonlinear Chemistry and Chemical Biology," Physics, 10/21/04.
"Supervising TAs: Best Practices," Liberal Arts and Sciences Teaching Academy, 1/26/10.
"Cell Phone Spectrometers: the Coming Age of COTS Science," Agricultural and Biological Engineering, 11/18/11

Miscellaneous Professional Activities:

Federation of Analytical Chemistry and Spectroscopy Societies (FACSS): Governing Board Chair-elect, 1988, Chair, 1989, Past-chair 1990; Program Committee, 1981-1986, Chair 1986.; Governing Board Delegate, 1986-1989, 1995-1997.

FACSS Symposium on Lasers, Organized 1982.

FACSS Symposium on High Current Discharges, organized 1983,1986,1989,1993.

FACSS Symposium on Characterization of Nonlinear Systems, 1994.

FACSS/ACS Analytical Division Symposia organizer, 1996, 1997.

FACSS Workshop on Funding a Research Program, 1994.

Organized Midwestern Universities Analytical Chemistry Conference (MUACC) 1996.

Member ACS Analytical Graduate Examinations Committee, 1983-1986.

Arranger, Committee on Line Spectra of the Elements-Atomic Spectroscopy Workshop, Colloquium Spectroscopicum International XXV, (joint with P. W. J. M. Boumans).

Member, NRC Committee on Line Spectra of the Elements-Atomic Spectroscopy, 1986-1989.

Jury member, ACS Analytical Division Instrumentation Award Committee 1985-1988.

Member, Los Alamos Michaelson Interferometer User's Group 1986-1989.

Lester Strock Award Committee of the Society for Applied Spectroscopy; Assistant Chair 1986, Chair 1987.

Jury member, ACS Analytical Division Award in Spectrochemical Analysis, 1986-1987.

Editorial Board, *Spectrochimica Acta B*, 1987-1995.

Editorial Board, *Spectrochimica Acta E*, 1991-1996.

Editorial Board, *Spectrochimica Acta R*, 1990-1994.

Editorial board, *Critical Reviews in Analytical Chemistry*, 1991-1996.

Publications Committee, Society for Applied Spectroscopy, 1994-1996, Chair 1995.

Education/Tour Speaker Committee, Society for Applied Spectroscopy, 1995-1997, Chair 1996.

Secretary, Society for Applied Spectroscopy, 1998-2000.

Co-organizer, SPIE Symposium on Instrumentation, February 1995

Participant, Functional Foods for Health Program, University of Illinois, 1997-2004.

Member, External Advisory Committee, Jackson State University Support for Continuous Research Excellence, 2002-2006.

Member Board of Directors, University of Illinois Friends of the Library, 2002-2005.

Book Review Editor, *Applied Spectroscopy*, 2002-2008.

Faculty Advisor, Zeta Chapter, Alpha Chi Sigma, 2002-2004

Instructor, high school summer program, Clark Atlanta University/Water CAMPwS Center, 2003-2012

Co-organizer, Understanding Complex Systems Symposium, 2004-2007 (UIUC).

American Chemical Society Analytical Division G. Calvin Giddings Award in Education jury 2006-2008.

American Chemical Society Ad Hoc Committee to Revise Test on Instrumental Analysis 2008-2009.

Society for Applied Spectroscopy Nominating Committee 2008-2010.

Member, editorial board, *Biophysical Chemistry*, 2008-2014.

Board of Review, Department of Chemistry, Virginia Polytechnic Institute and State University, 2014.

Society for Applied Spectroscopy Accreditation Committee 2016-2018.

Research Students Supervised:

Degrees received:

J. R. Redmond, M. S., 1981 (University of Iowa)

T. V. Tran M. S., 1981 (University of Iowa). "A Compact Adjustable Waveform Spark Source, and Application of the Source to Analysis of Sulfur in Steel by Near Infrared Spectrometry."

Michael Schwartzendruber (University of Iowa), high school.

B. R. Hardas, B. S., 1983. "Search for Chaotic Behavior in a High Voltage Spark Source."

C. E. Hoyer, B. S., 1984.

J. A. Giertych, B. S., 1984. "The Updating and Revising of a Plasma Discharge Simulation Program."

- T. M. Gonyon, B. S., 1985. "Segregated Sampling and Excitation of Spark-Eroded Material using a Dual Sequential Flowjet"
- G. J. Kamla, Ph.D., 1985. "Design and Characterization of a Theta Pinch Discharge for Atomic Emission Spectroscopy."
- D. W. Kuhns, B. S., 1985. "Characterization of a Concentric Flowjet for Positional Stabilization of the High Voltage Spark."
- T. Robinson, B. S., 1986. "Possible Roles for Methylene Blue and 2,4-Dichlorophenol in the Oxidase-Peroxidase Oscillatory Reaction."
- M. J. Zoellner, Ph. D., 1987. "Investigations of the High-Voltage Spark Discharge Using Light Scattering and Fluorescence Diagnostics."
- C. E. Crandall, M. S., 1987. "Modifications of a Baird Atomic RC-3 Micro photometer."
- M. A. Lovik, Ph. D., 1988. "Quasi-Elastic Light Scattering Diagnostics for a High Voltage Spark Discharge."
- J. C. Cousins, Ph. D., 1988. "Controlled Emissions Spectrochemical Analysis Using the High Voltage Spark Discharge."
- B. J. Mork, Ph. D., 1988. "Imaging of Transient Analytical Plasma Using Charge-Coupled Device Detectors."
- J. S. White, Ph.D., 1988. "Development of a Theta Pinch Discharge as a Sampling Source for Refractory Solids."
- S. Rynders, Ph. D., 1991. "Plasma Enhanced Chemical Vapor Deposition of Hydrogenated Silicon Carbide Films from Novel Precursors."
- J. Gwozdz, B.S., 1992. "A CSTR for Studying the Peroxidase-Oxidase Oscillator."
- L. Tai, B.S., 1993
- C. A. Bye. Ph. D., 1993. "Analytical Implications of the Plasma Dynamics in the High Voltage Spark Discharge."
- S. Patel, B.S., 1993.
- A. Kovacs-Boerger, M.S., 1994. "Spectrophotometric Observation of a Belousov-Zhabotinskii Reaction in a Continuous Flow Stirred Tank Reactor: an Alternative Approach to Data Acquisition Illustrating Multidimensional Wavelength Monitoring."
- D. Shriver, B. S., 1994. "Towards the Control of Nonlinear Chemical Dynamics of the Belousov-Zhabotinskii Reaction in a CSTR."
- D. L. Olson, Ph.D., 1994. "Experimental and Theoretical Studies of the Peroxidase-Oxidase Biochemical Oscillator: An Enzyme-Mediated Chemical Switch."
- J. Lymburner, B.S., 1994. "Effects of Manganese on the Peroxidase-NADH Biochemical Oscillator."
- B. Huang, B.S., 1995.
- D. L. Miller, Ph. D. 1996. "Evaluation of the Theta Pinch as a Sampling and Excitation Source for the Elemental Analysis of Solid Refractory Materials."
- V. Kutilek, B.S. 1996.
- D. Benson, Ph.D. A.B.D. 1996.
- J. Brown, M.S. 1996.
- T. Ewen, B. S. 1997.
- C. Walsh, B. S. 1997.
- C. Lin, B. S. 1997.
- K. Clay, B.S. 1997. "A Developmental Study of Current Effects on Oxide Formation for the Aluminum 6111 Alloy."
- V. Lvovich, Ph.D. 1997. "Characterization of Solution Species Relevant to the Peroxidase-NADH Biochemical Oscillator."
- E. Williksen, B. S. 1998.
- E. D. Long, B. S. 1998.
- D. Bowlin
- G. Horras, M.S. 1998. "Quantitative Modeling of the HRP/NADH Oscillating Reaction."
- F. Anariba, B. S. (Rutgers University) 1998.
- T. Kelsey, M. S., 1999 (pro forma C research under the direction of Edward G. Perkins, Dept. of Food Science) "Examination of Legume Varieties for Isoflavones by HPLC and HPLC-MS"
- J. Hogan, B. S., 1999

N. Suzuki, M.S., 2000. "Capillary Electroosmotic Transport for Monitoring Dynamic Speciation: Preliminary Characterization."

C. East, B. S. (Augusta State University), 2000.

C. S. Lacasce, B. S. May, 2001. "Search for *in vivo* Electrochemical Oscillations in Horseradish Root."

E. A. De Lucia, B. S. 2001, "A Mechanistic Model for Open-circuit Metal-ion Catalyzed Aluminum Dissolution Oscillating Reactions"

A. Schricker, B. S., 2001

V. Demas, B. S., 2001

J. Josephs, B.S. 2001 (Augusta State University)

M. M. Rodriguez, B.S. 2002 (U. of Puerto Rico)

Jing Xu, B. S. 2002

Maharaj Mitra, B. S., 2004

Laurel A. Luckey, M.S., 2004

Deyana D. Lewis, B.S., 2004

Christopher Sorce, B. S. 2005, "Towards Intra-aural Amperometric Probes"

Yew T. Wan, B. S. 2005

D. Sean Beasley, B.S., 2006 "The Separation of the Isomers of Nicotinamide Adenine Dinucleotide Dimer"

Ben Krejcie, B.S., 2006

Michael L. Ruane, B. S. 2006

Christopher Lovik, B. S., 2007

Mohamed Bayoumi, B. S., 2008 "Preliminary Investigation of Parametric Dependencies of Models for Myeloperoxidase-Catalyzed Biochemical Oscillations"

Geof Beck, University High School, 2008 "Microfluidic Device to Supply Superoxide Radical to Biological and Chemical Experiments"

Travis King, Ph.D. 2008

Kevin Shanley, B.S., 2008

Ilya Sobolevskiy, B. S. 2008

Ted Lapainis, Ph.D., 2009 (with J. V. Sweedler)

Christopher Field, Ph.D., 2009 (jointly advised with R. I. Masel), "Developments in Analytical Chemistry: Acoustically Levitated Drop Reactors for Enzyme Reaction Kinetics and Single-Walled Carbon Nanotube-Based Sensors for Detection of Toxic Organic Phosphonates"

Steven M. Markwell, B. S. 2009, "Polyaniline Reference Electrode Stability in Biological Environments"

Michael J. Gorga, B. S. 2009, "Computations of Nonlinear chemical Dynamics of the Myeloperoxidase Network"

Haylee M. Thomas, M.S., 2009

Rebekah C. K. Wilson, Ph.D., 2010, "Micron-scale Flexible Electrodes for Detection of Reactive Oxygen Species for *in vivo* Applications."

Oluwafemi Masha, B. S. 2010

Francisco Chaparro, B. S. 2010

Chris Beyer, B. S. 2010

Yiseol Allison Cho, (transferred to University of Pittsburgh after sophomore year) 2010

Zakiah N. R. Pierre, Ph.D., 2011, "Acoustically-Levitated Drop Reactor (LDR) Employable for Kinetic Measurements of Biochemical Networks"

Thanh Phuong Dao, B. S. 2011

Drake A. Gashkoff, B. S. 2011

Trinh Thai Ha, B. S. 2011

Claire Kane, B. S. 2011, "Potential-Assisted Deposition of Cytochrome C on Mixed Thiol Monolayer on Gold for Selective Amperometric Detection of Hydrogen Peroxide"

Adam Keith, B. S. 2011, "An On-demand Source of Superoxide in Aqueous Solution at Near-biological pH"

Mathew Sampson, B. S. 2011, "Byproducts of Carbon Capture Technology: Comparison of Genotoxicity of Nitrosamines and Nitramines"

Bui Anh Thu, B. S. 2012

Luke A. Wesley, B. S. 2011
 Shama Barna, M.S. 2011
 Christopher Nellessen, B. S. 2011
 Elizabeth Ott, B. S. 2011
 Rod Stewart, B. S. 2011
 Madhav Khanna, B. S. 2012
 Pei Hsung Pan, B. S. 2012
 Edward Chainani, Ph.D. 2012, "Towards Electrochemical Diagnostics Of Biochemical Free Radical Species In Aqueous Microliter Volumes"
 Ngo T. Khanh, B. S., 2013, "Induction Based Fluidics Droplet Launcher: Characterization and Application to a Levitated Drop Reactor"
 Victor H. Molina Lopez, B. S. 2013
 Nguyen Hoai Thu, B. S. 2013

Post-Doctoral Fellows, Research Associates, and Visiting Faculty:

J. A. Stewart, 1982-1983: Positional Stability of Spark Discharges
 G. H. Lee, 1987-1989: Theta Pinch System Development
 Z. Wang, 1989-1991: Theta Pinch Applications
 E. S. Kirkor, 1994-2000: Peroxidase Oscillations Characterization
 H. Gao, 1996-2000: Surface Preparation of Aluminum for Adhesive Bonding
 J. Cabalo, 2000-2002: Laser Diagnostics of Drop Dynamics in Turbulent Flames
 R. L. Behrens, 2010: Levitated Drop Reactors
 Woo-Hyuck Choi, 2011: Levitated Drop Reactors

Collaborators:

| | | | | | |
|------------------|------------------|------------------|------------------|----------------|------------------|
| B. D. Aguda | T. Araki | A. Barry | D. A. Bath | P. Beak | P. W. Bohn |
| H. Bohr | T. A. Bui | R. O. Carter | T. Chryzastowski | B. Clarke | C. L. Cobb |
| D. M. Coleman | K. D. Cook | S. R. Crouch | T. A. Duc | H. B. Dunford | D. Dunning |
| P. B. Farnsworth | V. Fed'kina | L. Fu | H. R. Gaskins | M. Ginsberg | J. M. Goldberg |
| S. R. Goode | L. H. Greene | D. Griffon | E. Golubeva | D. Gross | M. Gruebele |
| L. P. Hager | M. Hauser | K. J. Hsia | A. Hübler | J. Imlay | C. Ingram |
| T. Keiderling | A. R. Kerstein | A. J. Kettle | E. S. Kirkor | M. Klein | H. Krier |
| M. Kushad | T. Kuwana | D. Kyritsis | C. Larive | R. Larter | D. H. Levy |
| W. P. Linak | V. D. Loi | B. Marinas | R. Masel | M. Matelon | G. Mensing |
| E. Mintz | M. Mistretta | J. E. Mittenthal | E. Morgenroth | D. James Morré | Dorothy J. Morré |
| L. F. Olsen | H. Nguyen | A. J. Pearlstein | M. Plewa | G. Robinson | M. Samide |
| K. J. Schmidt | J.-K. Shang | M. A. Shannon | J. M. Slauch | J. H. Siegel | S. Sinha |
| S. G. Sligar | L. M. Smith | T. Spudich | L. Struble | K. Suslick | A. T. S. Taylor |
| T. T. Thao | B. Veeravaghavan | | E. Wagner | D. Weis | D. Weiss |
| J. O. L. Wendt | D. S. Whitlon | A. Wieckowski | C. Winterborn | E. Yan | |

Invited Lectures:

1. "Perspectives on Observation and Control of High Voltage Spark Discharge," U. S. Coast Guard Research and Development Center, Groton, CT, 10/3/79
2. "Non-Traditional Probing of High Voltage Spark Discharges," University of Illinois, January, 1980.
3. "Plasma Physics and Spark Discharges – an Overview," Gordon Research Conference in Analytical Chemistry, Young Investigators Presentation, August, 1980.
4. "Perspectives on Plasma Physics, Diagnostics, and Spark Discharge," National Bureau of Standards, March, 1982.
5. "Spark Diagnostics and a Pinch of Argon," Wayne State University, 10/15/82.

6. "Sparks, Lasers, and a Pinch of Argon," ACS Student Affiliates, University of Illinois, November 1982.
7. "High Voltage Discharges: Diagnostics and Opportunities," ACS National Meeting, Washington, DC, August 1983, paper ANAL-168.
8. "Metals Analysis and Plasma Physics: Synergy at Work," Jackson State University, Jackson MS, 11/11/83.
9. "Plasma Physics Tools Come to Elemental Analysis: Theta Pinches and Thomson Scattering," St. Louis Section, Society for Applied Spectroscopy, 3/15/84.
10. "Analytical Spectroscopy with a Theta Pinch Discharge," Labcon, Chicago, September, 1984.
11. "Plasma Physics Tools for Elemental Analytical," with G. J. Kamla and M. J. Zoellner, Northern Illinois University, October, 1984.
12. "Developments in Theta Pinch Emission Spectroscopy," Atoms-85 Conference, Sandia National Laboratories, Albuquerque, NM, May, 1985.
13. "Computers for Teaching Electronics to Physical Scientists: an Aid to Intuition," Advanced Education Projects Conference (sponsored by IBM), Alexandria, VA, June, 1985.
14. "The Role of Sparks, Arcs, and Related Electrical Discharges in Elemental Analysis," AIt's Elemental" Symposium, Elk Grove Village, IL 5/14/86.
15. "Elemental Analysis with a Theta Pinch Plasma: The Heat is On," Wabash College, Department of Chemistry, 10/14/86.
16. "Theta Pinches for Elemental Analysis," Michigan State University, Department of Chemistry, 11/20/86.
17. "Theta Pinches and Microsparks: Extremes in Spectrochemical Analysis," University of Wisconsin-Madison, Department of Chemistry, 3/5/87
- 18-21. "Megawatts to Microwatts: Emission Spectroscopy at the Limits," SAS Tour speaker, New York, Lehigh Valley, Penn-York, and New England Sections, March-April, 1987.
22. "Development of Theta Pinch Discharges for Emission Spectrochemical Analysis," Colloquium Spectroscopicum International XXV, Toronto, CA, June, 1987.
23. "Global Search and Replace: Technical Publishing Without Standards," with S. W. Fleming, ACS National Meeting, New Orleans, August, 1987.
24. "Theta Pinch Discharges for Spectrochemical Analysis," University of Vermont, November 12, 1987.
25. "Emission Spectrometry with Array Detectors: Creating and Dealing with an Avalanche of Data," Hope College, April 8, 1988.
26. "Theta Pinch Discharges for Emission Spectrochemical Analysis," University of Kentucky, May 27, 1988.
27. "Some Perspective on Element Determinations by 'Plasma' Spectroscopic Techniques," American Chemical Society 196th Annual Meeting, Los Angeles, CA, September, 1988.
28. "The Coming Renaissance in Pulsed Discharge Spectrochemical Analysis," ANACHEM Symposium, Detroit, MI, October 1988.
29. "New Answers to Old Questions: Elemental Analysis of Solids with Pulsed Discharges," Federation of Analytical and Spectroscopy Societies XV Annual Meeting, Boston, MA, November, 1988.
30. "Use of a CCD for Studying Pulsed Analytical Discharges," with Brian J. Mork and Jeffrey S. White, Federation of Analytical and Spectroscopy Societies XV Annual Meeting, Boston, MA, November, 1988.
31. "Microspark Discharge: "Mapping of Metal Heterogeneities," with Jennifer C. Cousins, Federation of Analytical and Spectroscopy Societies XV Annual Meeting, Boston, MA, November, 1988.
32. "Pinch Discharge Plasma Dynamics and Optimization of Very High Current Discharges," with Jeffrey S. White and Gae Ho Lee, Federation of Analytical and Spectroscopy Societies XV Annual Meeting, Boston, MA, November, 1988.
33. "Quantitative Analysis of Ceramics Using a Theta Pinch Discharge," with Gae Ho Lee and Jeffrey S. White, Federation of Analytical and Spectroscopy Societies XV Annual Meeting, Boston, MA, November, 1988.
34. "Nonlinear Phenomena and Chemical Analysis," West Virginia University, Department of Chemistry, January 11, 1989.

35. "An Array of Data on Pulsed Discharges," Chicago SAS, May 10, 1989.
36. "Arrays of Data from Transient Analytical Discharges," ACS 198th National Meeting, Miami Beach, FL, September, 1989.
37. "Progress Towards Quantitative Analysis with a Theta Pinch Discharge," with Duane Miller, FACSS XVI, Chicago, IL, October, 1989.
38. "Echelle Spectrometer for Single Spark and Theta Pinch Quantitative Studies," with Cheryl Bye and Steven Rynders, FACSS XVI, Chicago, IL, October, 1989.
39. "Engineering of Spectroscopy Performed with and Frustration Caused by an Echelle Spectrometer Using Charge Coupled Array Detection," with Cheryl A. Bye, Steven Rynders, and Duane Miller, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, March, 1990, New York, NY.
40. "Array Detectors and Pinch Discharges: A Report from the Western Frontier," University of South Carolina, March, 1990.
41. "Array Detectors and Pinch Discharges: A Report from the Western Frontier," Kansas State University, April, 1990.
42. "Echelle Spectrometer for Single Shot Elemental Analysis," with Cheryl A. Bye, Duane L. Miller, and Steven W. Rynders, SPIE Meeting on Optical Spectroscopic Instrumentation for the 1990's, Las Cruces, NM, June, 1990.
43. "The New Cornucopia: Array Detectors and Pulsed Discharges," Rocky Mountain Conference, Denver, CO, July, 1990.
44. "Beating Solid Samples Into Submission, or Is It the Other Way Around?," ACS National Meeting, Washington, DC, August 1990.
45. "Pulsed Discharges and Array Detectors: Suggestions of an Informative Future," Washington-Baltimore Section, Society for Applied Spectroscopy, November 15, 1990.
46. "Rigorous Experiments on Chemical Oscillators," IUPUI, March 25, 1992.
47. "Pulsed Discharges for Elemental Analysis," VPI, April 16, 1992.
48. "The Future of Teaching in Analytical Chemistry," ACS Great Lakes Regional Meeting, Milwaukee, WI, June, 1992.
49. "Fundamental Atomic Reference Data: Where Have We Come in Five Years?," Federation of Analytical Chemistry and Spectroscopy Societies XIX Annual Meeting, Philadelphia, PA, September, 1992.
50. "Designing Your Own Spectrometer," Central College, Pella, IA, January, 1993.
51. "The Peroxidase-Oxidase Oscillator: A Problem in Nonlinear Dynamics and Measurement Science," Cornell College, Mt. Vernon, IA and Central College, Pella, IA, January, 1993.
52. "The Peroxidase-Oxidase Oscillator: A Problem in Nonlinear Dynamics and Measurement Science," Loyola University, Chicago, IL April, 1993.
53. "Oscillatory Discharges: Observation and Control," University of Waterloo, February, 1993
54. "Oscillatory Discharges: Observation and Control," University of Kentucky, February, 1993
55. "The Peroxidase-Oxidase Oscillator: A Simple Nonlinear System More Complicated Than It Looks," Symposium on Nonlinear Systems, Indianapolis, IN, May 1994.
56. "Multispecies Sensing and Studies of the Peroxidase-Oxidase Oscillator," Oscillations and Dynamic Instabilities Gordon Research Conference, Newport, RI, August 1994.
57. "Niggling Little Details (and The Big Picture They Create) of The Peroxidase Oscillator," with E. Kirkor, D.L. Olson, and J. Lyburner, FACSS XXI, St. Louis, MO, October, 1994.
58. "The Peroxidase-Oxidase Oscillator," Illinois State University, November 1994
59. "The Peroxidase-Oxidase Oscillator," Northeast Missouri State University, Kirksville, MO, January, 1995
60. "Hardware, Software, Brainware, Noware," SPIE Winter National Meeting, San Jose, CA, February, 1995.

61. "Characterization of the Peroxidase-Oxidase Oscillator: from Odense to Odense," September, 1995, Odense University, Denmark.
62. "Oscillatory Electrodisolution of Aluminum and Its Alloys," with D. T. Bowlin and A. J. Pearlstein, 47th Southeast/51st Southwest ACS Joint Regional Meeting, Memphis, TN, December, 1995.
63. "Analytical Chemistry of Nonlinear Systems," University of Vermont, May 2, 1996.
64. "Analytical Chemistry of Nonlinear Systems," University of South Dakota, June 4, 1996.
65. "Instrumentation, Kinetics, and Chaos," ACS National Meeting, Orlando, FL, August 28, 1996.
66. "Analytical Chemistry of Nonlinear Systems," University of Iowa, December 6, 1996.
67. "Analytical Chemistry of Nonlinear Chemical Systems," Baldwin-Wallace College, Berea, OH, January, 1997.
68. "Analytical Chemistry of Nonlinear Chemical Systems," Wayne State University, Detroit, MI, January, 1997.
69. "Spectroscopy of Nonlinear Systems," Southern California section, Society for Applied Spectroscopy Lake Arrowhead Conference, May, 1997.
70. "Oscillatory Electrochemistry and Electrochemistry to Observe Oscillations," Laurentian University, May, 1998
71. "Dynamic Developments in Electro-oxidation of Aluminum in Phosphoric Acid and Electrochemically-Generated Bubble Dynamics," with H. Gao, N. Suzuki, D. T. Bowlin, A. J. Pearlstein, and A. Suh FACSS XXV, Austin, TX, October, 1998.
72. "Analytical Chemistry and the Peroxidase-Oxidase System," University of Alberta, November, 1998.
73. "The Peroxidase-oxidase Oscillator: Dynamical Details Reveal Novel Chemistry," Augusta State University, November, 1999.
74. "The Peroxidase-oxidase Oscillator: Dynamical Details Reveal Novel Chemistry," UAEM, Av. Universidad, Cuernavaca, Morelos, Mexico, March, 2000.
75. "The Peroxidase-oxidase Oscillator: Dynamical Details Reveal Novel Chemistry," Southern Illinois University, March, 2000.
76. "92 Million Critics: Chemistry in *Parade*," Great Lakes Regional Meeting, American Chemical Society, Fargo, ND, June, 2000.
77. "Complex Enzyme Network Reveals Small Molecule Chemistry," Understanding Complex Systems Symposium, Urbana, IL, May, 2001
78. "The Peroxidase-oxidase Oscillator: Dynamical Details Reveal Novel Chemistry," University of South Carolina, July, 5, 2001.
79. "The Peroxidase-oxidase Oscillator: Dynamical Details Reveal Novel Chemistry," St. Louis University, September 12, 2001.
80. "Oscillatory Oxidation of Aluminum Catalyzed by Heavy Metal Ions in Nitric Acid: an Understood Phenomenon," Alexander Scheeline, Cathy Cobb, Elizabeth De Lucia, Jamal Josephs, and Charles East, FACSS XXVIII, Detroit, MI, October, 2001.
81. "A Positive Lyapunov Exponent: FACSS as a Dynamical Nonlinear System," FACSS XXVIII, Detroit, MI, October, 2001.
82. "100 Juniors: The Wrong Course (Instrumental Methods of Chemical Characterization) at the Wrong Time (8 AM)," FACSS XXVIII, Detroit, MI, October, 2001.
83. "The Peroxidase-oxidase Oscillator: Dynamical Details Reveal Novel Chemistry," Purdue University, February 17, 2002.
84. "The Peroxidase-oxidase Oscillator: Dynamical Details Reveal Novel Chemistry," Christchurch School of Medicine, Christchurch, NZ, April, 2002.
85. "Spectroscopy and Oscillating Biochemical Reactions: Signals, Noise, and Chaos," Chicago Section, Society for Applied Spectroscopy, September, 2002.

86. "Spectroscopy and Oscillating Biochemical Reactions: Signals, Noise, and Chaos," Penn State University -Erie, December, 2002.
87. "Signals, Noise, and Oscillations: Adventures in Peroxidase Kinetics," York University, Toronto, CA, January, 2003.
88. "Signals, Noise, and Oscillations: Adventures in Peroxidase Kinetics," Wabash College, Crawfordsville, In, March, 2003
89. "Chemical Sensing and Biological Networks," Understanding Complex Systems: Networks, Urbana, IL, May, 20, 2004.
90. "Dynamic Chemical Biology, and the Instruments to Support Its Study," Mercyhurst College, Erie, PA, January 21, 2005.
91. "Concurrent Miniaturization and Increasing Conductivity of Anisotropic Carbon-containing Ink Traces," presented by E. Kirkor, with A. Schricker, The Power of Ink-Jet Materials III, European Coatings Conference, Berlin, Germany, December, 2005.
92. "Dynamic Chemical Biology and the Instruments to Support Its Study," Hillsdale College, Hillsdale, MI, January, 2006.
93. "Interactive Publishing Through the Analytical Sciences Digital Library: Building the Commons," with T. E. Chrzastowski, ACS 231st National Meeting, Atlanta, GA, Paper ANYL-337 (2006).
94. "Tradeoffs in Spectrometer Design," San Jose, CA, Pasadena, CA, and Boulder, CO, May, 2006 (short-course sponsored by Hamamatsu).
95. "The Analytical Sciences Digital Library: What Are Web-Based Tools for Instruction in Environmental Chemistry?" presented by C. Larive, ACS 232nd National Meeting, San Francisco, CA, Paper ENVR-120 (2006).
96. "T. A. Nieman: A (Chemi)Luminary in the Analytical Sciences," ACS 232nd National Meeting, San Francisco, CA, Paper ANAL-271 (2006).
97. "Dynamic Chemical Biology and the Instruments to Support Its Study," Truman State University, Kirksville, MO, September, 2006.
98. "Sacks-cess in Science – an Optical Elution," FACSS XXXIII, Orlando, FL, September, 2006.
99. "Tradeoffs in Spectrometer Design," Rockville, MD, New York, NY, and Boston, MA, October, 2006 (short-course sponsored by Hamamatsu). Repeated in Boston (under SPIE auspices) September 2007.
100. "Analytical Chemistry in Drops: Measurement Unbounded by Walls," Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL, February, 2007, Paper 80-1.
101. "Sensors for Study of Reactive Oxygen Species Associated with TiON Photooxidation Catalysis," with R. Wilson, I. Oh, and M. Stewart, ACS National Meeting, Chicago, IL, March 2007, Poster ENVR 141.
102. "Towards Enzyme-catalyzed Nonlinear Dynamics in Microfluidic Reactors," with Christopher Field and Zakiah Pierre, Understanding Complex Systems 2007, May, 2007, Urbana, IL.
103. "Micron-Scale Sensors for Detecting Reactive Oxygen Species Related to Noise Induced Hearing Loss," FACSS XXXIV, Memphis, TN, October, 2007
104. "Dynamic Chemical Biology and the Instruments to Support Its Study," Rose-Hulman Institute, Terre Haute, IN, October 24, 2007
105. "Open Access in Scientific Communications: Multifaceted Musings," Forum on Open Access, Alternative Publishing Models, and Author Rights, University of Illinois at Urbana-Champaign, November 9, 2007
106. "Dynamic Chemical Biology and the Instruments to Support Its Study," Hanoi University of Science, Hanoi, Vietnam, May 21, 2008.
107. "Dynamic Chemical Biology and the Instruments to Support Its Study," Eastern Illinois University, Charleston, IL, September 10, 2008.

108. "Metal Ion Scavenging and Enzyme Sensor Stability" with R. K. Wilson, International Scientific Conference on Chemistry for Development and Integration, Vietnamese Academy of Science and Technology, September 13, 2008.
109. "Dynamic Chemical Biology and the Instruments to Support Its Study," Indiana University – Purdue University at Indianapolis, Indianapolis, IN, October 15, 2008.
110. "Dynamic Chemical Biology and the Instruments to Support Its Study," Southern Illinois University at Edwardsville, Edwardsville, IL, February 18, 2009.
111. "Kinetics in Levitated Drops: Answers and Questions," Pittcon, Chicago, IL, March, 2009.
112. "Dynamic Chemical Biology and the Instruments to Support Its Study," Austin Peay State University, Clarksville, TN, April 17, 2009.
113. "Open Access Publishing and Digital Libraries: Changing the Teaching/Learning/Publishing Landscape," with H. A. Bullen and R. S. Kelly, Pittcon, Orlando, FL, March 2010 paper 800-8.
114. "Microelectrodes for Spatiotemporal Monitoring of Decontamination Catalysts," with E. Chainani, ACS National Meeting, San Francisco, March, 2010.
115. "Peer-reviewed Open Access Publishing: the Teaching/Learning/Publishing Landscape," CeRMACS, Dayton, OH, June 2010.
116. "Towards the Use of Levitated Drops as Microreactors to Study Enzyme Kinetics," with Z. Pierre, O. Masha, and E. Chainani, FACSS, Rayleigh, NC, October, 2010.
117. "Ultrasonically Levitated Microreactors: Continuously Stirred or Shaken?" with R. Behrens, FACSS, Rayleigh, NC, October, 2010.
118. "Distinguished Service: Becoming an Oxymoron?" FACSS, Rayleigh, NC, October, 2010.
119. "Serendipity: Purpose Planned in Retrospect," TED-UIUC, February 19, 2011.
120. "Preparation for Graduate Studies: What We Measure, What We Need" Pittcon, Atlanta, March, 2011.
121. "The Public Perception of Science: Who Bears the Responsibilities," with co-panelists Norman Dovichi, Graham Cooks, and Steven Tally, Turkey Run Conference on Analytical Chemistry, October 1, 2011.
122. "Democratization of Detection: Every Citizen a Sensor?" An Integrated Water Security Summit Dedicated to Defense-in-Depth, San Francisco, CA, November, 2011.
123. "Dynamic Chemical Biology and the Instruments to Support Its Study," Miami University of Ohio, Department of Chemistry, December 8, 2011.
124. "Cell Phone Spectrometers: Getting Students to See the Light (and Do the Math)," American Chemical Society National Meeting, San Diego, CA, March 24, 2012.
125. "Teaching, Learning and Using Spectroscopy with Commercial Off-the-Shelf Technology," Society for Applied Spectroscopy Detroit Section, March 21, 2012.
126. "Teaching, Learning and Using Spectroscopy with Commercial Off-the-Shelf Technology," Society for Applied Spectroscopy Minnesota Section, April 19, 2012.
127. "Dynamic Chemical Biology and the Instruments to Support Its Study," Society for Applied Spectroscopy St. Louis Section, May 1, 2012.
128. "Teaching, Learning and Using Spectroscopy with Commercial Off-the-Shelf Technology," Society for Applied Spectroscopy Ohio Valley Section, and Wright State University Department of Chemistry, May 11, 2012.
129. "Dynamic Chemical Biology and the Instruments to Support Its Study," Northwestern Technological University, Xi'an, China, May 25, 2012.
130. "Is "Good Enough" Good Enough for Portable Visible and Near-visible Spectrometry?" SPIE Sensing Technology + Applications Symposium, Baltimore, MD, April 21, 2015, paper 9482-19.
131. "Three Tales from Vietnam," FACSS/ScIX XXXI, Providence, RI, October, 2015.
132. "The Education of a Former Academic or Women Who Game Me the Business," FACSS/ScIX XXXI, Providence, RI, October, 2015.

133. "Handheld Spectrometers, and the Legacy of Howard Malmstadt," New England Section, Society for Applied Spectroscopy, October 27, 2015.
134. "Choosing Spectrometers Fit for Purpose" (sponsored by Hamamatsu Corp.), Burlington, MA, October 28, 2015.
135. "Ready When You Are: Cell Phone Spectrometry When Cellcams Yield RAW Data," Pittcon, Atlanta, GA, March, 2016.
136. "Choosing Spectrometers Fit for Purpose" (sponsored by Hamamatsu Corp.), Santa Clara, CA and La Jolla, CA, May 24 and May 26, 2016.
137. "Field-portable Optical Spectrometry Empowering Agricultural Stewardship" ASABE Ag Equipment Conference, Louisville, KY, 2/14/17.
138. "Light Sources in Analytical Chemistry: Solid State Light Sources and Beyond," Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL, March, 2017.
139. Society for Applied Spectroscopy Tour Speaker, 2017.
 - a) "Serendipity: Five Generations, Four Missions, Three Products, Two Courses, One Career," Chicago Section, 4/25/17
 - b) "Handheld Spectrometry and the Personal Instrumentation Revolution," Delaware Section, 4/28/17.
 - c) "Handheld Spectrometry and the Personal Instrumentation Revolution," Baltimore-Washington Section, 11/8/17

Publications:

1. P.M. Beckwith, A. Scheeline, and S. R. Crouch, "Kinetics of the Formation of 12-Molybdophosphate in Perchloric, Sulfuric, and Nitric Acid Solutions," *Anal. Chem.* **47**, 1930-1936 (1975).
2. A. Scheeline and J. P. Walters, "Considerations for Implementing Spatially-Resolved Spectrometry Using the Abel Inversion," *Anal. Chem.* **48**, 1519-1530 (1976).
3. A. Scheeline and J. P. Walters, "Algorithms for Modeling and Processing Spatial Information in Heterogeneous Plasma Discharges," *Anal. Chim. Acta, Comp. Tech. and Optim.* **95**, 59-73 (1977).
4. A. Scheeline, D. M. Coleman, and J. P. Walters, "Measurement Procedures for Characterization of High Voltage Spark Sources," *Appl. Spectrosc.* **32**, 215-223 (1978).
5. A. Scheeline, R. J. Klueppel, D. M. Coleman, and J. P. Walters, "Computational Procedures for Characterization of High Voltage Spark Sources," *Appl. Spectrosc.* **32**, 224-238 (1978).
6. A. Scheeline and J. P. Walters, "Use of a Roll Film Back for Photographic Spectral Detection," *Appl. Spectrosc.* **32**, 566-568 (1978).
7. A. Scheeline, D. M. Coleman, and J. P. Walters, "Experimental Characterization of Straight Spectrometer Slits," *Spectrochim. Acta*, **34B**, 43-53 (1979).
8. A. Scheeline and J. P. Walters, "Investigation of Bipolar Oscillatory Spark Discharges," *Appl. Spectrosc.* **33**, 150-162 (1979).
9. A. Scheeline, J. W. Hosch, D. M. Coleman, and J. P. Walters, "Versatile Mirror Mount for Optical Instrumentation," *Appl. Spectrosc.* **33**, 253-258 (1979).
10. A. Scheeline and J. P. Walters, "Spatially Resolved Spectroscopy: Theory and Applications of the Abel Inversion," in *Contemporary Topics in Analytical and Clinical Chemistry*, **4**, D. M. Hercules, G. M. Hieftje, L. R. Snyder, and M. A. Evenson, eds. (Plenum Press, New York, 1981), pp. 245-372.
11. A. Scheeline, J. C. Travis, J. R. DeVoe, and J. P. Walters, "Discovery of an Electrical Post-Pulse in the Surroundings of a High Voltage Spark Discharge," *Spectrochim. Acta*, **36B**, 153-161 (1981).
12. A. Scheeline, J. A. Norris, J. C. Travis, J. R. DeVoe, and J. P. Walters, "Particulates Formed by a Stabilized High Voltage Discharge," *Spectrochim. Acta*, **36B**, 373-383 (1981).
13. A. Scheeline, "Calculation of Discharge Current Waveforms in High Voltage Spark Sources I: Solution of Constant Parameter Model," *Appl. Spectrosc.* **35**, 70-77 (1981).

14. T. Thang and A. Scheeline, "Compact Adjustable Waveform Spark Source," *Appl. Spectrosc.* **35**, 536-540 (1981).
15. A. Scheeline and T. V. Tran, "Calculation of Discharge Current Waveforms in High Voltage Spark Sources II: Extensions and Limitations of Closed Form Solution," *Appl. Spectrosc.* **36**, 25-29 (1982).
16. B. R. Hardas and A. Scheeline, "Stability and Chaos in a Voltage Thresholded High Voltage Spark Source," *Anal. Chem.* **56**, 169-175 (1984).
17. A. Scheeline, "Simulation of Current Waveforms in High Voltage Spark Sources III: Numerical Integration and Inclusion of Gap Dynamic Impedance," *Appl. Spectrosc.* **38**, 124-135 (1984).
18. A. Scheeline and M. J. Zoellner, "Thomson Scattering as a Diagnostic of Atmospheric Pressure Discharges," *Appl. Spectrosc.* **38**, 245-258 (1984).
19. A. Scheeline, G. J. Kamla, and M. J. Zoellner, "Electron Concentration Measurement in the High Voltage Spark Using Stark Broadening of H β Emission," *Spectrochim. Acta*, **39B**, 677-691 (1984).
20. A. Scheeline, "High Voltage Discharges: Diagnostics and Opportunities," *Prog. Analyt. Atomic Spectrosc.* **7**, 21-65 (1984).
21. A. Scheeline, "Time Resolved Measurement Using Commercial Modular Boxcar Integrators," *J. Chem. Ed.* **61**, 1110-1113 (1984).
22. J. A. Stewart and A. Scheeline, "Diode Array Centroid Monitor for Rapid Plasma Stability Measurement," *Anal. Chem.* **56**, 2995-2997 (1984).
23. A. Scheeline and R. S. Vogel, "Device for Simple, Precise Alignment of Straight Spectrometer Slits," *Appl. Spectrosc.* **39**, 557-558 (1985).
24. A. Scheeline and D. W. Kuhns, "Mode Locking and Instability in a Voltage Thresholded Spark Source," *Anal. Chem.* **57**, 73-75 (1985).
25. A. Scheeline, M. J. Zoellner, and M. A. Lovik, "Light Scattering Diagnostics Applied to High Voltage Spark Discharges," *Amer. Inst. Phys. Conf. Proceedings*, **146**, 652-653 (1986).
26. A. Scheeline, "Quantitative Analysis," in *McGraw-Hill Encyclopedia of Science and Technology*, 6th ed., McGraw-Hill (New York, 1985). Updated 7th ed. (1991), 8th ed. (1997), 9th ed. (2002), 10th ed. (2007), 11th ed. (2012?).
27. A. Scheeline, "Electronics Inside-Out," *Micro-Notes* **1(3)**, 4, University of Illinois at Urbana-Champaign.
28. A. Scheeline, "Implications of Line Number to Line Intensity Logarithmic Relationship for Emission Spectrochemical Analysis," *Anal. Chem.* **58**, 802-807 (1986).
29. G. J. Kamla and A. Scheeline, "A Theta Pinch Discharge Designed for Emission Spectrochemical Analysis: Design and Electrical Characterization," *Anal. Chem.* **58**, 923-932 (1986).
30. G. J. Kamla and A. Scheeline, "A Theta Pinch Discharge Designed for Emission Spectrochemical Analysis: Spectral Characterization," *Anal. Chem.* **58**, 932-939 (1986).
31. S. Greenfield, G. M. Hieftje, N. Omenetto, A. Scheeline, and W. Slavin, "Twenty-five Years of Analytical Atomic Spectrometry," *Anal. Chim. Acta*, **180**, 69-98 (1986).
32. J. A. Katzenellenbogen, A. Scheeline, A. Mullick, and B. S. Katzenellenbogen, "Appendix: Derivation and Analysis of a Lag-Decay Model for Protein Turnover Involving a Biosynthetic Precursor," *J. Biol. Chem.* **261**, 13244-13246 (1986).
33. A. Scheeline, "Theoretical Basis for Line Number to Line Intensity Logarithmic Relationship," *Anal. Chem.* **58**, 3103-3108 (1986).
34. S. W. Fleming and A. Scheeline, "Adventures in Typography," guest editorial, *Appl. Spectrosc.* **40**, xi (1986).
35. J. S. White and A. Scheeline, "Sampling and Excitation of Refractory Solids with a Theta Pinch Discharge Designed as an Atomic Emission Source," *Anal. Chem.* **59**, 305-309 (1987).
36. B. J. Mork and A. Scheeline, "Determination of Arbitrary Concomitant Absorption and Emission Distributions in Spark Discharges Using the Abel Inversion," *Spectrochim. Acta*, **42B**, 1063-1076 (1987).

37. M. J. Zoellner and A. Scheeline, "Channel and Analyte Dynamics in the High Voltage Spark Discharge Using Raman, Fluorescence, and Emission Spectroscopies," *Appl. Spectrosc.* **41**, 943-954 (1987).
38. J. C. Cousins, D. M. Coleman, and Alexander Scheeline, "High Voltage Spark Spectroscopy: Utility as a Function of Spatial and Temporal Resolution," *Appl. Spectrosc.* **41**, 954-962 (1987).
39. A. Scheeline and D. M. Coleman, "Direct Solids Elemental Analysis: Pulsed Plasma Sources," *Anal. Chem.* **59**, 1185A-1191A (1987).
40. A. Scheeline and B. J. Mork, "Electronics for Scientists: A Computer-Intensive Approach," *J. Chem. Ed.* **65**, 1079-1082 (1988).
41. A. Scheeline, "Needs for Fundamental Atomic Reference Data and Data Distribution: What We Lack, Why It Matters," *Spectrochim. Acta*, **43B**, 1-4 (1988).
42. A. Scheeline, "Needs for Fundamental Atomic Reference Data and Data Distribution: Fundamental Analytical Spectroscopy - Response to a Questionnaire," *Spectrochim. Acta*, **43B**, 15-20 (1988).
43. A. Scheeline, "Needs for Fundamental Reference Data for Atomic Spectroscopy: Graphite Furnaces and Transient Plasmas," *Spectrochim. Acta*, **43B**, 57-62 (1988).
44. A. Scheeline, "Workshop on Needs for Fundamental Reference Data for Analytical Atomic Spectroscopy," *Comments Atom. Mol. Phys.* **21**, 163-168 (1988).
45. A. Scheeline and J. S. White, "Development of Theta Pinch Discharges for Emission Spectrochemical Analysis," *Spectrochim. Acta*, **43B**, 551-559 (1988).
46. M. A. Lovik and A. Scheeline, "Active Polarization Compensation and Goniometer for Angularly Resolved Light Scattering Measurements," *Appl. Opt.* **27**, 4931-4940 (1988).
47. B. J. Mork and A. Scheeline, "Wavelength Resolved Single-Spark Emission Images Using a Charge Coupled Device Detector," *Appl. Spectrosc.* **42**, 1332-1335 (1988).
48. B. J. Mork and A. Scheeline, "Observations of High-Voltage Atmospheric-Pressure Spark Discharges in Argon Using a Charge-Coupled Device Detector," *Spectrochim. Acta*, **44B**, 1297-1323 (1989).
49. J. S. White, G. H. Lee, and A. Scheeline, "Parametric Study of a Low Pressure Theta Pinch Discharge in Argon for Preliminary Analytical Optimization," *Appl. Spectrosc.* **43**, 991-997 (1989).
50. A. Scheeline, "News on Fundamental Reference Data," *Spectrochim. Acta*, **44B**, 129 (1989); **44B**, 427 (1989); **44B**, 725 (1989); **44B**, 925 (1989); **44B**, 1201 (1989); **45B**, 839 (1990); **45B**, 969 (1990); **45B**, 1099 (1990); **46B**, 667 (1991); **46B**, 1099 (1991); **47B**, 438 (1992).
51. D. L. Olson and A. Scheeline, "Theoretical Investigation of the Peroxidase-Oxidase Chemical Oscillator for Quantitative Enzyme Analysis," *Anal. Chim. Acta*, **237**, 381-390 (1990).
52. A. Scheeline, G. H. Lee, and J. S. White, "Complications to the Use of Theta Pinch Discharges for Quantitative Analysis," *Appl. Spectrosc.* **45**, 334-346 (1991).
53. A. Scheeline, "Sampling Processes in Emission Spectroanalytical Chemistry: A Fundamental Review," *Mikrochim. Acta*, **I**, 247-285 (1990).
54. A. Scheeline, C. A. Bye, D. L. Miller, and S. W. Rynders, "Echelle Spectrometer for Single Shot Elemental Analysis," Optical Spectroscopic Instrumentation for the 1990's, *SPIE Symposium Series*, **1318**, 44-50 (SPIE, Bellingham, WA, 1990).
55. S. W. Rynders, A. Scheeline, and P. W. Bohn, "Structure Evolution in α -SiC:H Films Prepared from Tetramethylsilane," *J. Appl. Phys.* **69**, 2951-2955 (1991).
56. Z. Wang and A. Scheeline, "Study of Internal Standardization for Analysis of Powdered Samples Using a Theta Pinch Discharge," *J. Anal. Atomic Spectrosc.* **6**, 553-556 (1991).
57. A. Scheeline, C. A. Bye, D. L. Miller, S. W. Rynders, and R. C. Owen, Jr., "Design and Characterization of an Echelle Spectrometer for Fundamental and Applied Emission Spectrochemical Analysis," *Appl. Spectrosc.* **45(3)**, 334-341 (1991).
58. A. Scheeline, "Fundamental Reference Data: Where Have We Come in Five Years?" *Spectrochim. Acta*, **48B**, 1297-1300 (1993).

59. J. C. Travis, M. R. Winchester, M. L. Salit, B. J. Wythoff, and A. Scheeline, "UV/Visible Fourier Transform Spectroscopy Using an Inductively-Coupled Plasma: I. Dual Channel Noise Cancellation," *Spectrochim. Acta*, **48B**, 691-709 (1993).
60. J. B. Cappel, A. Scheeline, and J. M. Goldberg, "Effect of Addition of Hydrogen to the Argon Sheath of a Unidirectional, High Voltage Spark," *Appl. Spectrosc.* **47**, 309-315 (1993).
61. A. Scheeline, C. A. Bye, H. Krier, J. Mazumder, X. Chen, T. Duffey, S. Tewari, D. Zerkle, and M. J. Kushner, "Transition Probabilities and Line Shapes: Usage and Needs at the University of Illinois," *Proceedings of the Fourth International Colloquium on Atomic Spectra and Oscillator Strengths for Astrophysical and Laboratory Plasmas*, 850, 3739 (1993).
62. D. L. Miller and A. Scheeline, "A Computer Program for the Collection, Reduction, and Analysis of Echelle Spectra," *Spectrochim. Acta*, **48B**, E1053-E1062 (1993).
63. A. Scheeline and P. B. Farnsworth, News on Fundamental Reference Data, *Spectrochim. Acta*, **48B**, 99-102 (1993).
64. C. A. Bye and A. Scheeline, "Stark Electron Density Mapping in the High Voltage Spark Discharge," *Spectrochim. Acta*, **48B**, 1593-1605 (1993).
65. D. L. Olson and A. Scheeline, "The Peroxidase/NADH Biochemical Oscillator: Experimental System, Control Variables, and Oxygen Mass Transport," *Anal. Chim. Acta*, **283**, 703-717 (1993).
66. C. A. Bye and A. Scheeline, "Analyte Matrix Excitation Investigations in the High Voltage Spark Discharge Using an Echelle/CCD System," *Appl. Spectrosc.* **47**, 2031-2035 (1993).
67. C. A. Bye and A. Scheeline, "Saha-Boltzmann Statistics for Determination of Electron Temperature and Density in Spark Discharges using an Echelle/CCD System," *Appl. Spectrosc.* **47**, 2022-2030 (1993).
68. A. Scheeline and D. L. Olson, "Peroxidase-Oxidase Oscillator Revisited with Rigorous Control of Reaction Conditions," in *Chaos in Medicine and Biology*, *SPIE Symposium Series*, **2036**, 253-255 (1993).
69. A. Scheeline and A. Hubler, "Controlling Chaos in a Chemical Oscillator," *SPIE Symposium Series*, **2037**, 139-141 (1993).
70. C. A. Bye and A. Scheeline, "Two-Dimensional Array Detectors for Plasma Diagnostics," in *The Application of Charge Transfer Devices in Chemistry*, J. V. Sweedler, K. Ratzlaff, and M. B. Denton eds., VCH: New York (1994).
71. D. L. Olson and A. Scheeline, "The Peroxidase-NADH Biochemical Oscillator, Part I: Examination of Oxygen Mass Transport, the Effect of Light, and the Role of Methylene Blue," *J. Phys. Chem.* **99**, 1204-1211 (1995).
72. D. L. Olson and A. Scheeline, "The Peroxidase NADH Biochemical Oscillator. Part 2: Examination of the Roles of Hydrogen Peroxide and Superoxide," *J. Phys. Chem.* **99**, 1212-1217 (1995).
73. D. L. Olson, E. P. Williksen and A. Scheeline, "An Experimentally-Based Model for the Peroxidase-NADH Biochemical Oscillator: An Enzyme-Mediated Chemical Switch," *J. Am. Chem. Soc.* **117**, 2-15 (1995).
74. C. A. Bye and A. Scheeline, "Electron Density Profiles in Single Spark Discharges," *J. Quant. Spectrosc. Radiat. Transfer*, **53**, 75-93 (1995).
75. R. L. Mettin, A. Hubler, A. Scheeline, and W. Lauterborn, "Parametric Entrainment Control," *Phys. Rev. E*, **51**, 4065-4075 (1995).
76. A. Scheeline, E. Kirkor, A. E. Kovacs-Boerger, and D. L. Olson, "Analytical Chemistry of Nonlinear Systems," *Mikrochim. Acta*, **118**, 1-42 (1995).
77. V. Lvovich and A. Scheeline, "Complexation of Nicotinamide Adenine Dinucleotide with Ferric and Ferrous Ions," *Arch. Biochem. Biophys.* **320**, 1-13 (1995).
78. A. Scheeline, "Hardware, Software, Brainware, Noware," in *Proceedings of Ultrasensitive Instrumentation for DNA Sequencing and Biochemical Diagnostics*, G. E. Cohn, J. M. Lerner, K. J. Liddane, A. Scheeline, S. A. Soper, and A. Katzir, eds., *SPIE Proceedings Series*, **2386**, 260-263 (1995).

79. A. Scheeline, "Interpretation or Algorithm in Atomic Spectroscopy?" *Spectroscopy*, **11(1)**, 14-16 (1996).
80. P. N. Bourassa, B. E. Plashko, D. C. Lankin, and A. Scheeline, "Spectral Interpretation: Here Comes the Sample! Now What? Things to Do When the Sample Arrives and Before You Run It," *Spectroscopy*, **11(4)**, 14-20 (1996).
81. D. Bensen and A. Scheeline, "Reduction of Dimension of a Chemically-Realistic Model for the Peroxidase-Oxidase Oscillator," *J. Phys. Chem.* **100**, 18911-18915 (1996).
82. V. Lvovich and A. Scheeline, "Amperometric Sensors for Simultaneous Superoxide and Hydrogen Peroxide Detection," *Anal. Chem.* **69**, 454-462 (1997).
83. A. Scheeline, D. L. Olson, E. P. Williksen, G. A. Horras, M. L. Klein, and R. Larter, "The Peroxidase-Oxidase Oscillator and its Constituent Chemistries," *Chem. Rev.* **97**, 739-756 (1997).
84. D. T. Bowlin, A. Scheeline, and A. J. Pearlstein, "Current Oscillations in Potentiostatic Electro-Oxidation of Aluminum in Sulfuric and Phosphoric Acids," *Electrochim. Acta*, **43**, 417-421 (1997).
85. V. Lvovich and A. Scheeline, "Simultaneous Superoxide and Hydrogen Peroxide Detection in Peroxidase/NADH Oscillator," *Anal. Chim. Acta*, **354**, 315-323 (1997).
86. J. E. Mittenthal, A. Yuan, B. Clarke, and A. Scheeline, "Designing Metabolism: Alternative Connectivities for the Pentose Phosphate Pathway," *Bull. Math. Biol.* **60**, 815-856 (1998).
87. S. R. Crouch, T. F. Cullen, A. Scheeline, and E. S. Kirkor, "Kinetic Determinations and Some Kinetic Aspects of Analytical Chemistry," *Anal. Chem.* **70**, 53R-106R (1998).
88. T. Komatsu, T. Araki, and A. Scheeline, "Long Lifetime, Nanosecond Gas-Discharge Light Source Utilizing Automobile Spark-Plugs as Lamp Electrodes," *Appl. Spectrosc.* **53**, 108-114 (1999).
89. A. Scheeline, B. Williams, E. P. Williksen, J. Steinfeld and B. McEnroe, "Cumulative Indices for Spectrochimica Acta, Part A and Spectrochimica Acta, Part B," *Spectrochim. Acta, Part B*, **53**, 1855-1861 (1998).
90. H. Gao, A. Scheeline, and A. J. Pearlstein, "Demonstration of a Novel Rotating Cylindrical Electrode in Growth of Oxide Films with Spatially Controlled Microstructural Variation on Al 6061," in *Proceedings of the International Symposium on New Directions in Electroanalytical Chemistry II*, 1999, J. Leddy, P. Vanysek, and M. D. Porter, eds. The Electrochemical Society, Inc., Pennington, NJ, pp. 116-124.
91. F. O. Onyemauwa, A. Coursey, C. East, J. Josephs, A. Scheeline, and C. L. Cobb, "Newly Observed Open-Circuit Oscillating Reactions: Palladium and Silver Ions Reacting with 1100-Alloy Aluminium in Nitric Acid," *React. Kinet. Catal. Lett.* **68**, 363-369 (1999).
92. H. Gao, A. Scheeline, and A. J. Pearlstein, "Early Stages of Pattern Evolution in Anodic Porous Oxide Film on Al 6061," in *Fundamental Aspects of Electrochemical Deposition and Dissolution*, Electrochemical Society Proceedings Volume 99-33, 1999, M. Matlosz, D. Landolt, R. Aogaki, Y. Sato, and J. B. Talbot, eds., pp. 101-109.
93. E. S. Kirkor, A. Scheeline, and M. J. B. Hauser, "Principal Component Analysis of Reaction Features of the Peroxidase-Oxidase Reaction," *Anal. Chem.* **72**, 1381-1388 (2000).
94. A. Scheeline, "Atoms, Molecules, and the Early Universe," in *Scientific American Book of the Cosmos*, D. H. Levy, ed. (Byron Preiss Visual Publications Inc.: New York, 2000).
95. E. S. Kirkor and A. Scheeline, "Nicotinamide Adenine Dinucleotide Species in the Horseradish Peroxidase-Oxidase Oscillator," *Eur. J. Biochem.* **267**, 5014-5022 (2000).
96. S. R. Crouch, A. Scheeline, and E. S. Kirkor, "Kinetic Determinations and Some Kinetic Aspects of Analytical Chemistry," *Anal. Chem.* **72**, 53R-70R (2000).
97. E. S. Kirkor and A. Scheeline, "HRP Adsorption on Silica Surfaces as an Oscillatory Dynamical Behavior," *J. Phys. Chem. B.*, **105** 6278-6280, (2001).
98. H. Gao, A. Scheeline, and A. J. Pearlstein, "Spatially-Controlled Microstructural Variation Using a Free-Surface Flow Driven by a Rotating Cylinder Electrode. Growth of Anodic Oxide Films on Al 6061," *J. Electrochem. Soc.*, **149**, B248-B255 (2002).

99. J. C. Cabalo, J. Schmidt, J. O. L. Wendt, and A. Scheeline, "Spectrometric Systems for Characterizing Drop and Powder Trajectories and Chemistry in Reactive Flows," *Appl. Spectrosc.*, **56**, 1345-1353 (2002).
100. J. Mittenthal, B. Clarke, and A. Scheeline, "How Cells Avoid Errors in Metabolic and Signaling Networks," *Int. J. Mod. Phys. B*, **17**, 2005-2022 (2003).
101. A. Scheeline, "Funding Risky Research, an Oxymoron?" *Genetics and Proteomics*, **4(2)**, 11 (March, 2004).
102. A. Scheeline, "Active Learning in *Advanced Analytical Chemistry*, a Course for First Year Graduate Students," Analytical Sciences Digital Library Online Article #10039, (August, 2005).
103. D. D. Lewis, M. L. Ruane, and A. Scheeline, "Biofilm Effects on the Peroxidase-oxidase Reaction," *J. Phys. Chem. B*, **110**, 8100-8104 (2006).
104. T. E. Chrzastowski and A. Scheeline, "ASDL: The Analytical Sciences Digital Library: Taking the Next Steps," *Sci. Technol. Lib.* **26(3/4)**, 79-94 (2006).
105. A. Scheeline and R. C. Bailey, "Active Learning in the Introductory Graduate Student Analytical Chemistry Course: Getting Students to 'Think Analytically'," in *Active Learning: Models from the Analytical Sciences*, ACS Symposium Series No. 970, P. A. Mabrouck ed., American Chemical Society, Washington, DC, 248-258 (2007).
106. C. R. Field and A. Scheeline, "Design and Implementation of an Efficient Acoustically Levitated Drop Reactor for *In Stillo* Measurements," *Rev. Sci. Instrum.* **78** 125102 (2007). DOI: 10.1063/1.2818798A.
107. A. Scheeline and T. Spudich, "Atomic Emission Spectroscopy," *J. Analyt. Sci. Digital Libr.*, entry 10056, 1/6/2009.
108. A. Scheeline, Z. Pierre, C. R. Field, and M. D. Ginsberg, "Development of Ultrasonically Levitated Drops as Microreactors for Study of Enzyme Kinetics and Potential as a Universal Portable Analysis System," *Proc. SPIE*, **7306(Optics and Photonics in Global Homeland Security V and Biometric Technology for Human Identification VI)**, 73061U/1-73061U/9 (2009).
109. Z. N. Pierre, C. R. Field, and A. Scheeline, "Sample Handling and Chemical Kinetics in an Acoustically Levitated Drop Microreactor," *Anal. Chem.* **81(20)**, 8496-8502 (2009) DOI: 10.1021/ac901400y. Correction *Anal. Chem.* **83(6)**, 2408 (2011).
110. A. Scheeline and K. Kelley, "Cell Phone Spectrometer," *J. Analyt. Sci. Digital Libr.* Entry 10059, 11/30/09. Reprinted in *m-Science: Sensing, Computing, and Dissemination*, E. Cannesa and M. Zennaro ed. (The Abdus Salam International Centre for Theoretical Physics, November, 2010). Translation into Romanian, 9/2011.
111. A. Scheeline, "Focal Point: Teaching, Learning, and Using Spectroscopy with Commercial, Off-the-Shelf Technology," *Appl. Spectrosc.*, **64(9)**, 256A-268A (2010).
112. R. C. K. Wilson, D. T. Phuong, E. Chainani, and A. Scheeline, "Flexible, Micron-scale Superoxide Sensor for *In Vivo* Applications," *J. Electroanal. Chem.*, **662**, 100-104 (2011). Published on-line 4/2/11: <http://dx.doi.org/10.1016/j.jelechem.2011.03.024>
113. A. Scheeline, "Teaching in Hanoi: Good Mornings in Vietnam," *Anal. Bioanalyt. Chem.*, **398(7)**, 2751-2753 (2010) DOI: 10.1007/s00216-010-4246-y.
114. A. Scheeline, Y. A. Cho, M. Khanna, and H. T. Trinh, "Analog and Digital Conversion for Chemical Instrumentation," *J. Analyt. Sci. Digital Libr.*, entry 38000, 6/1/11.
115. A. Scheeline and R. L. Behrens, "Potential of Levitated Drops to Serve as Microreactors for Biophysical Measurements," *Biophys. Chem.* **165-166**, 1-12 (2012). DOI: 10.1016/j.bpc.2012.03.008
116. A. Scheeline, W.-H. Choi, E. T. Chainani, and K. T. Ngo, "Levitated Drop Microreactors for Biochemical Kinetics," *Adv. Mater. Res.*, **560-561**, 395-400 (2012). DOI: 10.4028/www.scientific.net/AMR.560-561.395

117. S. F. Barna, E. A. Ott, N. H. Thu, M. A. Shannon, and A. Scheeline, "Silica Adsorbents and Peroxide Functionality for Removing Paraquat from Wastewater," *Journal of Environmental Engineering ASCE*, **139(7)**, 975-985 (2013).
118. A. Scheeline and M. J. Singer, "Understanding and Serendipity by Design: Introducing a Discovery-Based Experiment to a Lecture Course in Instrumental Analysis," *J. Res. Science Teaching*, submitted for review, 8/21/12. Under revision for resubmission elsewhere.
119. Edward T. Chainani, Khanh T. Ngo, and Alexander Scheeline, "Electrochemistry in an Acoustically Levitated Drop," *Anal. Chem.*, **85(4)**, 2500-2506 published online, January 27, 2013. **DOI:** 10.1021/ac3035162
120. Alexander Scheeline, "Kinetics for Chemical Analysis," published online, March 27, 2013; <http://community.asdlib.org/activelearningmaterials/kinetics-for-chemical-analysis/>
121. Alexander Scheeline, "Spectrometry with Consumer-quality CMOS Cameras," in *(m)Health: Mobile Health Care Technologies*, A. Rasooly and K. E. Herold, Ed., Springer Protocols Series, Humana Press (New York, 2014), submitted for review 10/23/2013, revised 12/25/2013.
122. Edward T. Chainani, Woo-Hyuck Choi, Khanh T. Ngo, and Alexander Scheeline, "Mixing in Colliding, Ultrasonically Levitated Drops," *Anal. Chem.* **86(4)**, 2229-2237 1/24/14 (2014). **DOI:** 10.1021/ac403968d
123. Alexander Scheeline, "Portable Visible Absorption Spectrometry: Two Dimensions Instead of One," *Amer. Lab.* **46(7)**, 37-39 (2014).
124. Alexander Scheeline, "Is "Good Enough" Good Enough for Portable Visible and Near-visible Spectrometry?" in *Next-Generation Spectroscopic Technologies VIII*, M. A. Drury, R. A. Crocombe, and D. P. Bannon ed., **9482**, 94820H-1 - 94820H-9 (2015). **DOI:** 10.1117/12.2085896
125. Alexander Scheeline and Bùi Anh Thư, "Stacked, Mutually-rotated Diffraction Gratings as Enablers of Portable Visible Spectrometry," *Appl. Spectrosc.* **70(5)**, 766-777 (2016). **DOI:** 10.1177/00037028166382246
126. Alexander Scheeline, "Cell Phone Spectrometry: Science in Your Pocket?" *TrAC*, **85A**, 20-25(2016). [doi:10.1016/j.trac.2016.02.023](https://doi.org/10.1016/j.trac.2016.02.023)
127. Martin Gruebele, James M. Lisy, Alexander Scheeline, and Steven C. Zimmerman, "Building a Modern Chemistry Undergraduate Program at Hanoi University of Science-VNU: a Vietnam-US Partnership," in *Educational and Outreach Projects from the Cottrell Scholars Collaborative* (ACS Books, Washington, D.C.) submitted for review, 12/1/16, accepted 1/11/17.
128. Alexander Scheeline, "Getting Valid Results with Spectrometry," *Laser Focus World*, **53(3)**, 37-40 (2017).
129. Alexander Scheeline, "How to Design a Spectrometer," *Appl. Spectrosc.* on-line manuscript released 6/23/17. DOI: 10.1177/0003702817720468.

Patents

1. "Ambient Temperature Treatment of Conductive Inks," E. S. Kirkor and A. D. Schricker co-inventors, issued as "Conducting Inks," Patent US 7,097,788 B2, 8/29/2006.
2. "Energy Dispersion Device," T. A. Bui and A. Scheeline, Application 13/596,242, 20130093936 A1 filed 8/28/2012, published 4/18/2013, issued 8,885,161 B2, 11/11/2014.
3. "Energy Dispersion Cuvette," A. Scheeline Application 15/379,462, submitted 12/14/2014.

Talks and Technical Presentations (Submitted): (only co-authors are listed)

1. "Kinetics of the Formation of 12-Molybdophosphate in Perchloric, Sulfuric, and Nitric Acid Solutions," with S.R. Crouch and P.M. Beckwith, American Chemical Society National Meeting Paper 156, Los Angeles, CA, April 1974.

2. "A New Look at a Traditional Approach to Spectroscopic Data Acquisition and Interpretation using the Abel Inversion," with J.P. Walters, Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) Second Annual Meeting, Paper 71, Indianapolis, IN, October, 1975.
3. "Programmed and Programmable Spark Sources," with J.P. Walters, FACSS Fourth Annual Meeting, Paper 73, Detroit, MI, November, 1977.
4. "Observations of Energy Transfer and Species Mixing in Stabilized Spark Discharges," with J.P. Walters, FACSS Fifth Annual Meeting, Paper 30, Boston, MA, October, 1978.
5. "Electrical Probing of the Environment of a Stable Spark Discharge," with J.R. DeVoe, J.C. Travis, and J.P. Walters, FACSS Sixth Annual Meeting, Paper 252, Philadelphia, PA, September 1979.
6. "Particles and Pulses in the Aftermath of a Spark Discharge," MUACC, Urbana, IL, October, 1979.
7. "Mathematical Description of Discharge Current Waveforms in Adjustable Waveform Spark Sources," FACSS Seventh Annual Meeting, Paper 143, Philadelphia, PA, September, 1980.
8. "Simulation of Waveforms in High Voltage Spark Sources," MUACC, Iowa State University, October, 1980.
9. "Construction and Characterization of a Compact Adjustable Waveform Spark Source," with T.V. Tran, ACS Midwest Regional Meeting, Poster 204, Lincoln, NE, November, 1980.
10. "High Voltage Spark Spectrochemical Analysis," Monmouth College, Monmouth, IL, April, 1981.
11. "Where Chemistry and Physics Meet: Spark Emission Spectroscopy," Bradley University, Peoria, IL, April, 1981.
12. "Simulation of Spark Source and Discharge Properties," with T.V. Tran and G.J. Kamla, FACSS Eighth Annual Meeting, Paper 221, Philadelphia, PA, September, 1981.
13. "Analytical Chemistry with a Sledge Hammer: Use of a Theta Pinch for Elemental Analysis," MUACC, Purdue University, October, 1981.
14. "Dynamics of Non-linear Systems," Gordon Research Conference on Analytical Chemistry, August, 1982.
15. "Stark Broadening of Hydrogen Emission as a Probe of the High Voltage Spark," with G.J. Kamla, M.J. Zoellner, and M.A. Lovik, FACSS Ninth Annual Meeting, Paper 472, Philadelphia, PA, September, 1982.
16. "An Investigation of the Spark Discharge with Thomson Scattering Using CARS," with M. J. Zoellner and J. Wehmer, FACSS Ninth Annual Meeting, Paper 478, September, 1982.
17. "Observation of Particulates in a Spark Discharge," with M.A. Lovik, FACSS Ninth Annual Meeting, Paper 477, September, 1982.
18. "Design and Application of a Theta Pinch for Emission Spectroscopy," with G.J. Kamla, FACSS Ninth Annual Meeting, Paper 472, September, 1982.
19. "Electron Behavior in Spark Discharges," MUACC, University of Kentucky, October, 1982.
20. "Free Electron Behavior in the High Voltage Spark Discharge," with M.J. Zoellner and G.J. Kamla, 23rd Colloquium Spectroscopicum International, Amsterdam, Netherlands, June, 1983.
21. "Spark Source Charging and Universal Chaos," B.R. Hardas, ACS Student Affiliates Chicago Regional Meeting, April 30, 1983.
22. "Preliminary Experiments on the Use of a Theta Pinch Discharge for Emission Spectroscopy," with G.J. Kamla, FACSS Tenth Annual Meeting, Paper 365, Philadelphia, PA, September, 1983.
23. "Nonlinear System Dynamics: Application to Characterization of Sparks," with B.R. Hardas and J.A. Stewart, FACSS Tenth Annual Meeting, Paper 367, September, 1983.
24. "Emission Spectroscopy with a Theta Pinch: First Results," MUACC, Youngstown State University, October, 1983.
25. "Microspark Spectroscopy Revisited," with J.C. Cousins, Eleventh Annual FACSS Meeting, Philadelphia, PA, September, 1984 paper 222.

26. "Laser Light Scattering from High Voltage Spark Discharges," with M.J. Zoellner, Eleventh Annual FACSS Meeting, September, 1984, paper 221.
27. "Observation of Particulates in a High Voltage Spark Discharge," with M.A. Lovik, Eleventh Annual FACSS Meeting, September, 1984, paper 226.
28. "Spectral Observations of a Theta Pinch Discharge," with G.J. Kamla, Eleventh Annual FACSS Meeting, September, 1984, paper 225.
29. "Scattering from Sparks," with M.A. Lovik, MUACC, University of Wisconsin-Madison, October, 1984.
30. "Progress in Characterization of a Theta Pinch Discharge for Elemental Analysis," with G.J. Kamla, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, March, 1985, paper 1143.
31. "Light Scattering from High Voltage Sparks," with M.A. Lovik and M.J. Zoellner, 27th Rocky Mountain Conference, paper 46, Denver, CO, July, 1985.
32. "Polarization compensation Optics with Active Computer Control," with M.A. Lovik, 27th Rocky Mountain Conference, paper 49, Denver, CO, July, 1985.
33. "Development of a Theta Pinch for Spectrochemical Analysis," with G.J. Kamla and J.S. White, 27th Rocky Mountain Conference, paper 55, Denver, CO, July, 1985.
34. "Capacitor Charging in a High-Voltage Spark Source: Analogy to the Circle Map," Gordon Research Conference on Oscillations and Dynamic Instabilities in Chemical Systems, Plymouth, NH, July, 1985.
35. "Abel Simulation of a Cylindrically Symmetrical Plasma with Arbitrary Absorption and Emission Regions," with B.J. Mork, American Chemical Society 190th Annual Meeting, Chicago, IL, September, 1985.
36. "Characterization of Theta Pinched Plasmas for Elemental Analysis," with J.S. White and G.J. Kamla, American Chemical Society 190th Annual Meeting, Chicago, IL, September, 1985.
37. "Raman Scattering from a High Voltage Spark Discharge," with M.J. Zoellner, FACSS Twelfth Annual Meeting, Philadelphia, PA, September, 1985.
38. "Progress in Theta Pinch Emission Spectroscopy," with J.S. White and G.J. Kamla, FACSS Twelfth Annual Meeting, Philadelphia, PA, September, 1985.
39. "Condensed Materials in a High Voltage Spark: Particle Dynamics," with M.A. Lovik, FACSS Twelfth Annual Meeting, Philadelphia, PA, September, 1985.
40. "Development of a Source for Spark Microanalysis," with J.C. Cousins, FACSS Twelfth Annual Meeting, Philadelphia, PA, September, 1985.
41. "Light Scattering from Particulates in High Voltage Sparks," with M.A. Lovik, Optical Society of America 1985 Annual Meeting, Paper ThA9, Washington, DC, October, 1985 (Abstracted in *J. Opt. Soc. Am. A*, **2**, P57 (1985).)
42. "Light Scattering Diagnostics Applied to High Voltage Spark Discharges," with M.A. Lovik and M.J. Zoellner, First International Laser Science Conference, Dallas, TX, November, 1985. (Abstracted in *Bull. Am. Phys. Soc. Ser. II*, **30**, 1804 (1985).)
43. "Light Scattering Diagnostics of the High Voltage Spark Discharges," with M.A. Lovik and M.J. Zoellner, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, NJ, March, 1986, paper 430.
44. "Progress in Theta Pinch Emission Spectroscopy," with J.S. White, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, NJ, March, 1986, paper 431.
45. "Dynamic Range and Emission Spectroscopy of Complex Mixtures," FACSS XIII, St. Louis, MO, September, 1986.
46. "Theta Pinch as a Sampling and Excitation Source for Emission Spectroscopy," with J.S. White, FACSS XIII, St. Louis, MO, September, 1986.
47. "Non-Unity Magnification with Reflective Optics," with B.J. Mork, FACSS XIII, St. Louis, MO, September, 1986.

48. "Development of a Source for Spark Microanalysis," with J.C. Cousins, FACSS XII, St. Louis, MO, October, 1986.
49. "Useful Information from the High Voltage Spark: It All Depends on How You Look At It," with J.C. Cousins, FACSS XIII, St. Louis, MO, October, 1986.
50. "Light Scattering Diagnostics on a High Voltage Spark," with M.A. Lovik and M.J. Zoellner, FACSS XIII, St. Louis, MO, October, 1986.
51. "The Microspark Reborn," with J. C. Cousins, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, NJ, March, 1987, Paper 311.
52. "Theta Pinch Dynamics: From Initiation to Afterglow," with Jeffrey S. White, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, NJ, March, 1987, Paper 313.
53. "Stability Considerations for the Dual ICP," with E. Schwab and D.M. Coleman, FACSS XIV, Detroit, MI, October, 1987.
54. "Microspark Spectrometry for Materials Analysis," with J.C. Cousins, FACSS XIV, Detroit, MI, October, 1987.
55. "Direct Solid Sampling with a Theta Pinch Discharge," with J.S. White, FACSS XIV, Detroit, MI, October, 1987.
56. "Electronics for Scientists at Age 28," FACSS XIV, Detroit, MI, October, 1987.
57. "CCD Imaging Detection of Spark Discharge Emission," with B.J. Mork, FACSS XIV, Detroit, MI, October 1987.
58. "Spatial Structure of Transient Plasmas Revealed with a CCD Camera," with B.J. Mork, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, February, 1988.
59. "Can a Chemical Oscillator be Used for Quantitative Analysis?" Gordon Research Conference on Oscillations and Dynamic Instabilities in Chemical Systems, Plymouth, NH, July, 1988.
60. "Hydrogen in Argon Revisited: Understanding an Intentional Matrix Effect in the Unidirectional High Voltage Spark," with J. C. Cousins and J. M. Goldberg, FACSS XV Annual Meeting, Boston, MA, November, 1988.
61. "Use of a Pockels Cell Electro-Optic Switch in the Study of Pulsed Analytical Discharges," with D. A. Bath and J. S. White, FACSS XV Annual Meeting, Boston, MA, November, 1988.
62. "Spherical Pinch Discharges for Elemental Analysis," with G.-H. Lee, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, GA, March, 1989.
63. "Oscillating Reactions and Nonlinear Dynamics for Quantitative Analysis," with D. L. Olson, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, GA, March 1989.
64. "Simultaneous Multiple Species Analysis in a Buffered Silane Plasma," with S. W. Rynders, FACSS XVI, Chicago, IL, October, 1989.
65. "The Use of a Biochemical Oscillator for Quantitative Analysis," with D. L. Olson, FACSS XVI, Chicago, IL, October, 1989.
66. "Oscillating Reactions and Quantitative Analysis: Who Owes More to Whom?" MUACC, Miami University, Oxford, OH, October 1989
67. "Theta Pinch Discharges for Elemental Analysis: What Parameters Really Matter?" with D. L. Miller, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New York, NY, March, 1990.
68. "Oscillating Reactions and Nonlinear Dynamics for Quantitative Analysis," with D. L. Olson, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New York, NY, March, 1990.
69. "Characterization of Fourier Transform Spectroscopy of Analytical Emission Sources.", with J. C. Travis, 37th Canadian Spectroscopy Conference, August, 1991.
70. "Demonstration of CCD/Echelle Software and Data Base Management Software for the NIST Transition Probability Tables." with D.L. Miller, FACSS/Pacific Conference, Anaheim, CA, October 1991.

71. "Particle Size Effects on Ceramic Analysis Using a Theta Pinch Discharge." with Z. Wang, D.L. Miller, FACSS/Pacific Conference, Anaheim, CA, October 1991.
72. "Spark Discharge: The End of the Line?" with C.A. Bye, FACSS/Pacific Conference, Anaheim, CA, October 1991.
73. "Aspects of Quantitation with a Theta Pinch Emission Source," with D.L. Miller, FACSS XIX Annual Meeting, Philadelphia, PA, September, 1992.
74. "Analytical Implications of Plasma Dynamics in the High Voltage Spark Discharge," FACSS XIX Annual Meeting, Philadelphia, PA, September, 1992.
75. "Transition Probabilities and Line Shapes: Usage and Needs at the University of Illinois," with C. A. Bye, H. Krier, J. Mazumder, X. Chen, T. Duffey, S. Tewari, D. Zerkle, M. J. Kushner, Fourth International Colloquium on Atomic Spectra and Oscillator Strengths for Astrophysical and Laboratory Plasmas, Gaithersburg, MD, September, 1992.
76. "The Peroxidase Oscillator: Quant Students Know More than the Literature," MUACC, Southern Illinois University, October, 1992.
77. "Nonlinear Reaction Dynamics in the Peroxidase/NADH Biochemical Oscillator," with D. L. Olson, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, GA, March, 1993.
78. "Nonlinear Reaction Dynamics in the Peroxidase/NADH Biochemical Oscillator," with D. L. Olson, ACS National Meeting, Denver, CO, April, 1993.
79. "Non-feedback Control of the Belousov-Zhabotinsky Reaction," with A. Hubler and R. Mettin, SPIE symposium on Chaos, San Diego, CA, July, 1993.
80. "Peroxidase-Oxidase Oscillator Revisited with Rigorous Control of Reaction Conditions," with D. L. Olson, SPIE Symposium on Chaos in Biology, San Diego, CA, July, 1993
81. "Controlling chaos in a chemical oscillator," with A. Hubler, SPIE Symposium on Optics, Imaging, and Instrumentation, San Diego, CA, July 1993
82. "Evaluation of Fundamental Behavior of the Analytical Theta Pinch Discharge," with D. L. Miller, FACSS XX, Detroit, MI, October, 1993, paper 730.
83. "Instrumentation for Characterizing Oscillatory Reactions," with D. L. Olson, K. Chang, D. Shriver, A. Kovacs-Boerger, R. Mettin, and A. Hubler, FACSS XX, Detroit, MI, October, 1993, paper 778.
84. "Specification of Peroxidase-Oxidase Reaction Conditions," with D.L. Olson, E. Kirkor, V. Lvovich, G. Horras, T. Yuen and V. Kutilek, Oscillations and Dynamic Instabilities Gordon Conference, Newport, RI, August, 1994.
85. "EPR Spectrometry in Characterization of Horseradish Peroxidase-NADH Oscillator," with E. Kirkor, Oscillations and Dynamic Instabilities, Gordon Conference, Newport, RI, August, 1994.
86. "The Peroxidase-Oxidase Oscillator," MUACC, Kansas State University, September, 1994.
87. "Oscillatory Electro-Dissolution of Aluminum," MUACC, Northern Illinois University, October, 1995
88. "Instrumentation for Characterizing Oscillatory Reactions," with V. Lvovich, D. T. Bowlin, and E. Kirkor, FACSS XXII, Cincinnati, OH, October, 1995.
89. "Electrochemical Sensors for Hydrogen Peroxide and Superoxide Detection," with V. Lvovich, FACSS XXII, Cincinnati, OH, October, 1995.
90. "Oscillatory Electro-Oxidation of Aluminum," with D. T. Bowlin, Pittsburgh Conference, Chicago, IL, March, 1995, Paper 201.
91. "Electrochemical Sensors for Hydrogen Peroxide and Superoxide Detection," with V. Lvovich,, Pittsburgh Conference, Chicago, IL, March, 1995, Paper 365.
92. "Building a Better Model of the NADH/HRP Oscillating Chemical Reaction," with G. Horras, Fourth Internat. Conf. on Comp. Biol.: Intelligent Systems for Molec. Biol., Washington Univ., St. Louis, MO, June, 1996.
93. "Monitoring Chemical Details of the Peroxidase-Oxidase Oscillator," with E. Kirkor, V. Lvovich, and G. Horras, IVth International Symposium on Plant Peroxidases, Vienna, Austria, July 1996
94. "Oxygen and Instability of NADH in Solution," with E. Kirkor and G. Horras, FACSS XXIII, Kansas City, MO, October, 1996.

95. "Applications of Hydrogen Peroxide and Superoxide Sensors for Monitoring Oscillatory Systems," with V. Lvovich, FACSS XXIII, Kansas City, MO, October, 1996.
96. "Rotating Disk Electrode Studies of the Electro-oxidation of Aluminum in $(\text{NH}_4)_2\text{S}_2\text{O}_8$ and Phosphoric Acid" with D. L. Bowlin, FACSS XXIII, Kansas City, MO, October, 1996.
97. "The Peroxidase-Oxidase Oscillator C Radical Chemistry Of Unexplored Biological Importance," with E. S. Kirkor, V. Lvovich, G. Horras, and E. Long, Functional Foods for Health Conference, Lake Bluff, IL, May, 1997.
98. "Developments in Monitoring the Peroxidase-Oxidase System," with V. Lvovich, and E. S. Kirkor, Gordon Research Conference on Oscillations and Dynamic Instabilities in Chemical Systems, Newport, RI, July, 1997.
99. "Progress in Understanding Mechanisms of Peroxidase-Oxidase Oscillations," with G. Horras, D. Benson, V. Lvovich, and E. Kirkor, Gordon Research Conference on Oscillations and Dynamic Instabilities in Chemical Systems, Newport, RI, July, 1997.
100. "Oscillatory Electro-oxidation of Aluminum: A Picture Gallery," with D. Bowlin and A. J. Pearlstein, Gordon Research Conference on Oscillations and Dynamic Instabilities in Chemical Systems, Newport, RI, July, 1997.
101. "Reactivity of NADH in the Presence of Oxygen under Mildly Acidic Conditions," with V. Lvovich and E. Kirkor, FACSS XXIV, Providence, RI, October, 1997.
102. "Axially-Withdrawn Rotating Cylinder Electrode for Alloy Surface Preparation and Characterization," with H. Gao and A. J. Pearlstein, FACSS XXIV, Providence, RI, October, 1997.
103. "Oscillatory Electro-oxidation of Aluminum and 2024 Aluminum Alloy Rotating Disk Electrodes," with D. T. Bowlin, K. Clay and A. J. Pearlstein, FACSS XXIV, Providence, RI, October, 1997.
104. "Isolation of Metals from Liquid Wastes: Reactive Scavenging in Turbulent Thermal Reactors," with J.O. L. Wendt, A. J. Pearlstein, A. Kerstein, and W. Linak, U.S. Department of Energy Environmental Management Science Program Workshop, Chicago, IL, July, 1998, poster 84.
105. "Macbeth Act IV, Scene 2," MUACC, Detroit, MI, October, 1998.
106. "Optical System for Flame Diagnostics Using ICCD Detection," Fourth International Conference on Scientific Optical Imaging, Grand Cayman Island, December, 1998.
107. "A Novel Design for a Mercury Sensor Based on an Oscillating Chemical Reaction," with C. Cobb, A. Coursey, C. East, J. Josephs, K. Martin, M. McCutcheon, E. McGahee, T. Meehan, G. Brizius, M. Newton, and E. DeLucia, Pittsburgh Conference, Orlando, FL, March, 1999, paper 90.
108. "Electrooxidation of Aluminum Alloys as Surface Preparation for Adhesive Bonding," with H. Gao and A. J. Pearlstein, Pittsburgh Conference, Orlando, FL, March, 1999, paper 1084.
109. "Demonstration of a Novel Rotating Cylindrical Electrode in Growth of Oxide Films with Spatially Controlled Microstructural Variation on Al 6061," with H. Gao and A. J. Pearlstein, Electrochemical Society meeting, Seattle, WA, May, 1999, paper 1083.
110. "Speciation in the Peroxidase-Oxidase Reaction," with E. S. Kirkor, and J. M. Hogan, Gordon Research Conference on Oscillating Reactions and Chemical Instabilities, Barga, Italy, June, 1999.
111. "Investigations of the Mercury-, Silver-, and Palladium-Catalyzed Open-Circuit Aluminum-Dissolution Oscillating Reactions," with C. L. Cobb, A. Coursey, C. East, R. Fuller, J. Josephs, M. Malinova, K. Martin, M. McCutcheon, E. McGahee, T. Meehan, M. Newton, F. Onyemauwa, and E. Delucia, Gordon Research Conference on Oscillating Reactions and Chemical Instabilities, Barga, Italy, June, 1999.
112. "Bubble Dynamics on Rotating Disk Electrodes," with N. Suzuki, A. J. Pearlstein, and E. Delucia, Gordon Research Conference on Oscillating Reactions and Chemical Instabilities, Barga, Italy, June, 1999.
113. "Pattern Formation During Initial Stages of Oxide Growth on Aluminum," with H. Gao and A. J. Pearlstein, Gordon Research Conference on Oscillating Reactions and Chemical Instabilities, Barga, Italy, June, 1999.

114. "Development of a Novel Technique for Growth of Oxide Films of Controlled Microstructure on Aluminum Alloys," with H. Gao and A. J. Pearlstein, DOE Corrosion Contractors Meeting, Urbana, IL, September, 1999.
115. "Early Stages of Anodic Oxide Film Evolution," with H. Gao and A. J. Pearlstein, Joint International Meeting of The Electrochemical Society, Honolulu, HI, October, 1999
116. "NAD Dimer: an Understudied Species," MUACC, Illinois State University, Normal, IL, October, 1999.
117. "NAD Dimer: an Understudied Species," with E. Kirkor, FACSS XXVI, Vancouver, BC, October, 1999.
118. "Reactive Nucleotides, Reducible Sugars, and Peroxidase," with E. Kirkor, FACSS XXVI, Vancouver, BC, October, 1999.
119. "Progress in Understanding Oscillatory Chemistry of Heavy, Reducible Metals on Aluminum," with Cathy L. Cobb, Jamal Josephs, Charles East, and Elizabeth Delucia, Pittsburgh Conference, New Orleans, LA, March, 2000.
120. "Electro-osmotic Transport for Temporally-Resolved Monitoring of Chemical Processes in Well-Defined Flows," with Nagi Suzuki, and Arne J. Pearlstein, Pittsburgh Conference, New Orleans, LA, March, 2000.
121. "Isolation of Metals from Liquid Wastes: Reactive Scavenging in Turbulent Thermal Reactors," with J.O.L. Wendt, S. Davis, J. Cabalo, J. Amos, J. R. Schmidt, A. Kerstein, A. J. Pearlstein, M.-P. Shui, and W. P. Linak, US-DOE Environmental Management Science Program Workshop, Atlanta, GA, April, 2000.
122. "Finding Rogue Drops: Laser Diagnostics of Waste-processing Combustors" with J. Cabalo, S. Davis, and J. O. L. Wendt, FACSS XXVII, Nashville, TN, September, 2000, paper 660.
123. "A Mechanistic Model For Open-circuit Metal-ion Catalyzed Aluminum Dissolution Oscillation Reactions," with E. A. De Lucia, C. Cobb, C. East, G. Ferrer, R. Fuller, J. Josephs, I. Kim, M. McCutcheon, F. Onyemauwa, and N. Sethi, FACSS XXVII, Nashville, TN, September, 2000, paper 548.
124. "A Mechanistic Model for Open-Circuit Metal-Ion Catalyzed Aluminum Dissolution Oscillation Reactions," with C. Cobb, Pacificchem2000, Honolulu, HI, December, 2000.
125. "Catalyst Adsorption as a Dynamic Phenomenon in the Peroxidase-Oxidase Oscillator," with E. Kirkor, ESPCI, Paris, July, 2001.
126. "Optical Diagnostics of the Incomplete Reactive Scavenging of Metals from Liquid Waste in Thermal Reactors," with Jerry Cabalo, Arne J. Pearlstein, Jost O.L. Wendt, Gordon Research Conference on Flame Diagnostics, July, 2001.
127. "Instrumental Analysis for Students who Never Had 'Quant.'," MUACC, Minneapolis, MN, October 19, 2001.
128. "Investigation of a Unique Laser-Induced Breakdown Spectroscopy System Utilizing a Pre-Laser Pulse High Voltage Spark Discharge," with Jack Pender, R. M. Hoskins, and S. R. Goode, Pittcon 2002, New Orleans, LA, March 2002, poster 1495P.
129. "Ambiguity and Kinetics: the Strange Tale of NADH Oxidase and CHO Membranes," MUACC, University of Pittsburgh, October, 2002.
130. "Analysis of Oscillatory Enzyme Activity. Systematic Evaluation of Artifact Sources," with D. J. Morré and D. M. Morré, FACSS XXIX, Providence, RI, October, 2002. "Adaptation to the Edge of Chaos: a Simple Biochemical Example?" with A. Hübler, D. D. Lewis, and A. Barr, Understanding Complex Systems Symposium, Urbana, IL, May 2003.
132. "Precision and Control of Linoleic Acid/Ferric Thiocyanate Assay for Antioxidants," with L. Luckey, M. G. Muellner, M. S. Rundell, E. D. Wagner, and M. J. Plewa, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL, March 2004, poster 12900-1600P.
133. "Conductive Inks for Sensors: High Conductivity through Particle Alignment," with A. D. Schricker and E. S. Kirkor, FACSS XXXI, Portland, OR, October, 2004, poster 79.

134. "Precision and Control of Linoleic Acid/Ferric Thiocyanate Assay for Antioxidants," with L. Luckey, M. G. Muellner, M. S. Rundell, E. D. Wagner, and M. J. Plewa, FACSS XXXI, Portland, OR, October, 2004, poster 211.
135. "Probing Levity: Microfluids and Microfabrication," Midwestern Universities Analytical Chemistry Conference, Ohio State University, Columbus, OH, October, 2004.
136. "Towards Intracochlear Monitoring of Reactive Oxygen Species During noise Exposure," with J. H. Siegel, T. E. Lapainis, R. W. Smith, and C. T. Sorce, ARO 28th Winter Meeting, New Orleans, LA, February, 2005 Poster 566.
137. "Experimental Study of Adaptation to the Edge of Chaos: the Peroxidase-Oxidase Reaction," with D. Lewis, M. Ruane, A. Hubler, A. Barr, and T. Wotherspoon, NSF Biocomplexity in the Environment program meeting, Alexandria, VA, March, 2005, Poster 3-16.
138. "Reaction Kinetics in a Levitated Drop Reactor: Instrumentation and Mass Transfer," with C. Field, B. Krejcie, Z. Robinson, and H. Trout, FACSS XXXII, Quebec City, Quebec, October, 2005.
139. "Microamperometric Sensors for Detecting Reactive Oxygen Species in the Inner Ear of Mongolian Gerbils," with R. Wilson, C. Sorce, H. Trout, and J. Siegel, FACSS XXXII, Quebec City, Quebec, October, 2005.
140. "Analytical Sciences Digital Library: New Website and Online Publishing," with C. Larive and T. Kuwana, 40th Midwest Regional Meeting, Joplin, MO, October, 2005.
141. "Reaction Kinetics in a Levitated Drop Reactor: Instrumentation and Mass Transfer," with C. Field, B. Krejcie, Z. Robinson, and H. Trout, Pacifichem, Honolulu, HI, December, 2005.
142. "Microamperometric Sensors for Detecting Reactive Oxygen Species in the Inner Ear of Mongolian Gerbils," with R. Wilson, C. Sorce, H. Trout, and J. Siegel, Pacifichem, Honolulu, HI, December, 2005.
143. "Benchmark Inactivation of *Mycobacterium avium* with Chemical Disinfectants," with J. Luh, B. J. Mariñas, and R. Wilson, WaterCAMPwS Symposium JJ, Materials Research Society, San Francisco, April 2006.
144. "The Analytical Sciences Digital Library: a Tool to Support Innovative Courses," Great Lakes Regional ACS Meeting, Milwaukee, WI, June, 2006.
145. "Fabrication and Characterization of a Superoxide Sensor for in vivo and in situ Studies," with Rebekah K. Wilson, FACSS XXXIII, Orlando, FL, September, 2006.
146. "System for Studying Enzyme Kinetics in a Levitated Drop Reactor," with C. Field, Z. Robinson, and H. Trout, FACSS XXXIII, Orlando, FL, September, 2006.
147. "The Analytical Sciences Digital Library: A Growing Resource for Pedagogy in the Analytical Sciences," with C. Larive, FACSS XXXIII, Orlando, FL, September, 2006.
148. "Fabrication and Characterization of a Superoxide Sensor for in vivo and in situ Studies," with Rebekah K. Wilson, Joint Purdue/Indiana/Illinois Analytical Graduate Student Conference, Indianapolis, IN October, 2006.
149. "System for Studying Enzyme Kinetics in a Levitated Drop Reactor," with C. Field, Z. Robinson, and H. Trout, Joint Purdue/Indiana/Illinois Analytical Graduate Student Conference, Indianapolis, IN October, 2006.
150. "Surface Effects on the Peroxidase-Oxidase System Prevented by Using Levitated Drops as Microreactors," with D. L. Olson, E. S. Kirkor, D. L. Lewis, M. L. Ruane, C. R. Field, Z. N. R. Pierre, and H. M. Thomas, Fifth International Conference on Human Peroxidases, Akaraoa, NZ, February, 2007.
151. "Acoustically Levitated Drop Reactor: Generating, Maintaining, and Controlling Drops," with H. M. Trout and Z. N. Robinson, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL, February, 2007, poster 830-7P.
152. "Online Articles in the Analytical Sciences Digital Library: Open Access Teaching, Learning, and Publishing," with H. A. Bullen and R. S. Kelly, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL, February, 2007, poster 840-3P.

153. "Acoustic Levitation Drop Reactor: Design and Implementation for Monitoring Reaction Kinetics," with C. R. Field, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL, February, 2007, poster 830-9P.
154. "Micron-Scale Amperometric Sensors for Detecting Reactive Oxygen Species Related to Noise Induced Hearing Loss *in situ* and *in vivo*." Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL, February, 2007, paper 1620-4.
155. "Open Access Education in the Analytical Sciences through the Analytical Sciences Digital Library" FACSS XXXIV, Memphis, TN, October, 2007.
156. "Kinetics in a Levitated Drop Microreactor and Related Myeloperoxidase Behavior" with C. R. Field and Z. N. R. Pierre, FACSS XXXIV, Memphis, TN, October, 2007.
157. "Sustainable Growth for the Analytical Sciences Digital Library," with T. Kuwana, National Science Digital Library Annual Meeting, Arlington, VA, November, 2007. (poster and talk)
158. "Sensors for Real-Time Monitoring of Reactive Oxygen Species for Study of Noise-Induced Hearing Loss," with R. Wilson, Auditory Research Organization 31st Winter Meeting, Phoenix, AZ, February, 2008.
159. "Acoustic Levitation Drop Reactor; Design and Implementation for Monitoring Reaction Kinetics," with C. R. Field, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, March, 2008, poster 1180-23P.
160. "Micron-Scale Amperometric Sensors for Detecting Reactive Oxygen Species Related to Noised Induced Hearing Loss *in situ* and *in vivo*," with R. C. K. Wilson and J. H. Siegel, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, March, 2008, paper 1850-2.
161. "Kinetics in Levitated Drops," Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, March, 2008, Paper 2880-4.
162. "Design and Implementation of an Efficient and Automated Acoustically Levitated Drop Reactor for Studying Reaction Kinetics," with C. R. Field and Z. Pierre, FACSS XXXV, Reno, NV, September 2008.
163. "Microfluidic System to Deliver Aqueous Superoxide," with F. Chaparro-Carrasquillo, R. Wilson, E. Chainani, and G. Beck, AIChE Annual Meeting, Philadelphia, PA, November 2008.
164. "Teaching Quantitative Analysis in Hanoi," MUACC, Bloomington, IN, November 14, 2008.
165. "Development of Ultrasonically-Levitated Drops as Microreactors for Study of Enzyme Kinetics and Potential as a Universal Portable Analysis System," with Z. Pierre, C. Field, and M. Ginsberg, Chemical and Biological Defense Physical Science and Technology Conference, New Orleans, LA, November, 2008.
166. "Development of Ultrasonically-Levitated Drops as Microreactors for Study of Enzyme Kinetics and Potential as a Universal Portable Analysis System," with Z. Pierre, C. Field, and M. Ginsberg, Army Research Conference, Orlando, FL, December, 2008.
167. "Micron-scale Sensors for Spatiotemporal Study of Water Photodecontamination," with R. C. Wilson, Materials Research Society, San Francisco, April 13-17, 2009.
168. Cell Phone Spectrometer for Teaching Everyone Absorption Spectroscopy," with K. Kelly, FACSS XXXVI, Louisville, KY, October, 2009.
169. Electrochemistry in Ultrasonically-Levitated Drops," with S. Markwell, Z. N. Pierre, and E. Chainani, FACSS XXXVI, Louisville, KY, October, 2009.
170. Micro-array Sensors for Cochlear Fluid Ions," with E. Chainani and R. Wilson, FACSS XXXVI, Louisville, KY, October, 2009.
171. "Biochemical Kinetics in an Acoustically Levitated Drop Reactor," with Z. N. Pierre and C. R. Field, FACSS XXXVI, Louisville, KY, October, 2009.
172. "The Ghost of Howard Malmstadt: Research and Spectrometer Invention in the Classroom," with B. A. Thu, MUACC, East Lansing Michigan, December, 2009.

173. "Electrochemistry in an Acoustically-levitated Drop," with E. Chainani, Z. N. Pierre, and S. M. Markwell, Pittcon, Orlando FL, March, 2010, paper 160-6.
174. "Superoxide Revisited," MUACC, Purdue University, October 7, 2010.
175. "Levitated Drop Reactors: the Next Point Detection System for Bio and Chemical Field Analytics?" with Z. N. Pierre, R. L. Behrens, E. Chainani, and M. D. Ginsberg, Chemical and Biological Defense Physical Science and Technology Conference, Orlando, FL, November 2010.
176. "Adsorption and Water System Security: Analysis of a Phosphonate," with K. Guy, A. Beckman, M. Rivera-Sustache, and M. D. Ginsberg, Pacificchem, Honolulu, HI, December, 2010.
177. "Potential-assisted Deposition of Cytochrome C on Mixed Thiol Monolayers on Gold for Selective Amperometric Sensing of Hydrogen Peroxide," with C. M. Kane, E. T. Chanani, and R. L. Behrens, Pittcon, Atlanta, GA, March, 2011.
178. "Probing Mass Transfer with Electrochemistry in an Acoustically Levitated Drop," with E. T. Chanani, R. L. Behrens, and Z. N. Pierre, Pittcon, Atlanta, GA, March, 2011.
179. "Impact of Structural Factors on Thermal Sensitivity of Nanocarbon Composites," with E. S. Kirkor, A. Schricker, and S. Sinha, Biomedical Engineering Society Annual Meeting. Hartford, CT, October, 2011.
180. "Hydrogen Peroxide Sensing in a Levitated Drop," with E. T. Chainani, C. M. Kane, W. -H. Choi, C. Nellesen, and K. T. Ngo, FACSS XXXVIII, Reno, NV, October, 2011.
181. "Induction-based Fluidics and Levitated Drops," with K. T. Ngo, P. -H. Pan, E. T. Chainani, and W. -H. Choi, FACSS XXXVIII, Reno, NV, October, 2011.
182. "A Flowing Source of Aqueous Superoxide for Calibration, Chemical, and Biochemical Experiments," with A. Keith, E. T. Chainani, G. Beck, F. Chaparro, R. C. K. Wilson, J. M. Slauch, and Y. A. Golubeva, FACSS XXXVIII, Reno, NV, October, 2011.
183. "Impact of Structural Factors on Thermal Sensitivity of Nanocarbon Composites," with E. S. Kirkor, A. D. Schricker, and S. K. Sinha, Biomedical Engineering Society Annual Meeting, Hartford, CT, October, 2011.
184. "Levitated Drops as Microreactors: The Road We've Traveled, The Road Ahead," Pittcon, Orlando, FL, March 2012.
185. "Launching, Directing, Measuring NanoLiter Droplets Shot Into/Onto Targets Including: Levitated Droplets; Mass Spectrometers; MALDI Plates, Human Beings Using Electric Fields," A. D. Sauter, Jr., American Society for Mass Spectrometry, Vancouver, CA, May, 2012.
186. "Levitated Drop Microreactors for Biochemical Kinetics," with W.-H. Choi, E. Chainani, and K. T. Ngo, 2012 Spring World Congress on Engineering and Technology, X'ian, China, May, 2012.
187. "Levitated Drops as Microreactors: How Far Did We Get?," with E. Chainani, K. T. Ngo, and W.-H. Choi, FACSS XXXVIII, Kansas City, MO, October, 2012.
188. "COTS Technology and the Future of Chemical Analysis," FACSS XXXVIII, Kansas City, MO, October, 2012.
189. "Portable Spectrometry: Making Good Use of CMOS Detectors," with T. A. Bui, FACSS XXXIX, Milwaukee, WI, October, 2013.
190. "Millions of Shallow CMOS Pixels and the Art of Spectroscopy," with T. A. Bui, Pittcon, Chicago, IL, March, 2014.
191. "Adventures in Portable Spectrometry: When Easy and Hard Are Interchanged," FACSS XXXX, Reno, NV, October, 2014.
192. "A Rolling Grating Gathers No CMOS: Stacked Transmission Grating Spectrometry," Pittcon, New Orleans, LA, March, 2015.
193. "Bioprotection of Facilities," with M. D. Ginsberg, A. Bui, M. Page, A. Nelson and J. Hay, CBDS&T Conference, St. Louis, MO, May, 2015.
194. "Bioprotection of Facilities: New Modeling Methods," with M. D. Ginsberg and A. Bui, CBDS&T Conference, St. Louis, MO, May, 2015.
195. "Progress in Portable, Visible Spectrometry," FACSS/ScIX XXXI, Providence, RI, October, 2015.

196. "Visible Spectrometry with Stacked Transmission Gratings," PacifiChem, Honolulu, HI, December, 2015.
197. "Multi-order Visible Absorption and Reflectance Spectrometry: Parallels to Atomic Emission Line Interferences," with M. D. Ginsberg, Pittcon, Atlanta, GA, March 2016.
198. "Asymptotically Approaching Usability for Stacked, Mutually Rotated Gratings and Shallow Well CMOS Camera Visible Spectrometry," FACSS/SCIX, Minneapolis, MN, September, 2016.
199. "Handheld Spectrometer for Sample Triage," Defense Innovation Conference, Tampa, FL, October 3, 2017 (abstract 126).
200. "Handheld Spectrometry for Sample Triage," Chemical and Biological Defense Science and Technology Conference, Long Beach, CA, November, 2017 (submitted, pending acceptance; abstract 51).

Reviews:

1. J.M. Meek and J.D. Craggs, "Electrical Breakdown of Gases," in *Anal. Chem.* **51**, 1133A (1979).
2. M. Thompson and J.N. Wash, "A Handbook of Inductively Coupled Plasma Spectrometry," in *J. Am. Chem. Soc.* **106**, 7299 (1984).
3. R.K. Winge, V.A. Fassel, V.J. Peterson, and M.A. Floyd, "Inductively Coupled Plasma-Atomic Emission Spectroscopy: An Atlas of Spectral Information," in *J. Am. Chem. Soc.* **107**, 6746 (1985).
4. P.W. J.M. Boumans, "Inductively Coupled Plasma Emission Spectroscopy. Part I: Methodology, Instrumentation and Performance," in *J. Am. Chem. Soc.* **109**, 5059 (1987).
5. J.L. Delcroix, "Gas-Phase Chemical Physics Database, Part B: Systems with Two Elements," in *Spectrochim. Acta*, **44B** 833 (1989).
6. CAMO Inc., "Unscrambler II," *Appl. Spectrosc.* **46**, 21A (1992).
7. J. Sneddon, "Advances in Atomic Spectroscopy," *J. Am. Chem. Soc.* **115** (1993).
8. CAMO Inc., "Unscrambler II, V. 5.0," *Appl. Spectrosc.* **48**, 42A (1994).
9. J. C. Spott, "Chaos Data Analyzer," *Complexity* (1995). With Y.-T. Liu.
10. "Model Maker II," *Complexity* (1995). With N. Weber.
11. Daniel Walgraef, "Spatio-Temporal Pattern Formation, With Examples from Physics, Chemistry, and Materials Science," *Amer. Scientist* (1997).
12. B. Huang, X. Wang, P. Yang, H. Ying, S. Gu, Z. Zhang, Z. Zhuang, Z. Sun, and B. Li, "An Atlas of High Resolution Spectra of Rare Earth Elements for Inductively Coupled Plasma Atomic Emission Spectroscopy," *Appl. Spectrosc.* (2000).
13. J. Sneddon, "Advances in Atomic Spectroscopy," *J. Am. Chem. Soc.* **125**, 7479 (2003).
14. G. Rieke, "Detection of Light," *Appl. Spectrosc.* **57**, 152A (2003).
15. D. W. Braben, "Pioneering Research: A Risk Worth Taking," *Appl. Spectrosc.* **59**, 137A (2005).
16. R. E. Blahut, "Theory of Remote Image Formation," *Appl. Spectrosc.* **59**, 137A-138A (2005).
17. "The Ideal Book for Teaching Optical Spectroscopy," *Appl. Spectrosc.* **61**, 121A-122A (2007).
18. W. Fateley, "Science or Fiction (The 10% Solution)," *Appl. Spectrosc.* **63**, 156A (2009).

Reviewer of Proposals, Books, or Manuscripts:

ACS Short Courses Advances in Atomic Spectroscopy Analytica Chimica Acta The Analyst
Analytical Chemistry Applied Spectroscopy Biochemistry Biophysical Journal Chemical Reviews
Complexity Electrochimica Acta Harcourt Brace Journal of the American Chemical Society
Journal of Analytical Atomic Spectroscopy Journal of Electroanalytical Chemistry Langmuir
Journal of Physical Chemistry NSF NSERC PLOS One Prentice Hall Optics Communications
VCH Biophysical Chemistry Research Corp. ACS Petroleum Research Fund Talanta
Spectrochimica Acta U. S. Department of Energy W. H. Freeman, Publishers Micro and Nanosystems

Contributor to School and Department Grants:

(Chemistry Department Head or School of Chemical Sciences Director as principal investigator.)

1. FPS-164 Coprocessor for VAX Computer (C.E. Dykstra main author).
2. Restructuring Chemistry Instrumentation Laboratories (L. Belford main author).
3. English Tutoring by Chemically-Knowledgeable Tutors (UIUC Graduate College Ph.D. Completion Project, 2006-2007).
4. Graduate Assistance in Areas of National Need (A. Baranger main author). 2009-2012.
5. Research Experiences for Undergraduates, supported by 3M (joint with A. Baranger) 2011.
6. Research Experiences for Undergraduates, supported by 3M, 2012.
7. Research Experiences for Undergraduates, supported by NSF (co-authored with A. Baranger, based on earlier drafts by several colleagues) 2011-2014.

Support from Research Board, University of Illinois:

1. Purchase of Equipment from University of Iowa, \$25,000, 1981.
2. Thomson Scattering as a Probe of Electron Properties in the High Voltage Spark Discharge, Summer support for 1 RA, 1982 and 1983.
3. Computer Assisted Design Package for Use with a Numerically Controlled Milling Machine, \$14,330, 1982-83.
4. Crossed Echelle Spectrometer for Measurement of Emission Spectrochemical Sources, \$4500, 5/1/87 - 12/1/87.
5. Dynamics of the Peroxidase-Oxidase Oscillating Reaction, \$6,000, 6/1/92 - 9/1/93.
6. Concluding Experiments in Theta Pinch Emission Spectrometry, \$2500, 5/1/93-10/1/93
7. Partial support of purchase of liquid chromatograph, \$2500, 1/1/95-6/30/95
8. Bridge funding for Nieman research group, \$20,000, 1/96 - 8/97.
9. Line-Narrowed Excimer Laser and ICCD Detector to Diagnose Drop Dynamics in High-Temperature Flows, \$25,000, 1998.
10. Myeloperoxidase Dynamics for the Amelioration of Arthritis, \$8,222, 2001.

Gifts of equipment: Baird Corp. Hamamatsu Corp., Leeman Labs Inc., and PPG Industries.

Other Professional Activities Not Otherwise Documented:

Computer support: Illinois Association for Advancement of Archaeology

Workshops for using the Hanoi/JASDL spectrometer and the SpectroClick Kit: ACS National Meeting/San Diego, 2012, EnLIST/2009, 2010, 2011, ICICLES 2011, CAST 2016, SCIX/FACSS 2017

Prepublication review of papers for assorted authors at Vietnam National University of Science – Hanoi and Vietnam Academy of Science and Technology.

Revised 7/17