

Stephen Edward Bialkowski
Utah State University
Department of Chemistry and Biochemistry
Logan, UT 84322-0300

PROFESSIONAL STATUS: Professor of Chemistry (Analytical)

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AREAS OF INTEREST:

- Photothermal Spectroscopy
- Atmospheric Environmental Chemistry and Chemical Analysis
- Infrared Absorption and Emission Spectroscopy
- Digital and Optical Signal Processing

EDUCATION:

- B. S., Professional Chemistry, Eastern Michigan University, 1975
- Ph. D., Chemistry, University of Utah, 1978

PROFESSIONAL EXPERIENCE:

- Fulbright Research Fellow to Slovenia, University of Nova Gorica, 2006
- Visiting Scientist, Pacific Northwest National Laboratory, 2002, 2003
- Professor of Chemistry, Utah State University, 1993-present
- Associate Department Head, Chemistry and Biochemistry, Utah State University, 1996-1999
- Adjunct Faculty of Electrical Engineering, Utah State University, 1987-
- Associate Professor of Chemistry, Utah State University, 1987-1993
- Adjunct Faculty of Physics, Utah State University, 1986-present
- Assistant Professor of Chemistry, Utah State University, 1983-1987
- Assistant Professor of Chemistry, Michigan Technological University, 1980-1983
- Visiting Scientist, University of Utah, 1980
- NRC Postdoctoral Fellow, National Bureau of Standards, 1978-1980
- Research Assistant, University of Utah, 1976-1978
- Teaching Fellow, University of Utah, 1975-1976
- Electronic Technician, Computer Programmer, 1970-1975

AWARDS:

- Stauffer Chemical Award 1976, 1977
- Willard Gardner Prize of the Utah Academy of Sciences, Arts, and Letters, 2003
- Fulbright Research Fellow to Slovenia, 2006

PROFESSIONAL SOCIETY AFFILIATIONS:

- American Association for the Advancement of Science (AAAS)
- American Chemical Society (ACS)
- American Geophysical Union (AGU)
- International Chemometrics Society (Founding Member)
- Optical Society of America (OSA)
- Society for Applied Spectroscopy (SAS)
- Utah Academy of Sciences, Arts, and Letters (UASAL)

SYMPOSIA AND MEETINGS ORGANIZED:

- AAAS Pacific Division Meeting Committee 2002-2004
- FACSS Symposium on Photothermal Spectroscopy 1986
- Physical Sciences Division, Annual Meeting, Utah Academy of Science, Arts, and Letters 1988
- FACSS Symposium on Photothermal Spectroscopy 1989
- Physical Sciences Division, Annual Meeting, Utah Academy of Science, Arts, and Letters 1989
- FACSS Symposium on Photothermal Spectroscopy 1990
- Physical Sciences Division, Annual Meeting, Utah Academy of Science, Arts, and Letters 1990
- Physical Sciences Division, Annual Meeting, Utah Academy of Science, Arts, and Letters 1991
- American Chemical Society 45th Annual Summer Symposium on Analytical Chemistry 1992
- Physical Sciences Division, Annual Meeting, Utah Academy of Science, Arts, and Letters 1998
- Physical Sciences Division, Annual Meeting, Utah Academy of Science, Arts, and Letters 1999
- Physical Sciences Division, Annual Meeting, Utah Academy of Science, Arts, and Letters 2000

REVIEWER FOR:

- Academic Press
- Analytica Chimica Acta
- Analytical Biochemistry
- Analytical Chemistry
- Analytical and Bioanalytical Chemistry
- Applied Optics
- Applied Physics E, Instrumental Science
- Applied Physics Letters
- Applied Spectroscopy
- Chemical Physics
- Chemometrics and Intelligent Laboratory Systems
- CRC Critical Reviews in Analytical Chemistry
- Journal of Biomedical Optics
- Journal of Chemical Physics
- Journal of Chemometrics
- Journal of Physical Chemistry
- Journal of the American Chemical Society
- Journal of the Optical Society of America B
- Measurement Science and Technology
- Optics Letters
- Review of Scientific Instruments
- Spectrochimica Acta
- Talanta
- Trends in Analytical Chemistry (TrAC)
- Environmental Protection Agency
- National Institutes of Health
- National Science Foundation
- Petroleum Research Fund
- Research Corporation
- Research Council of Canada

PANELS, CHAIRMANSHIPS, AND OTHER PROFESSIONAL AFFILIATIONS:

- Secretary, International Photoacoustic and Photothermal Association (IPPA) Prize Committee, 2008
- International Scientific Committee, Spectroscopy Theory and Practice 2001—present
- International Advisory Board, International Conference On Photoacoustic And Photothermal Phenomena 2001—present
- Editorial Board, CRC Critical Reviews of Analytical Chemistry, 1996—present
- Electronic Edition Editor for Society for Applied Spectroscopy, 2002—present
- Participant in US EPA Public Involvement in EPA Decisions dialogue 2001
- Participant in US EPA Libraries as a Community Resource for Environmental Information dialogue 2000
- Member IUPAC Commission On Molecular Structure and Spectroscopy, Quantities, Terminology and Symbols in Photothermal and Related Spectroscopies 1998—present
- Representative in the American Association for the Advancement of Science section on Societal Impacts of Science and Engineering 1999-2002
- FACSS Delegate, Society for Applied Spectroscopy 2000-2002
- Chairman Physical Sciences Division, Utah Academy of Sciences, Arts, and Letters 1987-1991
- Chairman Elect, Society for Applied Spectroscopy, Intermountain Section 1989-1990

- Chairman, Society for Applied Spectroscopy, Intermountain Section 1990-1991
- Chairman Physical Sciences Division, Utah Academy of Sciences, Arts, and Letters 1998-2001
- Chairman Elect, Society for Applied Spectroscopy, Intermountain Section 1998-1999
- Chairman, Society for Applied Spectroscopy, Intermountain Section 1999-2001

PUBLICATIONS

BOOKS:

1. *Photothermal Spectroscopy Methods for Chemical Analysis* Stephen E. Bialkowski, Volume 134 in *Chemical Analysis*, Wiley, New York, **1996**

JOURNAL ARTICLES:

1. *The Infrared Multiphoton Photochemistry of Methanol* Stephen E. Bialkowski and William A. Guillory **Journal of Chemical Physics** 67 2061 **1977**
2. *Interface Between a Biomation 8100 and a Remote Computer for Data Acquisition in TEA-CO₂ Laser Induced Photochemistry* Stephen E. Bialkowski and William A. Guillory **Review of Scientific Instruments** 48 115 **1977**
3. *Collisionless Formation and Rovibronic Relaxation of CH and OH from the IR Multiphoton Photolysis of CH₃OH* Stephen E. Bialkowski and William A. Guillory **Journal of Chemical Physics** 68 3339 **1978**
4. *The Infrared Photolysis of SO₂* Stephen E. Bialkowski and William A. Guillory **Chemical Physics Letters** 60 429 **1979**
5. *Infrared Photolysis of Methanol and Monomethylamine (Dissertation)* University Microfilms Ann Arbor, MI. **1979**
6. *Gas Phase Laser Induced Fluorescence Spectroscopy of CFCl* Stephen E. Bialkowski, David S. King, and John C. Stephenson **Journal of Chemical Physics** 71 4010 **1979**
7. *The Determination of Mass Transport Coefficients and Vibrational Relaxation Rates of Species Formed in Laser Photolysis Experiments* Stephen E. Bialkowski, David S. King, and John C. Stephenson **Journal of Chemical Physics** 72 1156 **1980**
8. *Energy Partitioning in the IR Multiphoton Dissociation of Molecules: Energy of XCF₂ and XCFCl from CF₂CFCl* John C. Stephenson, Stephen E. Bialkowski, and David S. King **Journal of Chemical Physics** 72 1161 **1980**
9. *Simple Parallel Interface Between an Optical Multichannel Analyzer and a Microprocessor* Stephen E. Bialkowski **Review of Scientific Instruments** 51 850 **1980**
10. *A Quantitative Test of Unimolecular Rate Theory in the Multi-Photon Dissociation of CF₂CFCl* John C. Stephenson, Stephen E. Bialkowski, David S. King, Everet Thiele, James Stone and Myron F. Goodman **Journal of Chemical Physics** 74 3905 **1981**
11. *Selection Rules and Linestrength Factors for Multiphoton Transitions in Gas Phase Molecular Spectroscopy* Stephen E. Bialkowski and William A. Guillory **Chemical Physics** 55 229 **1981**
12. *Absolute Reaction Rate Constants of CFCl X¹(A₁) Reactions with Nitrogen Oxides* Stephen E. Bialkowski and William A. Guillory **Journal of Physical Chemistry** 86 2007 **1982**
13. *Vibronic Relaxation Dynamics of the ¹Σ_g⁺ State of C₃* Y. Gu, Michael L. Lesiecki, Stephen E. Bialkowski, and William A. Guillory **Chemical Physics Letters** 92 443 **1982**
14. *On the Determination of Kinetic Rate and Mass Transport Coefficients in Laser Pump-Probe Experiments* Stephen E. Bialkowski **Chemical Physics Letters** 83 341 **1981**
15. *A Statistical Interpretation of the Rotational Temperature of NO Desorbed for Ru(001)* Stephen E. Bialkowski **Journal of Chemical Physics** 78 600 **1983**
16. *Chemical Reactions Following the IRMPD of C₂F₃Cl* George R. Long, Linda D. Prentice and Stephen E. Bialkowski **Applied Physics B** 34, 97 **1984**
17. *The Effect of Mass Diffusion in Gas Phase Thermal Lens Experiments* Stephen E. Bialkowski

Chemical Physics Letters 104 448 **1984**

18. *Pulsed Infrared Laser Thermal Lens Spectrophotometric Determination of Trace Level Analytes: Quantitation of Parts Per Billion Dichlorodifluoromethane* George R. Long and Stephen E. Bialkowski **Analytical Chemistry** 56 2806 **1984**
19. *Saturation Effects of Gas Phase Photothermal Deflection Spectrometry* George R. Long and Stephen E. Bialkowski **Analytical Chemistry** 57 1079 **1985**
20. *Pulsed Infrared Laser Thermal Lens Spectrometry of Flowing Gas Samples* Scott L. Nickolaisen and Stephen E. Bialkowski **Analytical Chemistry** 57 758 **1985**
21. *Photothermal Lens Aberration Effects in Two Laser Thermal Lens Spectrometry* Stephen E. Bialkowski **Applied Optics** 24 2792 **1985**
22. *Pulsed Laser Thermal Lens Spectrophotometry of Flowing Samples* Scott L. Nickolaisen and Stephen E. Bialkowski **IEEE Technical Digest** CH21741 110 **1985**
23. *Pulsed Laser Thermal Lens Spectrometry for Flowing Liquid Detection* Scott L. Nickolaisen and Stephen E. Bialkowski **Analytical Chemistry** 58 215 **1986**
24. *Error Reduction in Pulsed Infrared Laser Photothermal Deflection Spectrometry* George R. Long and Stephen E. Bialkowski **Analytical Chemistry** 58 80 **1986**
25. *A Least Squares Digital Filter for Repetitive Data Acquisition* Scott L. Nickolaisen and Stephen E. Bialkowski **Journal of Chemical Information and Computer Science** 26 57 **1986**
26. *Pulsed Laser Thermal Lens Spectrophotometry of Liquid Samples Using an Optical Fiber Beam Guide with Interference Orthogonal Signal Processing* Stephen E. Bialkowski **Analytical Chemistry** 58 1706 **1986**
27. *Binary Code Decimal to Binary Program Modification of a Popular Digital Delay Module* Stephen E. Bialkowski **Review of Scientific Instruments** 57 1431 **1986**
28. *Species Selective Detection in Gas Chromatography Through Photothermal Deflection Spectroscopy* Scott L. Nickolaisen and Stephen E. Bialkowski **Journal of Chromatography** 366 127 **1986**
29. *A Scheme for Species Discrimination and Quantitative Estimation Using Incoherent Linear Optical Signal Processing* Stephen E. Bialkowski **Analytical Chemistry** 58 2561 **1986**
30. *Pulsed Infrared Laser Photothermal Spectroscopy in Gas Phase Chemical Analysis* Stephen E. Bialkowski **IEEE Technical Digest** 86CH2274-9 72 **1986**
31. *Pulsed-Laser Photothermal Spectroscopy* Stephen E. Bialkowski **Spectroscopy** 1 26 **1986**
32. *Optimal Estimation of Impulse-Response Signals Through Digital Innovations and Matched Filter Smoothing* Stephen E. Bialkowski **Review of Scientific Instruments** 58 687 **1987**
33. *Quantitative Discrimination of Gas Phase Species Based On Single-Wavelength Non-Linear Intensity Dependent Pulsed Infrared Laser Excited Photothermal Deflection Signals* Stephen E. Bialkowski and George R. Long **Analytical Chemistry** 59 873 **1987**
34. *Simple Scheme for Variable High Power Laser Beam Attenuation* Stephen E. Bialkowski **Review of Scientific Instruments** 58 2338 **1987**
35. *Pulsed Laser Photothermal Spectroscopy* Stephen E. Bialkowski **Advances in Laser Science, AIP Proceedings** 172 738 **1988**
36. *Real Time Digital Filters: Finite Impulse-Response Filters* Stephen E. Bialkowski **Analytical Chemistry** 60 355A **1988**
37. *Real Time Digital Filters: Infinite Impulse-Response Filters* Stephen E. Bialkowski **Analytical Chemistry** 60 403A **1988**
38. *Optical Processing of Time Varying Pulsed Laser Excited Photothermal Spectroscopy Signals with Matched Filter Smoothing* Stephen E. Bialkowski and Salvador Herrera **Analytical Chemistry** 60 1586 **1988**
39. *Optimized Spectroscopic Signal Estimates Using Integration and Matched Filters* Stephen E. Bialkowski **Applied Spectroscopy** 42 807 **1988**
40. *Ultrasensitive Photothermal Deflection Spectrometry Using an Analyzer Etalon* Stephen E.

- Bialkowski and Zhi-Fang He **Analytical Chemistry** 60 2674 **1988**
41. *Theoretical Accounting for the Acoustic Energy Produced by Pulsed Laser Excitation of Optically Thin Samples* Stephen E. Bialkowski **Chemical Physics Letters** 151 88 **1988**
 42. *Generalized Digital Smoothing Filters Made Easy by Matrix Calculations* Stephen E. Bialkowski **Analytical Chemistry** 61 1308 **1989**
 43. *Data Analysis in the Shot Noise Limit Part I: Single Parameter Estimation with Poisson and Normal Probability Density Functions* Stephen E. Bialkowski **Analytical Chemistry** 61 2479 **1989**
 44. *Data Analysis in the Shot Noise Limit Part II: Methods for Data Regression* Stephen E. Bialkowski **Analytical Chemistry** 61 2483 **1989**
 45. *Application of the BaTiO₃ Beam Fanning Limiter as an Adaptive Spatial Filter for Signal Enhancement in Pulsed Laser Excited Photothermal Spectroscopy* Stephen E. Bialkowski **Optics Letters** 14 1020 **1989**
 46. *Survey of Properties of Volume Holographic Materials* Richard D. Rallison and Stephen E. Bialkowski in *Practical Holography III SPIE Proceedings* 1051 68 **1989**
 47. *Data Analysis in the Shot Noise Limit Part III: An Adaptive Method for Data Smoothing* Stephen E. Bialkowski **Journal of Chemometrics** 4 271 **1990**
 48. *Exchange of Comments on Data Analysis in the Shot Noise Limit Part I: Single Parameter Estimation with Poisson and Normal Probability Density Functions* Stephen E. Bialkowski **Analytical Chemistry** 62 2141 **1990**
 49. *Expectation-Maximization Algorithm for Regression, Deconvolution, and Smoothing of Shot-Noise-Limit Data* Stephen E. Bialkowski **Journal of Chemometrics** 5 211 **1991**
 50. *Using Optical Novelty Filters in Analytical Spectroscopy* Stephen E. Bialkowski **Proceeding of the Society for Optical and Quantum Electronics** 1991 780 **1991**
 51. *Diffraction Properties of Gelatin as an Aerogel* Richard D. Rallison and Stephen E. Bialkowski *Diffraction Optics: Design, Fabrication, and Applications Technical Digest* (Optical Society of America, Washington, D.C.) 9 111-113 **1992**
 52. *Transition Saturation in Ethylene Observed with Infrared Photothermal Spectrometry* Stephen E. Bialkowski and Zhi-Fang He *Environmental and Process Monitoring Technologies* Tuan Vo-Dinh, Editor **SPIE Proceedings** 1637 134 **1992**
 53. *Comparison of BaTiO₃ Optical Novelty Configuration and Photothermal Lensing Configuration in Photothermal Experiments* Shashi D. Kalaskar and Stephen E. Bialkowski **Analytical Chemistry** 64 1824 **1992**
 54. *Pulsed-Laser Excited Differential Photothermal Deflection Spectrometry* Stephen E. Bialkowski, Xu Gu, Pete E. Poston, and Linda S. Powers **Applied Spectroscopy** 46 1335 **1992**
 55. *Analysis of 1st-Order Rate Constant Spectra With Regularized Least-Squares and Expectation Maximization: 1. Theory and Numerical Characterization* Brett T. Stanley, Stephen E. Bialkowski, and David B. Marshall **Analytical Chemistry** 65 259 **1993**
 56. *A Comparison of Three Multi-Platform Message-Passing Interfaces on an Expectation Maximization Algorithm* Csaba. Gyulai, Stephen E. Bialkowski, Gardner S. Stiles, and Linda S. Powers in **Transputer Applications and Systems '93, Vol. 1 Proceedings of the 1993 World Transputer Congress** R. Grebe, J. Hektor, S. C. Hilton, M. R. Jane, and P. H. Welch, Eds. IOS Press, Amsterdam, pp. 451-464 **1993**
 57. *Accounting for Saturation Effects in Pulsed Infrared Laser Excited Photothermal Spectroscopy* Stephen E. Bialkowski **Applied Optics** 32 3177 **1993**
 58. *Optical Bleaching Kinetics of Ethylene Observed with Pulsed Infrared Laser Excited Photothermal Lens Spectrometry* Stephen E. Bialkowski and Z. F. He *Longer Wavelength Lasers and Applications* Gabor Patonay, Ed. **SPIE Proceedings** 2138 140 **1994**
 59. *Obtaining Accurate Measurements of Organic Dye Solutions using Pulsed Laser Photothermal Deflection Spectroscopy* Agnès Chartier and Stephen E. Bialkowski **Analytical Chemistry** 67 2672

1995

60. *Laser Excited Fluorescence of Dityrosine* Sahar F. Mahmoud and Stephen E. Bialkowski **Applied Spectroscopy** 49 1669 **1995**
61. *Detection of Dityrosine in Apoferritin* Sahar F. Mahmoud and Stephen E. Bialkowski **Applied Spectroscopy** 49 1677 **1995**
62. *Sub-Shot-Noise Light Sources: A Quiet Revolution in Light Control* Stephen E. Bialkowski **Critical Reviews in Analytical Chemistry** 26 101 **1996**
63. *Diffraction Effects in Single- and Two-Laser Photothermal Lens Spectroscopy* Stephen E. Bialkowski and Agnès Chartier **Applied Optics** 36 6711 **1997**
64. *Photothermal Lens Spectrometry of Homogeneous Fluids with Incoherent White-Light Excitation Using a Cylindrical Sample Cell* Agnès Chartier and Stephen E. Bialkowski **Optical Engineering** 36 303 **1997**
65. *Temperature-Dependent Electron Capture Detector Response to Common Alternative Fluorocarbons* Sonia R. Sousa and Stephen E. Bialkowski **Analytical Chemistry** 69 3871 **1997**
66. *Molecular Interactions at Octadecylated Chromatographic Surfaces* James W. Burns, Stephen E. Bialkowski, and David B. Marshall **Analytical Chemistry** 69 3861 **1997**
67. *Overcoming the Multiplex-Disadvantage using Maximum-Likelihood Inversion* Stephen E. Bialkowski **Applied Spectroscopy** 52 591 **1998**
68. *Progress Toward a Better Understanding of Signal Generation Processes in the Laser-Excited Photothermal Spectroscopy of Homogeneous Samples* Stephen E. Bialkowski **Trends in Analytical Chemistry** 17 520-532 **1998**
69. *Laser-Excited Photothermal Lens Spectrometry in a Low-Volume Cylindrical Sample Cell* Stephen E. Bialkowski **Israel Journal of Chemistry** 38 159-167 **1998**
70. *Methods for Modeling and Diagnosis of Nonlinear Absorption in Photothermal and Photoacoustic Spectrometry of Homogeneous Fluids* Stephen E. Bialkowski and Agnès Chartier **Photoacoustic and Photothermal Phenomena**, F. Scudieri and M. Bertolotti, Ed., AIP Conference Proceedings 463 46-49 **1999**
71. *Using Slow Measurement Systems to Measure Fast Excited-State Kinetics with Nonlinear Rate-Competitive Optical Bleaching* Stephen E. Bialkowski and Agnès Chartier **Photoacoustic and Photothermal Phenomena**, F. Scudieri and M. Bertolotti, Ed. AIP Conference Proceedings 463 14-17 **1999**
72. *Using an Optical Novelty Filter to Enhance Contrast in Photothermal Refraction Spectrometry* Stephen E. Bialkowski **Photoacoustic and Photothermal Phenomena**, F. Scudieri and M. Bertolotti, Ed., AIP Conference Proceedings 463 67-71 **1999**
73. *Using Sub-Microliter Cylindrical Sample Cells for Photothermal Lens Spectrometry of Stable and Photo-Labile Species* Stephen E. Bialkowski and Agnès Chartier, **Photoacoustic and Photothermal Phenomena**, F. Scudieri and M. Bertolotti, Ed., AIP Conference Proceedings 463 226-228 **1999**
74. *Low frequency behavior of colloidal suspensions. Modeling Maxwell-Wagner and diffuse double layer polarization in low frequency impedance spectra of clay suspensions* Lynn M. Dudley, Dani Or, Stephen E. Bialkowski, and Chad Junkermeier, in: A. Kraszewski and K.C. Lawrence (ed.) Third Workshop on Electromagnetic Wave Interactions with Moist Substances. U. S. Dept. of Ag., Ag. Res. Service, Athens, GA. **1999**
75. *Fractured Zone Plates for Spatial Separation of Frequencies*, Richard D. Rallison and Stephen E. Bialkowski **Proc. SPIE-Int. Soc. Opt. Eng.** 3633 92-102 **2000**
76. *Thermal Lens Calorimetry: A Novel Approach to the Study of Thermodynamics* George R. Long and Stephen E. Bialkowski **Chemical Educator** 5, 145-148 **2000**
77. *Optical Bleaching in Continuous Laser Excited Photothermal Lens Spectrometry* Agnès Chartier and Stephen E. Bialkowski **Applied Spectroscopy** 55, 84-91 **2001**
78. *Comparison of Detection Limits and Relative Responses for Alternative Fluorocarbons by GC-ECD, GC-*

- AED, and GC-MS* Sonia R. Sousa and Stephen E. Bialkowski **Anal. Chim. Acta** 433 (2), 181-186 **2001**
79. *Modeling Maxwell-Wagner and diffuse double layer polarization in low frequency impedance spectra of clay suspensions* Stephen E. Bialkowski, Lynn M. Dudley, and Dani Or in: K. Kupfer (ed.) Fourth Workshop on Electromagnetic Wave Interactions with Moist Substances. MFPA, Wiemar, Germany. **2001**
 80. *Using expectation maximization to obtain dielectric relaxation time spectra of aqueous montmorillonite clay suspensions* Stephen E. Bialkowski, Lynn M. Dudley, and Dani Or in: K. Kupfer (ed.) Fourth Workshop on Electromagnetic Wave Interactions with Moist Substances. MFPA, Wiemar, Germany. **2001**
 81. *Photothermal Spectrometry in Small Liquid Channels* Agnes B. Chartier and Stephen E. Bialkowski **Anal. Sci.** (Japan) 17, i99-i101 **2002**
 82. *Using an Expectation-Maximization Algorithm to Obtain Dielectric Relaxation Time Spectra of Aqueous Montmorillonite Clay Suspensions* Stephen E. Bialkowski, Lynn Dudley, and Dani Or **Applied Spectroscopy** 56 1470-1474 **2002**
 83. *Low Frequency Impedance Behavior of Montmorillonite Suspensions: Polarization Mechanisms in the Low Frequency Domain* Lynn M. Dudley, Stephen E. Bialkowski, Dani Or, and Chad Junkermeier, **Soil Science Society of America Journal** 67 518-526 **2003**
 84. *Steady-State Absorption Rate Models for Use in Relaxation Rate Studies with Continuous Laser Excited Photothermal Lens Spectrometry* Stephen E. Bialkowski **Photochemical & Photobiological Sciences** 2 779-787 **2003**
 85. *Infrared Spectroscopy: Photothermal* Stephen E Bialkowski, In *Encyclopedia of Analytical Science*, 2nd Edition, pages 426-430, Elsevier, Oxford UK **2004**
 86. *Quantities, Terminology, and Symbols in Photothermal and Related Spectroscopies* Masahide Terazima, Noboru Hirota, Silvia E. Braslavsky, Andreas Mandelis, Stephen E. Bialkowski, Gerald J. Diebold, R. J. D. Miller, Danièle Fournier, Richard A. Palmer, and Andy Tam **Pure and Applied Chemistry** 76 1083-1118 **2004**
 87. *Continuous Laser-Excited Photothermal Spectrometry of CdS_xSe_{1-x} Doped Glasses* Oluwatosin Dada, Matthew R. Jorgensen, Stephen E. Bialkowski **Applied Spectroscopy** 61 1373-1378 **2007**
 88. *Finite Element Analysis Modeling of Pulse-Laser Excited Photothermal Deflection (Mirage Effect) from Aerosols* Oluwatosin O. Dada and Stephen E. Bialkowski **Applied Spectroscopy** 62 102 **2008**
 89. *Development of Infrared Photothermal Deflection Spectroscopy (Mirage Effect) for Analysis of Condensed-phase Aerosols Collected in a Micro-Orifice Uniform Deposit Impactor* Oluwatosin O. Dada and Stephen E. Bialkowski **Applied Spectroscopy** 62 112 **2008**

PATENTS

1. *Optically Actuated Optical Switch Apparatus and Methods*, Stephen E. Bialkowski., United States Patent 4585301 **1986**

COURSES TAUGHT AT UTAH STATE UNIVERSITY

- Principles of Chemistry (Freshman Chemistry for Science/Engineering Majors)
- Quantitative Analysis-I (Freshman-Level Chemistry Majors)
- Quantitative Chemical Analysis (Sophomore-Level Chemistry Majors)
- Quantitative Analysis Laboratory (Sophomore-Level Chemistry Majors)
- Environmental Chemistry (Non-Majors and Elective Chemistry Majors/Minors Course)
- Instrumental Analysis (Senior-Level Chemistry Majors and Graduate Students)
- Instrumental Analysis Laboratory (Senior-Level Chemistry Majors and Graduate Students)
- Modern Chemical Analysis (Graduate-Level Core Course)
- Analytical Spectroscopy (Graduate-Level Elective)
- Electrochemistry (Graduate-Level Elective)
- Atmospheric Chemistry (Graduate-Level Elective)
- Special Topics in Analytical Chemistry (Graduate-Level Elective)
- Analytical and Physical Chemistry Seminar (Graduate-Level Core Course)

COURSES TAUGHT AT MICHIGAN TECHNOLOGICAL UNIVERSITY

- Principles of Chemistry (Freshman Chemistry for Science/Engineering Majors)
- Quantitative Chemical Analysis (Sophomore-Level Chemistry Majors)
- Quantitative Analysis Laboratory (Sophomore-Level Chemistry Majors)
- Industrial Chemistry (Senior-Level Elective for Chemistry and Chemical Engineering Majors)

GRADUATE STUDENTS AND POST-GRADUATE ASSOCIATES

A. Current Graduate Students

1. Prakash Joshi (Ph.D. candidate)

B. Former Graduate Students

1. Linda Delong-Prentice (M.S. MTU 1985)
2. Dr. George R. Long (M.S. MTU, Ph.D. USU 1986) - Professor, Department of Chemistry, Indiana University of Pennsylvania, Indiana, PA
3. Dr. Scott Nickolaisen (M.S. USU 1986, Ph.D. University of Southern California) - Professor, Department of Chemistry, California State University, Los Angeles
4. Dr. Chris Erickson (M.S. USU 1989, Ph.D. University of Washington) - R&D Analytical Chemist, Morton International, Ogden, UT
5. Dr. Zhi-Fang He (Ph.D. USU 1993) - Postdoctoral Assistant, Department of Chemistry, University of California, Riverside, CA
6. Dr. Sahar F. Mahmoud (Ph.D. USU 1994) – Visiting Scientist, Department of Molecular Biology and Genetics, Cornell University, Ithaca, NY
7. Dr. Shashi Kalaskar (Ph.D. USU 1995) - Environmental Analytical Chemist, Logan, UT
8. Dr. Sonia Sousa (Ph.D. USU 1998) - R&D Analytical Chemist, Thermo.
9. Oluwatosin O. Dada (Ph.D. USU 2008) - Postdoctoral Assistant, University of Washington

C. Former Postdoctoral Associate

1. Dr. Pete Poston, Professor, Department of Chemistry, Western Oregon State College, Manmouth, OR

D. Visiting Faculty Associates

1. Dr. Agnès Bernadette Chartier, Research Scientist, CNRS, Lyon, FR
2. Prof. David Mendenhall, Department of Chemistry, Michigan Technological University

FUNDED RESEARCH PROJECTS:

"Gas Phase Reactions of Laser Excited Fluorescence Spectroscopy of Free Radical Species" **Research Corporation** \$17,250 (1982)

"Investigations of the Theory and Practice of Gas Phase Thermal Lens Spectrometry for Analytical Quantitation and Calorimetry" **Utah State University Faculty Grant** \$10,500 (1984)

"Investigations of the Theory and Practice of Gas Phase Thermal Lens Spectrometry for Analytical Quantitation and Calorimetry" **Utah State University Faculty Grant** \$8,000 (1984-1985)

"Optical Switch Activation via Optically Induced Refractive Index Gradients" **Utah State University Foundation** \$8,000 (1984)

"Analytical Gas Phase Pulsed Laser Photothermal Spectroscopy" **National Science Foundation** \$59,744 (1985-1986)

"Pulsed Laser TLS Detection for HPLC" **Varian Associates** \$25,000 (1986)

"Analytical Gas Phase Pulsed Laser Photothermal Spectroscopy" **National Science Foundation** \$93,500 (1987-1990)

"Analytical Gas Phase Pulsed Laser Photothermal Spectroscopy (Extension)" **National Science Foundation** \$29,451 (1990-1992)

"Center for Biocatalysis Science and Technology" (co-PI with L. Piette and L. S. Powers) **Utah State Center of Excellence Program** \$500,000 (1988-1989)

"Center for Biocatalysis Science and Technology" (co-PI with L. Piette and L. S. Powers) **Utah State Center of Excellence Program** \$270,000 (1990-1991)

"National Center for the Design of Molecular Function" (co-PI with L. Powers, G. Czerlinski, G. Stiles, L. Piette, and I. Yamazaki) **National Institutes of Health** \$1,577,621 (1991-1994)

"Thin Films in Unsaturated Porous Media - Effects on Flow and Transport" (co-PI with Dani Or and Lynn Dudley, Department of Plants, Soils, and Biometeorology) **National Science Foundation** \$299,994 (1998-2002)

"Electromagnetic Characterization of Soil Electrochemical and Geometric Factors Affecting Transport Processes" (co-PI with Lynn Dudley and Dani Or, Department of Plants, Soils, and Biometeorology) **USDA/NRICGP** \$277,000 (1999-2003)

"Wavelength Independent Infrared Gas Sensor" **USU SDL Enabling Technology Program** \$65,000 (2005-2006) Renewable.

FUNDED SYMPOSIA:

"Photothermal Spectroscopy Symposium at the 13th FACSS Meeting" **ACS-PRF** \$3,400 (1985)

"Fluorescence and Photothermal Spectroscopy, 45th Annual Summer Symposium on Analytical Chemistry" **ACS-PRF** \$5,500 (1992)