

Professor Andre' J. Sommer
Department of Chemistry & Biochemistry
Miami University, Oxford, OH 45056

Academic Experience

Professor, Miami University, Oxford, OH 45056.

Instructor for graduate level and undergraduate chemistry courses.

February 2005 - Present

Associate Professor Miami University, Oxford, OH 45056.

Instructor for graduate level and undergraduate chemistry courses.

July 2001 - February 2005

Assistant Professor Miami University, Oxford, OH 45056.

Instructor for graduate level and undergraduate chemistry courses.

August 1995 - July 2001

Visiting Professor of Chemistry Miami University, Oxford, OH 45056.

Instructor for graduate level course in FTIR and Raman microspectroscopy. Course instructor of "Chemistry in A Modern Society", an undergraduate course in chemistry for non-majors.

March 1993 - August 1995

Faculty Member of Molecular Microspectroscopy Short Course Miami University, Oxford, OH 45056.

Course instructor for annual workshop in Molecular Microspectroscopy. Primary instructor for Raman and FT-Raman microspectroscopy dealing with theory, instrumentation, sample preparation and applications.

June 1986 - Present

Graduate and Undergraduate Technical Adviser Molecular Microspectroscopy Laboratory, Miami University, Oxford, OH 45056. Technical adviser and training specialist for graduate and undergraduate students employing instrumentation in the Molecular Microspectroscopy facility.

June 1986 - Present

Graduate Teaching Assistant Lehigh University, Bethlehem, PA 18015.

Instructor for recitation and laboratory classes in freshman chemistry for majors and non-majors.

September 1979 - June 1981

Research Experience

Program Investigator Indiana University School of Medicine, International Kidney Stone Institution

2004 - Present

Director Molecular Microspectroscopy Laboratory, Department of Chemistry and Biochemistry, Miami University, Oxford, OH 45056. Position involves the application and development of molecular microspectroscopies in basic and applied research and industrial problem solving.

March 1995 - Present

Assistant Director Molecular Microspectroscopy Laboratory, Department of Chemistry and Biochemistry, Miami University, Oxford, OH 45056. Position involves the application and development of molecular microspectroscopies in basic and applied research and industrial problem solving.

June 1986 - August 1995

Postdoctoral Research Scientist International Business Machines, Endicott, NY 13760. Position required the use of FTIR and Raman spectroscopies for the functional characterization of photosensitive and semiconductor materials.

June 1985 - June 1986

Applications Engineer Instruments SA, Inc., Edison, NJ 08840. Position required demonstrating the capabilities and limitations of Raman microspectroscopy to potential customers.

April 1985 - May 1985

Graduate Research Assistant at Lehigh University under the direction of Dr. Henry Leidheiser, Jr. Conducted studies into the corrosion mechanisms of phosphated steels and organic coatings employing Raman microspectroscopy and energy dispersive x-ray spectroscopy.

July 1981 - March 1985

Graduate Research Assistant at Lehigh University under the direction of Dr. Roland Lovejoy. Research involved the design and construction of multi-pass White cells for the infrared spectroscopic analysis of atmospheric gases.

June 1980 - July 1981

Education

Doctor of Philosophy in Analytical Chemistry,

Lehigh University, 1984, Bethlehem, PA 18015

"Cathodic Delamination of Organically Coated Phosphated Steel as Studied by Laser Raman Spectroscopy and Energy Dispersive Spectroscopy"

Master of Science Degree in Chemistry,

Lehigh University, 1981, Bethlehem, PA 18015

"Infrared Absorption Coefficient Spectrum of GeH₄"

Bachelor of Science Degree in Chemistry,

Delaware Valley College, 1979, Doylestown, PA 18901

Associates Degree in Chemistry,

Bucks County Community College, 1977, Newtown, PA 18940

Publications

Book Chapters

"Mid-Infrared Transmission Microspectroscopy", A. J. Sommer, submitted book chapter, "Handbook on Vibrational Spectroscopy", J. M. Chalmers and P. R. Griffiths, Eds., John Wiley & Sons, Ltd., England, (invited), published December 2001.

"Raman Microspectroscopy", A. J. Sommer, in Modern Techniques in Applied Molecular Spectroscopy, Francis M. Mirabella, John Wiley & Sons, Inc., New York, pp. 291-322, (1998).

"Phase Behavior in Aqueous Surfactant Systems: Infrared Studies", C. Marcott, R. G. Laughlin, A. J. Sommer and J. E. Katon, in Fourier Transform Infrared Spectroscopy in Colloid and Interface Science, D. R. Scheuing, Ed., American Chemical Society, Washington, D. C., Pp. 71-86, (1991).

"Infrared Microspectroscopy", J. E. Katon, A. J. Sommer and P. L. Lang, *Appl. Spectrosc. Revs.* 25, 173 (1989).

"Infrared and Raman Microspectroscopy: An Overview of Their Use in the Identification of Microscopic Particulates", P. L. Lang, A. J. Sommer and J. E. Katon, in Particles on Surfaces II: Detection, Adhesion and Removal, K. L. Mittal, Ed., Plenum Press, New York, 1989.

"Applications of Molecular Microspectroscopy to Paper Chemistry", A. J. Sommer, P. L. Lang, B. S. Miller and J. E. Katon, in Infrared Microspectroscopy: Theory and Applications, R. G. Messerschmidt and M. A. Harthcock, Eds., Marcel Dekker, New York, 1988.

"Laser Raman Microprobe Study of the Identification and Thermal Transformations of Some Carbonate, Sulfate and Alumino-Silicate Minerals", R. G. Herman, C. E. Bogdan and A. J. Sommer, in Advances in Materials Characterization II, R. L. Snyder, R. A. Condrate and P. F. Johnson, Eds., Plenum Press, New York, 1985.

Journal Publications (Peer Reviewed)

"Attenuated Total Internal Reflectance Infrared Spectroscopy (ATR-FTIR): A Quantitative Approach for Kidney Stone Analysis", H. J. Gulle-Stahl, J. Haas, A. P. Evan and A. J. Sommer, submitted to *Applied Spectroscopy*, August 2008.

"Loss of Urinary Macromolecules in Mice Causes Interstitial and Intratubular Renal Calcification Dependent on the Underlying Conditions", X.-R. Wu, J. C. Lieske, A. P. Evan, A. J. Sommer, L. Liaw and L. Mo. In Renal Stone Disease: Proceedings of the Second International Urolithiasis Research Symposium, 2008.

"Histopathology and Surgical Anatomy of Patients with Primary Hyperparathyroidism and Calcium Phosphate Stones", A. E. Evan, J. E. Lingeman, F. L. Coe, N. L. Miller, S. B. Bledsoe, A. J. Sommer, J. C. Williams, Y. Shao and E. M. Worcester, *Kidney International* 74, 223-229, 2008.

"Renal Calcinosis and Stone Formation in Mice Lacking Osteopontin, Tamm-Horsfall Protein or Both", L. Mo, L. Liaw, A. P. Evan, A. Sommer, J. Lieske and X.-R. Wu, *AJP: Renal Physiology*, 293, F1935-F1943, 2007.

"Mechanism of Formation of Human Calcium Oxalate Renal Stones on Randall's Plaque", A. P. Evan, F. L. Coe, J. E. Lingeman, Y. Shao, A. J. Sommer, S. B. Bledsoe, J. C. Anderson and E. M. Worcester, *The Anatomical Record* 290: 1315-1323, 2007.

"Prism Based Infrared Spectrographs using Modern-Day Detectors", Z. Keltner, K. Kayima, A. Lanzarotta, L. Lavallo, M. Canepa, A. E. Dowrey, G. M. Story, C. Marcott and A. J. Sommer, *Appl. Spectrosc.*, 61(9), 909-915, 2007.

"Renal Histopathology of Stone-forming Patients with Distal Renal Tubular Acidosis", A. P. Evan, J. Lingeman, F. Coe, Y. Shao, N. Miller, B. Matlaga, C. Phillips, A. Sommer and E. Worcester, *Kidney International* 71, 795-801 (2007).

"The Development of a Micro-Infrared Array Spectrograph for On-line Process Monitoring", A. J. Sommer and The Lincoln Electric Company, patent, 2007.

"Raman Analysis of Nitrogen Doped ZnO", L. L. Kerr, X. Li, M. Canepa, and A. Sommer, *Thin Solid Films*, 515(13), 5282-5286 (2007).

"Microbial Effects in Promoting the Smectite to Illite Reaction: Role of Organic Matter Intercalated in the Interlayer", G. Zhang, J. W. Kim, H. Dong, and A. J. Sommer, *American Mineralogist* 92, 1401-1410, 2007.

"Analysis of Urinary Calculi Using an Infrared Microspectroscopic Surface Reflectance Imaging Technique", J. C. Anderson, J. C. Williams, Jr., A. P. Evan, K. W. Condon, and A. J. Sommer, *Urol. Res.* 35:41-48 (2007).

"Polymer Mediated Capillary Electrophoresis with Attenuated Total Reflectance Infrared Microspectroscopy Detection", B. M. Patterson, N. D. Danielson and A. J. Sommer, *Analytica Chimica Acta* 583, 231-238, 2007. Available online at www.sciencedirect.com.

"Flower-like Nano-structured ZnO for Dye-sensitized Solar Cells", R. Zhang, L. Kerr, R. E. Edlmann, M. Canepa, and A. J. Sommer, *Proceedings of the 2006 IEEE 4th World Conference on Photovoltaic Energy Conversion*, pp. 267-270, 2006.

"Continuous Infusion of Oxalate by Minipumps Induces Calcium Oxalate Nephrocalcinosis", S. R. Marengo, D. H.-C. Chen, A. P. Evan, A. J. Sommer, N. T. Stowe, D. G. Ferguson, M. I. Resnick, and G. T. MacLennan, *Urological Research* 34(3), 200-210 (2006).

"Renal Crystal Deposits and Histopathology in Patients with Cystine Stones", A. P. Evan, F. L. Coe, J. E. Lingeman, Y. Shao, B. R. Matlaga, S. C. Kim, S. B. Bledsoe, A. J. Sommer, M. Grynepas, C. L. Phillips, and E. M. Worcester, *Kidney International* 69(12), 2227-2235 (2006).

"Calcium Oxalate Calculi Found Attached to the Renal Papilla: Preliminary Evidence for Early Mechanisms in Stone Formation", J. C. Williams, Jr., B. R. Matlaga, S. C. Kim, M. E. Jackson, A. J. Sommer, J. A. McAteer, J. E. Lingeman and A. P. Evan, *J. of Endourology*, 20 (11), 885-890, 2006.

"Quantitative Analysis of Oxalate Salts in Renal Biopsies via ATR Infrared Microspectroscopy and its Relevance to Kidney Disease", J. Anderson, J. Haas, R. Arays, A. Sommer and A. Evan, *Micros. Microanal.* 12 (Supp 2), 312CD-313CD, 2006.

"The Development of a Spatial Resolution Standard for IR Microspectroscopy: A Preliminary Investigations", L. Lavallo, D. Oertel and A. J. Sommer, *Micros. Microanal.* 12 (Supp 2), 1764CD-1765CD, 2006.

"Rapid Infrared Microspectroscopy using an Infrared Spectrograph Based on a Prism Dispersing Element and an MCT Array Detector", Z. Keltner, K. Kayima, L. Lavallo, M. Canepa, A. E. Dowrey, G.

M. Story, C. Marcott and A. J. Sommer, *Micros. Microanal.* 12 (Supp 2), 1766CD-1767CD, 2006.

"Nephrolithiasis and Nephrocalcinosis in Rats with Small Bowel Resection", R. C. O'Connor, A. P. Evan, S. Meehan, E. Worcester, D. Kuznetsov, B. Laven, A. J. Sommer, S. B. Bledsoe, J. H. Parks, F. L. Coe and G. S. Gerber, *Urological Research*: 33, 105-115 (2005).

"A Concerted Protocol for the Analysis of Mineral Deposits in Biopsied Tissue Using Infrared Microanalysis", J. Anderson, J. Dellomo, A. J. Sommer, A. P. Evan, and S. Bledsoe, *Urological Research* 33: 213-219 (2005).

"Crystal Associated Nephropathy in Patients with Brushite Nephrolithiasis", A. P. Evan, J. E. Lingeman, F. L. Coe, Y. Shao, J. H. Parks, S. B. Bledsoe, A. J. Sommer, R. F. Paterson, R. L. Kuo, S. Kim and M. Grynepas, *Kidney International* 67, 576-591 (2005).

"Helical Computed Tomography Accurately Reports Urinary Stone Composition using Attenuation Values: In Vitro Verification using High-Resolution Micro-Computed Tomography Calibrated to Fourier Transform Infrared Microspectroscopy", C. A. Zarse, J. A. McAteer, M. Tann, A. J. Sommer, S. C. Kim, R. F. Paterson, E. K. Hatt, J. E. Lingeman, A. P. Evan, and J. C. Williams, Jr., *Urology* 63(5), 828-833 (2004).

"Nondestructive Analysis of Urinary Calculi Using Micro Computed Tomography", C. A. Zarse, J. A. McAteer, A. J. Sommer, S. C. Kim, E. K. Hatt, J. E. Lingeman, A. P. Evan, J. C. Williams, Jr., *BMC Urology*, 4:15, 2004.

"A Comparison of Immersion Infrared Microspectroscopy to Attenuated Total Internal Reflection Microspectroscopy", L. Lavallo-Castellanos, A. J. Sommer, G. M. Story, E. A. Dowry and C. Marcott, *Microscopy and Microanalysis* 10 (Suppl. 2), 1298-1299, August 2004.

"Combined ATR Infrared Microspectroscopy and SIL Raman Microspectroscopy", A. F. Sohn, L. G. Tisinger and A. J. Sommer, *Microscopy and Microanalysis* 10 (Suppl. 2) 1316-1317, August 2004.

"Attenuated Total Internal Reflection (ATR) Raman Microspectroscopy", L. Tisinger and A. J. Sommer, *Microscopy and Microanalysis* 10 (Suppl. 2) 1318-1319, August 2004.

"Attenuated Total Internal Reflectance Infrared Microspectroscopy as a Detection Technique for Capillary Electrophoresis", B. M. Patterson, N. D. Danielson and A. J. Sommer, *Anal. Chem.*, 76(13), 3826-3832 (2004).

"Analytical Spectroscopy Using Modular Systems", B. M. Patterson, N. D. Danielson, G. A. Lorigan and A. J. Sommer, *J. Chem. Ed.*, 80(12), 1460-1463 (2003).

"Attenuated Total Internal Reflectance Infrared Microspectroscopy as a Detection Technique for High Performance Liquid Chromatography", B. M. Patterson, N. D. Danielson and A. J. Sommer, *Anal. Chem.*, 75(6), 1418-1424 (2003).

"Randall Plaque of Patients with Nephrolithiasis Begins in Basement Membranes of Thin Loops of Henle", A. P. Evan, J. E. Lingeman, J. H. Parks, S. M. Bledsoe, Y. Shao, A. Sommer, R. Paterson, R. L. Kuo, M. Grynepas and F. L. Coe, *The Journal of Clinical Investigation* 111(5), 607-616 (2003).

"Electrochemistry of Prussian Blue in Silica Sol-Gel Electrolytes Doped with Polyamidoamine Dendrimers", S. Zamponi, A. M. Kijak, A. J. Sommer, R. Marassi, P. J. Kulesza and J. A. Cox, *J. Solid-State Electrochem.*, 6, 528-533 (2002).

"Extinction Coefficient Determination of Polymeric Materials for Use in Quantitative Infrared

- Microspectroscopy*", L. G. Tisinger and A. J. Sommer, *Appl. Spectrosc.*, 56(11), 1397-1402 (2002).
- "Microchannel Thin Layer Chromatography with In Situ Plate Scanning :DRIFTS Detection Using Plain and Polybutadiene Modified Zirconia Stationary Phases"*, B. A. Musial, A. J. Sommer and N. D. Danielson, *Appl. Spectrosc.*, 56(8), 1059-1066, 2002.
- "Cost-Effective Spectroscopic Instrumentation for the Physical Chemistry Laboratory"*, G. A. Lorigan, B. M. Patterson, A. J. Sommer and N. D. Danielson, *J. Chem. Ed.*, 79(10), 1264-1266 (2002).
- "Dickthomssenite, Mg(V₂O₆)₇H₂O, a New Mineral from the Firefly-Pigmy Mine, Utah: Descriptive Mineralogy and Crystal Structure"*, J. M. Hughes, F. Cureton, J. Marty, R. Gault, M. E. Gunter, C. F. Campana, A. Sommer, J. Rakovan and M. E. Brueseke, *IMA* (2001).
- "Attenuated Total Internal Reflection Infrared Mapping Microspectroscopy Using an Imaging Microscope"*, A. J. Sommer, L. G. Tisinger, C. M. Marcott and G. Story, *Appl. Spectrosc.*, 55(3), 252-256 (2001).
- "Attenuated Total Internal Reflection (ATR) Infrared Microspectroscopy for the Analysis of Trace Solutes in Aqueous Solutions"*, A. J. Sommer and Mark Hardgrove, *Prominent Young Vibrational Spectroscopists*, *Vib. Spectrosc.* 24(1), 93-100 (2000).
- "Attenuated Total Internal Reflection Infrared Mapping Microspectroscopy of Soft Materials"*, L. L. Lewis and A. J. Sommer, *Appl. Spectrosc.*, 54(2), 324-330 (2000).
- "Fourier Transform-IR Determination of Protein Contamination in Thioglycolic Acid Lignin from Radish Seedlings, and Improved Methods for Extractive-free Cell Wall Preparation"*, M. Chen, A. J. Sommer and J. W. McClure, *Phytochem. Anal.* II, 153-159 (2000).
- "Attenuated Total Internal Reflection Infrared Microspectroscopy for the Analysis of Trace Contaminants in Aqueous Solutions"*, A. J. Sommer and M. Hardgrove, *Microscopy and Microanalysis Vol. 5, Supplement 2*, 66-67, 1999, *Proceedings: Microscopy and Microanalysis '99*, Springer.
- "Raman Microspectroscopy with a Card-Based Spectrograph"*, A. J. Sommer and S. A. Stewart, *Appl. Spectrosc.*, 53(4), 483-488 (1999).
- "Attenuated Total Internal Reflection Microspectroscopy of Isolated Particles, An Alternative Approach to Current Methods"*, L. L. Lewis and A. J. Sommer, *Appl. Spectrosc.*, 53(4), 375-380 (1999).
- "Variable Path Length Cells for Discovery-Based Investigations of Beer's Law"*, S. A. Stewart and A. J. Sommer, *J. Chem. Ed.*, 76(3), 399-400 (1999).
- "Esperanzaite, NaCa₂Al₂(As⁵⁺O₄)₂F₄(OH)·(H₂O), A New Mineral Species From the La Esperanza Mine, Mexico: Descriptive Mineralogy and Atomic Arrangement"*, E. E. Foord, J. M. Hughes, F. Cureton, C. H. Maxwell, A. U. Falster, A. J. Sommer, and P. F. Hlava, *The Canadian Mineralogist*, 37, 67-72 (1999).
- "Sampling Considerations for FT-Raman Spectroscopy of Polymers and Solutions"*, B. A. Barrera and A. J. Sommer, *Appl. Spectrosc.* 52(11), 1483-1487 (1998).
- "Substitution of Poly(chlorotrifluoroethylene) with Sulfur Dioxide Under Reductive Conditions"*, R. T. Taylor, A. J. Sommer, J. W. Green, K. Ripparger, B. M. Nejad and J. A. Shah, *Heteroatom Chemistry* 9(2), 265-269 (1998).
- "Optical Non-Linearities in Infrared Microspectroscopy: A Preliminary Study into the Effects of Sample Size and Shape on Photometric Accuracy"*, S. A. Stewart and A. J. Sommer, *Microscopy and*

Microanalysis Vol. 3, Supplement 2, 837-838 (1997).

"Reaction of Poly(chlorotrifluoroethylene) with Metal Carbonyl Complexes", R. T. Taylor, J. W. Green, J. A. Shah, A. Warren and A. J. Sommer, Electronic Conference on Trends in Organometallic Chemistry, H. Rzepa and C. Leach, Eds., Royal Society of Chemistry 1997. ISBN 0-85404-889-8. See also <http://www.ch.ic.ac.uk/ectoc/ectoc-3/>

"Sample Preparation ? in Raman Microspectroscopy", A. J. Sommer, *Microbeam Analysis*, 147 (1995).

"Immersion Raman Microspectroscopy", A. J. Sommer, *Microbeam Analysis*, 111 (1995).

"Use of Molecular Microspectroscopy to Characterize Pigment-Loaded Polypropylene Single Fibers", S. P. Bouffard, A. J. Sommer, J. E. Katon and S. Godber, *Appl. Spectrosc.*, 48(11), 1387 (1995).

"Development of Micro-Channel Thin-Layer Chromatography with Infrared Microspectroscopic Detection", S. P. Bouffard, J. E. Katon, A. J. Sommer and N. D. Danielson, *Anal. Chem.* 66, 1937 (1994).

"Infrared Microspectroscopy: A High Information Content Microanalytical Technique for the Analysis of Contaminants in the Pulp and Paper Making Industry", A. J. Sommer and J. E. Katon, TAPPI Proceedings, 1993 Pulping Conference, 543 (1993).

"Quantitative Analysis of Colorants in Single Polypropylene Fibers Using Molecular Microspectroscopy", S. P. Bouffard, A. J. Sommer, J. E. Katon and S. Godber, *Microbeam Analysis*, 2 (Supp.), S63 (1993).

"Performance Enhancement of a Fourier Transform Raman Microprobe", A. J. Sommer and J. E. Katon, *Spectrochimica Acta*, 49A, No. 5/6, 611-620, (1993).

"Infrared Microspectroscopy; Routine IR Sampling Methods Extended to the Microscopic Domain", J. E. Katon and A. J. Sommer, *Anal. Chem.* 64, 931A (1992).

"Diffraction Induced Stray Light in Infrared Microspectroscopy and Its Effect on Spatial Resolution", A. J. Sommer and J. E. Katon, *Appl. Spectrosc.* 45(10), 1633-1640 (1991).

"The Development of a Fourier Transform Raman Microprobe", A. J. Sommer and J. E. Katon, *Appl. Spectrosc.* 45(4), 527-534 (1991).

"Visible Absorbance Microspectroscopy with a Raman Microprobe", A. J. Sommer, P. A. Martoglio and J. E. Katon, *Appl. Spectrosc.* 44, 1471 (1990).

"Unlocking the Secrets of the Past. The Analysis of Archaeological Textiles and Dyes", P. A. Martoglio, S. P. Bouffard, A. J. Sommer, J. E. Katon and K. A. Jakes, *Anal. Chem.* 62, 1123A (1990).

"Infrared and Raman Microspectroscopy: Critical Factors in Sample Purity, Preparation and Size", A. J. Sommer and J. E. Katon, in *Microbeam Analysis*, D. E. Newbury, Ed., San Francisco Press, Inc., San Francisco, CA (1988).

"Characterization of Thin Film Negative Resists via Photo-FTIR", A. J. Sommer, S. J. Fuerniss and B. K. Appelt, *Appl. Spectrosc.*, 42, 460 (1988).

"The Effect of Alkali Metal Hydroxides on the Dissolution Behavior of a Zinc Phosphate Conversion Coating on Steel and Pertinence to Cathodic Delamination", A. J. Sommer and H. Leidheiser, Jr., *Corrosion* 43, 661 (1987).

"*Discrimination Among Carbonate Minerals by Raman Spectroscopy Using the Laser Microprobe*", R. G. Herman, C. E. Bogdan, A. J. Sommer and D. Simpson, *Applied Spectroscopy*, **41**, 580 (1987).

"*Cathodic Delamination of an Organically Coated Phosphated Steel as Studied by Laser Raman Spectroscopy and Energy Dispersive Spectroscopy*", A. J. Sommer, Ph.D. Dissertation, Lehigh University, University Microfilms (1985).

"*Characterization of Phosphate Conversion Coatings by Laser Raman Spectroscopy*", A. J. Sommer and H. Leidheiser, Jr., in *Microbeam Analysis*, A. D. Romig and J. I. Goldstien, Eds., San Francisco Press, Inc., San Francisco (1984).

"*The Effects of Cations on the Dissolution in Alkaline Environments of Zinc Phosphate Conversion Coatings on Steel*", A. J. Sommer, Fifth Annual Report, Office of Naval Research, Washington D. C., December 1984, (Agreement No. N00014-79-C-0731).

"*Cathodic Delamination of An Organic Coating from a Phosphated Steel*", A. J. Sommer, Fifth Annual Report, Office of Naval Research, Washington D. C., December 1984, (Agreement No. N00014-79-C-0731).

"*Investigations of Phosphated Steel Surfaces by Laser Raman Spectroscopy*", A. J. Sommer, Third and Fourth Annual Reports, Office of Naval Research, Washington D. C., December 1982 and January 1984, respectively, (Agreement No. N00014-79-C-0731).

Reviews and Abstracts

"*Unique Renal Crystal Deposit Patterns Begin in Basement Membranes of Thin Loops of Henle of Patients with Calcium Oxalate Nephrolithiasis*", A. P. Evan, J. E. Lingeman, J. Parks, S. B. Bledsoe, Y. Shao, A. J. Sommer, R. F. Paterson, R. L. Kuo, M. Grynepas and F. L. Coe, *J. Urol.*, 169:327A, 2003.

"*Nondestructive Analysis of Urinary Stones Using Micro CT: Calibration with Infrared Spectroscopy*", J. C. Williams, C. A. Zarse, E. K. Hatt, A. J. Sommer, R. F. Paterson, M. Tann, A. P. Evan, J. E. Lingeman and J. A. McAteer, *J. Urol.*, 169:460A, 2003.

"*Microspectroscopy Uncovers Fibers' Secrets*", A. J. Sommer, *Photonics Spectra*, 91 (1995).

PRESENTATIONS

"*Attenuated Total Internal Reflectance Infrared (ATR-IR) Microspectroscopic Imaging: Probing Urinary Stone Inclusions from Kidney Biopsies*", H. J. Gulley-Stahl, S. Bledsoe, A. P. Evan and A. J. Sommer, 2nd International Urolithiasis Research Symposium, Indianapolis, IN, April 2008.

"*The Use of Fourier Transform Infrared Spectroscopy (FT-IR), Raman Spectroscopy and Scanning Electron Microscopy (SEM) Toward the Analysis of Pharmaceutical Adhesive Labels*", A. Lanzarotta, M. Witkowski and A. J. Sommer, The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, March 2008.

"*Attenuated Total Internal Reflectance (ATR) Infrared Spectroscopic Imaging of Kidney Stone/Tissue Biopsies: Probing the Stone/Tissue Interface*", H. J. Gulley-Stahl, A. P. Evan and A. J. Sommer, The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, March 2008. (Poster)

"*Rapid Molecular Imaging for the Detection of Counterfeit Pharmaceuticals Using PAIRS*", L. C. Baumann, A. J. Sommer and M. R. Witkowski, The Pittsburgh Conference on Analytical Chemistry and

Applied Spectroscopy, New Orleans, LA, March 2008. (Poster)

"*Molecular Microspectroscopy for Industrial and Medical Forensics*", A. J. Sommer, Graduate Recruiting, Bradley University, Peoria, IL, February 2008. (Invited)

"*Molecular Microspectroscopy for Industrial and Medical Forensics*", A. J. Sommer, Graduate Recruiting, Knox College, Galesburg, IL, February 2008. (Invited)

"*The Molecular Microspectroscopy Laboratory: A Synergistic Story of Academic and Industrial Innovation*", A. J. Sommer, ASPIRE Seminar, Procter & Gamble Company, Cincinnati, OH, December 2007. (Invited)

"*Dynamic Infrared Microspectroscopic Imaging*", A. J. Sommer, 2007 Eastern Analytical Symposium & Exposition, Somerset, NJ, November 2007. (Invited)

"*Attenuated Total Internal Reflection Raman Microspectroscopy*", A. J. Sommer, the 35th Annual Conference on the Federation of Analytical Chemistry & Spectroscopy Societies, Memphis, TN, October 2007.

"*Dynamic Infrared Microspectroscopy using a Prism Based Spectrograph: Design and Optimization*", A. Lanzarotta, C. Marcott, G. M. Story, A. E. Dowrey and A. J. Sommer, the 35th Annual Conference on the Federation of Analytical Chemistry & Spectroscopy Societies, Memphis, TN, October 2007.

"*Attenuated Total Reflectance Infrared Spectroscopy (ATR-FTIR): a Quantitative Approach for Kidney Stone Analysis*", H. Gulley-Stahl, J. Haas, A. Evan and A. J. Sommer, the 35th Annual Conference on the Federation of Analytical Chemistry & Spectroscopy Societies, Memphis, TN, October 2007. (Poster)

"*Dynamic Infrared Microspectroscopy Using Prism Based Spectrographs*", A. J. Sommer, 4th International Conference on Advanced Vibrational Spectroscopy, Athens, Greece, June 2007. (Invited)

"*Advanced Molecular Microspectroscopy*", Workshop, Eastman Kodak Company, Rochester, NY, May 2007. (Invited)

"*Dynamic Infrared Microspectroscopic Imaging*", A. J. Sommer, Spectroscopy Society of Pittsburgh, Monthly Meeting, Duquesne University, Pittsburgh, PA, April 2007.

"*Molecular Microspectroscopy*", Workshop, Emmerson Climate Technologies, Sidney, OH, January 2007. (Invited)

"*Rapid Infrared Microspectroscopy Using an Infrared Spectrograph Based on a Prism Dispersing Element and An MCT Array Detector*", C. Marcott, A. E. Dowrey, G. M. Story, Z. Keltner, K. Kayima, L. Lavallo, M. Canepa, A. C. Lanzarotta and A. J. Sommer, Eastern Analytical Symposium, November 2006.

"*Molecular Specific Spectroscopic Imaging for Renal Pathology*", J. Anderson, J. Haas, R. Arays, A. Sommer, and A. Evan, 1st Annual International Urolithiasis Research Symposium, Indianapolis, IN, November 2006. (Poster)

"*Molecular Microspectroscopy for Industrial and Medical Forensics*", A. J. Sommer, Graduate Recruiting, University of Wisconsin Oshkosh, Oshkosh, WI, October, 2006. (Invited)

"Molecular Microspectroscopy for Industrial and Medical Forensics", A. J. Sommer, Graduate Recruiting, Otterbein, Westerville, OH, October, 2006. (Invited)

"Molecular Microspectroscopy for Industrial and Medical Forensics", A. J. Sommer, Graduate Recruiting, Eastern Kentucky University, Richmond, KY, October, 2006. (Invited)

"Rapid Infrared Microspectroscopy Using an Infrared Spectrograph Based on a Prism Dispersing Element and MCT Array Detector", Z. Keltner, K. Kayima, L. Lavallo, M. Canepa, A. Dowery, G. Story, C. Marcott and A. Sommer, presented by A. Lanzarotta, Microscopy & Microspectroscopy, Chicago, IL, August 2006. (Poster)

"The Development of a Spatial Resolution Standard for IR Microspectroscopy: A Preliminary Investigation", L. Lavallo, D. Oertel and A. Sommer, Microscopy & Microspectroscopy, Chicago, IL, August 2006. (Poster)

"Quantitative Analysis of Oxalate Salts in Renal Biopsies via ATR Infrared Microspectroscopy and its Relevance to Kidney Disease", J. Anderson, J. Haas, R. Arays, A. Sommer, and A. Evan, Microscopy & Microspectroscopy, Chicago, IL, August 2006. (Poster)

"Molecular Microspectroscopy for Industrial and Medical Forensics ", A. J. Sommer, Graduate Recruiting, Delaware Valley College, Doylestown, PA, May 2006. (Invited)

"Molecular Microspectroscopy for Industrial and Medical Forensics ", A. J. Sommer, Graduate Recruiting, Messiah College, Grantham, PA, May 2006. (Invited)

"Molecular Microspectroscopy for Industrial and Medical Forensics ", A. J. Sommer, Graduate Recruiting, Indiana University-Purdue University Fort Wayne, Fort Wayne, IN, April 2006. (Invited)

"Infrared Microspectroscopy Using a Planar Array Infrared Spectrograph", A. J. Sommer, Z. Keltner, L. Lavallo, M. Canepa, C. Marcott, G. Story and A. E. Dowery, The Pittsburgh Conference, Orlando, FL, March 2006.

"Molecular Microspectroscopy for Industrial and Medical Forensics", A. J. Sommer, Graduate Recruiting, John Carroll University, February 2006. (Invited)

"Molecular Microspectroscopy for Industrial and Medical Forensics", A. J. Sommer, Graduate Recruiting, Edinboro College, February 2006. (Invited)

"Workshop on Molecular Microspectroscopy", A. J. Sommer, Ohio Bureau of Criminal Investigation, London, OH, January 2006. (Invited)

"Molecular Microspectroscopy for Industrial and Medical Forensics ", A. J. Sommer, Graduate Recruiting, Augustana College, Moline, IL, January 2006. (Invited)

"Evanescent Wave Infrared Microspectroscopy and Imaging", A. J. Sommer, Graduate Recruiting, University of Dayton, Dayton, OH, November 2005. (Invited)

"Infrared Imaging of Renal Calculi and Their Associated Mineral Inclusions", J. Anderson, J. Dellomo, A. Sommer, A. Evan and S. Bledsoe, Third International Conference on Advanced Vibrational Spectroscopy ICAVS-3, Delavan, WI, August 2005.

"Solid Immersion Lenses for Infrared and Raman Microspectroscopy", L. Lavallo and A. Sommer, Third International Conference on Advanced Vibrational Spectroscopy ICAVS-3, Delavan, WI, August 2005.

"Evanescent Wave Infrared Microspectroscopy and Imaging", A. J. Sommer, Graduate Recruiting, Eastern Michigan University, Ypsilanti, MI, April 2005. (Invited)

"Evanescent Wave Infrared Microspectroscopy and Imaging", A. J. Sommer, Graduate Recruiting, Northern Kentucky University, Highland Heights, KY, March 2005. (Invited)

"Evanescent Wave Infrared Microspectroscopy and Imaging," A. J. Sommer, Graduate Recruiting, Ohio Wesleyan University, Delaware, OH, November 2004. (Invited)

"ATR Microspectroscopy for Chromatographic Detection", A. J. Sommer, B. Patterson and N. Danielson, the 31st Annual Conference on the Federation of Analytical Chemistry & Spectroscopy Societies, Portland, OR, October 2004.

"A Comparison of Immersion Infrared Microspectroscopy to Attenuated Total Internal Reflection Microspectroscopy", L. E. Lavalley, A. J. Sommer, G. M. Story, A. E. Dowery and C. Marcott, Microscopy and Microanalysis 2004, Savannah, GA, August 2004.

"Combined ATR Infrared Microspectroscopy and SIL Raman Microscopy", A. F. Sohn, L. G. Tisinger and A. J. Sommer, Microscopy and Microanalysis 2004, Savannah, GA, August 2004.

"Attenuated Total Internal Reflection (ATR) Raman Microspectroscopy", L. G. Tisinger and A. J. Sommer, Microscopy and Microanalysis 2004, Savannah, GA, August 2004.

"Coblentz, The Researcher", A. J. Sommer, The Pittsburgh Conference, Chicago, IL, March 2004.

"Attenuated Total Reflectance Microspectroscopy as a Detection Technique for Capillary Electrophoresis or Capillary Chromatography", A. J. Sommer, B. M. Patterson and N. D. Danielson, The Pittsburgh Conference, Chicago, IL, March 2004.

"Microscopic FTIR Imaging Using ATR", R. A. Spragg, R. Hoult and A. J. Sommer, The Pittsburgh Conference, Chicago, IL, March 2004.

"Short Course on Raman Spectroscopy", A. J. Sommer, Eastman Kodak Company, Rochester, NY, December 2003. (Invited)

"Evanescent Wave Infrared Microspectroscopy and Imaging," A. J. Sommer, Graduate Recruiting, Ball State University, Muncie, IN, November 2003. (Invited)

"Immersion and ATR Infrared Imaging", A. J. Sommer, 30th Annual Conference of the Federation of Analytical Chemistry & Spectroscopy Societies, Ft. Lauderdale, FL, October 2003. (Invited)

"Evanescent Wave Infrared Microspectroscopy and Imaging", A. J. Sommer, Graduate Recruiting, Muhlenberg College, Allentown, PA, May 2003. (Invited)

"Fundamentals of the Infrared Microscope", A. J. Sommer, CAC/NWAFS Joint Meeting, Infrared Spectroscopy Workshop, Reno, NV, April 2003. (Invited)

"Industrial Problem Solving Using Infrared and Raman Microspectroscopy", A. J. Sommer, CAC/NWAFS Joint Meeting, Infrared Spectroscopy Workshop, Reno, NV, April 2003. (Invited)

"Hands on Infrared Microspectroscopy Practical Laboratory", A. J. Sommer, CAC/NWAFS Joint Meeting, Infrared Spectroscopy Workshop, Reno, NV, April 2003. (Invited)

"Evanescent Wave Infrared Microspectroscopy and Imaging", A. J. Sommer, Graduate Recruiting, Michigan Technical University, Houghton, MI, April 2003. (Invited)

"Nondestructive Analysis of Urinary Stones Using Micro CT: Calibration with Infrared Spectroscopy", J. C. Williams, C. A. Zarse, E. K. Hatt, A. J. Sommer, R. F. Paterson, M. Tann, A. P. Evan, J. E. Lingeman and J. A. McAter, Poster Session, 2003 Annual Meeting of the American Urological Association, Chicago, IL, April 2003.

"Zirconia Based Sol-Gels for HPLC Detection using ATR Infrared Microspectroscopy", Brian Patterson and A. J. Sommer, Pittsburgh Conference, Orlando, FL, March 2003

"A Direct Comparison of Spatial Resolution in an Imaging and Conventional Infrared Microscope", A. J. Sommer, Pittsburgh Conference, March 2003.

"Molecular Microspectroscopy for Industrial Forensics", Graduate Recruiting, Berea College, Berea, KY, November 2002. (Invited)

"Molecular Microspectroscopy for Industrial Forensics", Graduate Recruiting, Eastern Kentucky University, Richmond, KY, November 2002. (Invited)

"Evanescent Wave Microscopy and Imaging", A. J. Sommer, presented at Eastman Kodak Company, Rochester, NY, November 2002. (Invited)

"Infrared Imaging for Kidney Pathology", A. J. Sommer, J. L. Dellomo, L. G. Tisinger, A. P. Evan, J. C. Williams and S. Bledsoe, The 29th Annual Meeting, Federation of Analytical Chemistry & Spectroscopy Societies, Providence, RI, October 2002.

"Biological Applications of IR Microspectroscopy and Imaging", A. J. Sommer, Proteomics - The Analytical Frontier, Lehigh Educational Satellite Network and LESN-Online, Lehigh University, Bethlehem, PA, June 2002. (Invited)

"Molecular Microspectroscopy for Industrial Forensics", Graduate Recruiting, Lehigh University, Bethlehem, PA, May 2002. (Invited)

"Evanescent Wave Microscopy and Imaging" A. J. Sommer, Society for Applied Spectroscopy Tour Speaker, St. Paul, MN, April 2002. (Invited)

"Evanescent Wave Microscopy and Imaging" A. J. Sommer, Society for Applied Spectroscopy Tour Speaker, Cleveland, OH, April 2002. (Invited)

"Infrared Micro and Macro Spectroscopic Imaging Using Attenuated Total Reflection", C. Marcott, G. M. Story, L. G. Tisinger and A. J. Sommer, Pittsburgh Conference, New Orleans, LA, March 2002.

"Attenuated Total Reflectance Infrared Microspectroscopy as a Detection Technique for High Performance Liquid Chromatography", B. M. Patterson, N. Danielson and A. J. Sommer, Pittsburgh Conference, New Orleans, March 2002.

"Attenuated Total Internal Reflection Infrared Imaging and Spectroscopy of Large Spatial Domains", A. J. Sommer and L. G. Tisinger, Pittsburgh Conference, New Orleans, LA, March 2002.

"Evaluation of the Use of Infrared Spectroscopy and Multivariate Analysis as Tools for Pulp Characterization", L. Lavalle, A. J. Sommer and R. C. Peterson, TAPPI Pulping Meeting, Seattle, WA, November 2001.

"Molecular Microspectroscopy for Industrial Forensics", A. J. Sommer, Graduate Recruiting, Ashland University, Ashland, OH, November 2001. (Invited)

"Evanescent Wave Microspectroscopy and Imaging", A. J. Sommer, (Applications of Raman Microscopy), 28th Annual Conference of the Federation of Analytical Chemistry & Spectroscopy Societies, Detroit, MI, October 2001.

"Evanescent Wave Microspectroscopy and Imaging", A. J. Sommer, (Vibrational Spectroscopic Imaging I), Molecular Microspectroscopy Workshop, 28th Annual Conference of the Federation of Analytical Chemistry & Spectroscopy Societies, Detroit, MI, October 2001.

"Attenuated Total Reflectance Infrared Microspectroscopy as a Detection Technique for High Performance Liquid Chromatography", B. M. Patterson, N. D. Danielson, A. J. Sommer, 28th Annual Conference of the Federation of Analytical Chemistry & Spectroscopy Societies, Detroit, MI, October 2001.

"Evanescent Wave Infrared Microspectroscopy and Imaging", A. J. Sommer, Eastern Analytical Symposium, Atlantic City, NJ, October 2001. (Invited)

"Attenuated Total Internal Reflection Infrared Microspectroscopy", A. J. Sommer, Guest Lecturer, Thermo Spectra-Tech's 2001 Advanced Infrared Microspectroscopy Class, Shelton, CT, September 2001. (Invited)

"Attenuated Total Reflectance Infrared Microspectroscopy as a Detection Technique for High Performance Liquid Chromatography", B. M. Patterson, N. D. Danielson and A. J. Sommer, The Pittsburgh Conference, New Orleans, LA, March 2001.

"Attenuated Total Internal Reflection Infrared Imaging", L. G. Tisinger and A. J. Sommer, The Pittsburgh Conference, New Orleans, LA, March 2001.

"Molecular Microspectroscopy for Industrial Forensics", A. J. Sommer, Undergraduate Recruiting, Oakland University, Rochester, MI, February 2001. (Invited)

"Molecular Microspectroscopy for Industrial Forensics", A. J. Sommer, Undergraduate Recruiting, Lincoln University, Lincoln University, PA, November 2000. (Invited)

"Attenuated Total Internal Reflection (ATR) Infrared Mapping Microspectroscopy with a Focal Plane Array Detector: Infrared Microspectroscopy at the Diffraction Limit", A. J. Sommer, Graduate Recruiting, Ohio State University, Columbus, OH, November 2000. (Invited)

"Attenuated Total Internal Reflection Infrared Imaging Microspectroscopy", A. J. Sommer, L. Tisinger and B. Patterson, 27th Annual Conference of the Federation of Analytical Chemistry & Spectroscopy Societies, Nashville, TN, September 2000.

"Raman Investigations with a Card Based Spectrograph", B. Patterson, S. Stewart, M. Sampson and A. J. Sommer, 27th Annual Conference of the Federation of Analytical Chemistry & Spectroscopy Societies, Nashville, TN, September 2000.

"Detection and Identification of Colorants using Molecular Microspectroscopy" A. J. Sommer, The Chemistry of Colors, Its Commercial Applications and Including Color Measurements and Regulatory Aspects, 32nd Central Regional Meeting, American Chemical Society (CMACS 2000), Cincinnati, OH, May 2000 (Invited).

"Unique Renal Crystal Deposit Patterns in Renal Tubular Acidosis (RTA) - A Preliminary Report of a Comparative Study", D. A. Lifshitz, A. P. Evan, J. A. Moody, A. Sommer, J. R. Asplin, J. E. Lingeman, Annual Meeting of the American Urological Association, Atlanta, GA, April 2000.

"Attenuated Total Internal Reflection Infrared Microspectroscopy with an Imaging Infrared Microscope", A. J. Sommer, L. Tisinger, G. Story and C. Marcott, The Pittsburgh Conference, New Orleans, LA, March 2000.

"Industrial Problem Solving Using Molecular Microspectroscopy", A. J. Sommer, Ohio Valley Section of the American Institute of Chemical Engineers, Cincinnati, OH, February, 2000 (Invited).

"Infrared Microspectroscopy: Industrial and Forensic Apps", Eastern Analytical Symposium & Exposition, Somerset, NJ, November, 1999 (Invited).

"Unique Renal Crystal Deposit Patterns in Renal Tubular Acidosis (RTA) - A Preliminary Report of a Comparative Study", D. A. Lifshitz, A. P. Evan, S. Bledsoe, J. A. Moody, A. Sommer, J. R. Asplin, F. L. Coe and J. E. Lingeman, Indianapolis, IN, (1999).

"Attenuated Total Internal Reflection Infrared Microspectroscopy for the Analysis of Trace Contaminants in Aqueous Solutions", A. J. Sommer and M. Hardgrove, Advances in Instrumentation and Techniques Symposia, Optical Microanalysis via Molecular Spectroscopy, Microscopy & Microanalysis '99, Portland, OR, August, 1999 (Invited).

"Molecular Microspectroscopy for the Analysis of Textiles and Textile Processes", A. J. Sommer and L. Tisinger, American Chemical Society Meeting, Ohio State University, Columbus, OH, June 1999 (Invited).

"Infrared Microscopes: Universal Tool for Tomorrows Problems", A. J. Sommer, Perkin-Elmer Organic Seminar Series, Minneapolis, MN, May 1999 (Invited).

"Infrared Microscopes: Universal Tool for Tomorrows Problems", A. J. Sommer, Perkin-Elmer Organic Seminar Series, Akron, OH, May 1999 (Invited).

"Infrared Microscopes: Universal Tool for Tomorrows Problems", A. J. Sommer, Perkin-Elmer Organic Seminar Series, Chicago, IL, April 1999 (Invited).

"Attenuated Total Internal Reflection Microspectroscopy for the Analysis of Trace Contaminants in Aqueous Solution", M. Hardgrove and A. J. Sommer, The Pittsburgh Conference, 50th Anniversary, Orlando, FL, March 1999.

"Molecular Microspectroscopy for Problem Solving in the Paper Industry", A. J. Sommer, Ohio TAPPI Meeting, Miami University, Oxford, OH 1999 (Invited).

"Infrared Microspectroscopy: From Dispersed Beginnings To A Universal Future", A. J. Sommer, 30th Anniversary Symposium of the First Modern Era Commercial FT-IR, Part III, Applications of FTIR, Sponsored by Perkin-Elmer, 37th Annual Eastern Analytical Symposium & Exposition, Somerset, NJ 1998 (Invited).

"The Use of Raman Microspectroscopy for Problem Solving in the Paper Industry", A. J. Sommer, 25th Annual Conference of the Federation of Analytical Chemistry and Spectroscopy Societies, Austin, TX 1998.

"Raman Microspectroscopy with a Card-Based Spectrograph", A. J. Sommer, Midwest Universities

Chemistry Conference (MUACC), Detroit, MI 1998.

"Optical Microscopy and Molecular Microspectroscopy", A. J. Sommer, One Day Short Course, Procter & Gamble Company, Health Care Facility, Mason, OH 1998 (Invited).

"Infrared ATR Mapping Microspectroscopy: Molecular Analysis Below the Diffraction Limit", A. J. Sommer and L. L. Lewis, Pittsburgh Conference, New Orleans, LA, (1998).

"Molecular Microspectroscopy for Industrial Forensics", A. J. Sommer, Graduate Recruiting Seminar, Fairmont State College, Fairmont, WV, 1997 (Invited).

"Molecular Microspectroscopy: Old Tools Probing New Dimensions", A. J. Sommer, Air Force Institute of Technology, Wright Patterson Air Force Base, OH, 1997 (Invited).

"Optical Non-Linearities in Infrared Microspectroscopy: A Preliminary Study Into the Defects of Sample Size and Shape on Photometric Accuracy", A. J. Sommer, Microscopy & Microanalysis '97, Annual Meeting of the Microscopy Society of America, Microbeam Analysis Society and The Histochemical Society, Cleveland, OH 1997 (Invited).

"Raman Spectroscopy in the Molecular Microspectroscopy Laboratory", A. J. Sommer, Raman Spectroscopy Short Course, Procter & Gamble Company, Mason, OH 1997 (Invited).

"Infrared ATR-Mapping Microspectroscopy Using an Integrated Optics Approach", A. J. Sommer and L. Lewis, Pittsburgh Conference, Atlanta, GA 1997.

"Microchannel Thin Layer Chromatography (TLC) Using Modified Zirconia with In Situ Diffuse Reflectance FTIR (DRIFTS) Microscopy Detection", P. A. Gallagher, N. D. Danielson and A. J. Sommer, Pittsburgh Conference, Atlanta, GA (1997).

"Analysis of Rice Blast Appressoria Using Raman Microspectroscopy", C. C. Burlak, A. J. Sommer and N. P. Money, Mid-Atlantic States Mycology Conference, Shepherdstown, WV 1997.

"Reaction of Poly(chlorotrifluoroethylene) With Metal Carbonyl Complexes", R. T. Taylor, J. W. Green, J. A. Shah, A. Warren and A. J. Sommer, Electronic Conference on Organometallic Chemistry, hosted by Imperial College, United Kingdom, June 1997.

"Analysis of Rice Blast Appressoria Using Raman Microspectroscopy", C. C. Burlak, A. J. Sommer and N. P. Money, 48th Annual Meeting of the American Institute of Biological Sciences, Montreal 1997.

"Infrared and Raman Microspectroscopy", A. J. Sommer, 25th MAIF (The Major Analytical Instruments Facility) Anniversary Symposium, Cleveland, OH 1996 (Invited).

"Infrared and Raman Microspectroscopy", A. J. Sommer, Man-Gill Chemical, Cleveland, OH 1996 (Invited).

"Recent Developments in FT-Raman Microspectroscopy", A. J. Sommer, Twenty-Third Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Kansas City, MO, 1996.

"Future Directions in Molecular Microspectroscopy", A. J. Sommer, 9th Annual Spectra-Tech FT-IR Microscope User's Group Meeting, Kansas City, MO, 1996 (Invited).

"Raman Microspectroscopy: A Modern Day Perspective", A. J. Sommer, Microscopy Workshop, Eastman Kodak Company, Rochester, NY, April 1996.

"Visible Absorbance and Luminescence Microspectroscopy With a Raman Microprobe", A. J. Sommer, Microscopy Workshop, Eastman Kodak Company, Rochester, NY, April 1996.

"Optical Non-Linearities in Infrared Microspectroscopy", A. J. Sommer, Monthly Meeting of the Spectroscopy Society of Pittsburgh, Pittsburgh, PA 1996 (Invited).

"Infrared Microspectroscopy: Instrumentation, Applications and Quantitative Considerations" A. J. Sommer, Infrared Microspectroscopy Workshop, Society for Applied Spectroscopy, Chicago Section, Chicago, IL 1996.

"Applications and Instrumentation of a Micro Molecular Spectroscopy Laboratory", A. J. Sommer, CSUI-ANL Conference, Microscience and Waste Minimization, Argonne National Laboratory, Argonne, IL 1995 (Invited).

"Infrared Microspectroscopy", A. J. Sommer, Analytical Chemistry Divisional Seminar, Ohio State University, Columbus, OH 1995 (Invited).

"Raman Microspectroscopy: A Revitalized Technique for the Analysis of Sample Both Large and Small", A. J. Sommer, Indianapolis Section, Society for Applied Spectroscopy, Indianapolis, IN 1995 (Invited).

"Immersion Raman Microspectroscopy", A. J. Sommer, National Meeting of the Microbeam Analysis Society, Breckenridge, CO 1995 (Invited).

"Sample Preparation ? In Raman Microspectroscopy", A. J. Sommer, National Meeting of the Microbeam Analysis Society, Breckenridge, CO 1995 (Invited).

"The Molecular Microspectroscopy Laboratory - Industrial Problem Solving in an Academic Environment", A. J. Sommer, Infrared and Raman Discussion Group Meeting, Wotton-under-Edge, Gloucestershire, United Kingdom, 1994 (Invited).

"Immersion Raman Microspectroscopy", A. J. Sommer, Twenty-First Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, St. Louis, MO 1994.

"Raman Microspectroscopy: Where Would We Be Without the Laser", A. J. Sommer, Spectroscopy Society of Pittsburgh Continuing Education Program, Pittsburgh, PA 1994. (Invited)

"IR Microspectroscopy: Routine Sampling Methods Extended to the Microscopic Domain", A. J. Sommer, Ohio Valley Section, Society for Applied Spectroscopy, Dayton, OH 1994. (Invited)

"Fourier Transform Raman Microspectroscopy", A. J. Sommer, Cincinnati Section, American Chemical Society, Cincinnati, OH 1994. (Invited)

"Infrared Microspectroscopy: A High Information Content Microanalytical Technique for the Analysis of Contaminants in the Pulp and Paper Making Industry", A. J. Sommer, TAPPI 1993 Pulping Conference, Atlanta, GA 1993. (Invited)

"The Development of Micro-Channel Thin Layer Chromatography With Infrared Detection", J. E. Katon, S. P. Bouffard, N. D. Danielson and A. J. Sommer, Twentieth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Detroit, MI 1993.

"Quantitative Considerations in Infrared Microspectroscopy", A. J. Sommer and J. E. Katon, Twentieth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Detroit, MI, 1993.

"Fourier Transform Raman Microspectroscopy", A. J. Sommer and J. E. Katon, Twentieth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Detroit, MI, 1993.

"Conventional Raman Microspectroscopy: Capabilities and Limitations", A. J. Sommer and J. E. Katon, Twentieth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Detroit, MI, 1993.

"The Development of Micro Channel Thin Layer Chromatography with Infrared Detection", S. P. Bouffard, J. E. Katon, A. J. Sommer and N. D. Danielson, Twentieth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Detroit, MI, 1993.

"Polarization and Temperature Measurements with a Fourier Transform Raman Microprobe", A. J. Sommer, J. E. Katon and D. W. Schiering (Perkin-Elmer Corp.), Pittsburgh Conference and Exposition, Atlanta, GA, 1993.

"Infrared Microanalysis in Art and Archeology", A. J. Sommer and R. Fisher (Perkin-Elmer Corp.), Demonstration for Science Technology Day in conjunction with Highland County High School Talented and Gifted (TAG) Student Program, Southern State Community College, Hillsboro, OH, 1992 (Invited).

"Recent Experiments in Quantitative Infrared Microanalysis", A. J. Sommer, R. Russel and J. E. Katon, 5th Annual Spectra-Tech IR-PLAN Users' Group Meeting Philadelphia, PA, 1992 (Invited).

"Recent Developments in Fourier Transform Raman Microanalysis: Instrumentation and Applications", A. J. Sommer and J. E. Katon, Nineteenth Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Philadelphia, PA, 1992.

"Critical Factors in Raman and FT-Raman Microspectroscopies", A. J. Sommer and J. E. Katon, Nineteenth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Philadelphia, PA, 1992.

"The Development and Optimization of a Fourier Transform Raman Microprobe", A. J. Sommer and J. E. Katon, Eighteenth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Anaheim, CA, 1991.

"The Development of a Fourier Transform Raman Microprobe", A. J. Sommer and J. E. Katon, Perkin-Elmer Corporation, Norwalk, CT, 1991 (Invited).

"Raman and FT-Raman Microspectroscopy", A. J. Sommer, Unilever Research U.S., Inc., Continuing Education Program, Edgewater, NJ, 1991 (Invited).

"Design and Development of a Fourier Transform Raman Microprobe", A. J. Sommer and J. E. Katon, Pittsburgh Conference and Exposition, Chicago, IL, 1991.

"Fourier Transform Raman Microspectroscopy", A. J. Sommer and J. E. Katon, Perkin-Elmer Corporation, Symposium on FT-Raman Spectroscopy. Chicago, IL, 1990 (Invited).

"The Contribution of Infrared and Visible Microspectroscopy to the Cultural and Technological Investigation of Archaeological Textiles", P. A. Martoglio, A. J. Sommer, J. E. Katon and K. A. Jakes, Infrared and Raman Microspectroscopy Symposium, Seventeenth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Cleveland, OH, 1990.

"Visible Absorption Microspectroscopy with a Raman Microprobe", A. J. Sommer, P. A. Martoglio and J. E. Katon, Seventeenth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies,

Cleveland, OH, 1990.

"Infrared Studies of Phase Behavior in Aqueous Surfactant Systems", A. J. Sommer and J. E. Katon, Spectra-Tech IR-PLAN Users' Group Meeting Cleveland, OH, 1990 (Invited).

"Diffraction Induced Stray Light in Infrared Microspectroscopy with Regard to the Analysis of Multi-Layer Laminates", A. J. Sommer and J. E. Katon, Seventeenth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Cleveland, OH, 1990 (Invited).

"The Study of Thin Fluorocarbon Films on Magnetic Disk Media with Grazing Angle Reflection-Absorption Infrared Microspectroscopy", A. J. Sommer, J. E. Katon and Quock Ng, Seventeenth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Cleveland, OH, 1990 (Invited).

"IR Studies of Phase Behavior in Aqueous Surfactant Systems", C. Marcott, R. G. Laughlin, A. J. Sommer and J. E. Katon, Division of Colloid and Surface Chemistry, 199th National Meeting, American Chemical Society, Boston, MA, 1990.

"The Applications of Infrared Microspectroscopy to Archaeological Fabrics and Dyes", P. A. Martoglio, S. P. Bouffard, A. J. Sommer, J. E. Katon and K. A. Jakes, Sixteenth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Chicago, IL, 1989 (Invited).

"Sampling Methodologies and Considerations in Infrared Microspectroscopy", A. J. Sommer and J. E. Katon, Infrared Microspectroscopy Symposium, Sixteenth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Chicago, IL, 1989 (Invited).

"Infrared and Raman Microspectroscopy: Critical Factors in Sample Purity, Preparation and Size", A. J. Sommer and J. E. Katon, 1988 Joint Meeting, Electron Microscopy Society of America, Microbeam Analysis Society and Microscopical Society of Canada, Milwaukee, WI, 1988 (Invited).

"Infrared and Raman Microspectroscopy: An Overview of Its Use in the Identification of Microscopic Particulates", Symposium on Particle and Surfaces: Detection, Adhesion and Removal, P. L. Lang, A. J. Sommer and J. E. Katon, 19th Annual Meeting, Fine Particle Society, Santa Clara, CA, 1988 (Invited).

"Raman Microspectroscopy Applied to the Study of Corrosion and Oxidized Metal Surfaces", A. J. Sommer, Spectroscopic Society of Pittsburgh, Continuing Education on Spectroscopic Techniques for Surface Characterization, Duquesne University, Pittsburgh, PA, 1988 (Invited).

"Applications of Raman Microspectroscopy to Cathodic Delamination", A. J. Sommer and Henry Leidheiser, Jr., Pittsburgh Conference and Exposition, Atlantic City, NJ, 1987.

"Grazing Angle Reflectance Infrared Microspectroscopic Study of Solder/Flux Chemistry", A. J. Sommer and J. E. Katon, Analytical Microspectroscopy Symposium, Fourteenth Annual Meeting, Federation of Analytical Chemistry and Spectroscopy Societies, Detroit, MI, 1987 (Invited).

"Principles and Techniques of Infrared Microspectroscopy", A. J. Sommer, P. L. Lang, P. T. McKittrick, B. S. Miller and J. E. Katon, 21st Great Lakes Regional Meeting, American Chemical Society, Chicago, IL, 1987 (Invited).

"Applications of Molecular Microspectroscopy", A. J. Sommer, J. E. Katon and P. L. Lang, INFOSCIENCE Symposium on Computer Aided Laboratories, Chicago, IL, 1987 (Invited).

"Applications of Molecular Microspectroscopy to Paper Chemistry", A. J. Sommer, G. E. Pacey, P. L.

Lang and J. E. Katon, 25th Eastern Analytical Symposium, New York, NY, 1986 (Invited).

"Characterization of Thin-Film Negative Resists Via Photo-FT-IR", A. J. Sommer, S. J. Fuerniss and B. K. Appelt, Proceedings of the North American Thermal Analysis Society, Cincinnati, OH, 1986.

"Characterization of Phosphate Conversion Coatings by Laser Raman Spectroscopy", A. J. Sommer and Henry Leidheiser, Jr., Microbeam Analysis Society, Bethlehem, PA, 1984.

"The Use of Laser Raman Spectroscopy in Studies of Phosphate Conversion Coatings", A. J. Sommer and Henry Leidheiser, Jr., Corrosion '84 by the National Association of Corrosion Engineers, New Orleans, LA, 1984.

"The Absorption Coefficient Spectrum of GeH₄ and Calculated Band Intensities", A. J. Sommer and Dr. Roland Lovejoy, Pittsburgh Conference and Exposition, Atlantic City, NJ, 1983.

"Micro Laser Raman Spectra of Phosphated Steel", A. J. Sommer and Henry Leidheiser, Jr., Pittsburgh Conference and Exposition, Atlantic City, NJ, 1983.