

NAME: Dr. J. Ronald Hass

DATE OF BIRTH: September 17, 1945; Statesville, North Carolina

CITIZENSHIP: United States

MARITAL STATUS: Married, one child

EDUCATION:

June 1963 - Graduated from high school

June 1967 - B.A. (Chemistry), Appalachian State University

Sept. 1972 - Ph. D. (Analytical Chemistry), University of North Carolina at Chapel Hill.
(Thesis: I. Mass Spectra of Non-Volatile Compounds. II. Structure of McLafferty
Rearrangement Ions. III. Steric Effects on Ion Molecule Reactions).

Brief Chronology of Employment:

1967-1972 Teaching and/or Research Assistant, University of North Carolina, Chapel Hill,
North Carolina

1971-1972 Assistant Professor of Chemistry (part-time), Elon College, North Carolina

1972-1973 Research Fellow, The University of Warwick, Coventry, Warwickshire,
England

1973-1974 Visiting Assistant Professor, North Carolina State University, Raleigh, North
Carolina

1974-1977 Staff Fellow, National Institute of Environmental Health Sciences, Research
Triangle Park, North Carolina

1977-1978 Senior Staff Fellow, National Institute of Environmental Health Sciences,
Research Triangle Park, North Carolina

1978-1982 Research Chemist, National Institute of Environmental Health Sciences,
Research Triangle Park, North Carolina

1982-1984 Supervisory Research Chemist, National Institute of Environmental Health
Sciences, Research Triangle Park, North Carolina

1975-1984 Group Leader, Analytical Chemistry Group, Laboratory of Environmental
Chemistry, National Institutes of Environmental Health Sciences, Research Triangle
Park, North Carolina

1984-2004 President and Chief Executive Officer, Triangle Laboratories, Inc., Research
Triangle Park, North Carolina

2004-Present Chief Scientist, Chatham Research, Ltd., Durham, North Carolina.

Directorships

Chairman, Board of Directors, Triangle Laboratories, Inc.
Board of Directors, Asilimor Conference on Mass Spectrometry, 1980 - 1991
Board of Directors, Research Triangle World Trade Center, 1994-1996
Board of Directors, Biomedical, Biotechnology Research Institute,
North Carolina Central University, 1995 - 1998.

Societies

Air and Waste Management Association
American Association of Pharmaceutical Scientists
American Chemical Society
American Society for Mass Spectrometry
Chairman, RTP Mass Spectrometry Discussion Group, 1975 - 1984
New York Academy of Sciences
Technical Association of the Pulp and Paper Industry
Source Evaluation Society

Research Interests

Application of gas chromatography, high performance liquid chromatography, mass spectrometry and tandem mass spectrometry to problems in the analysis of biological and/or environmental materials.

Adjunct Appointment

Adjunct Professor, Department of Environmental Sciences and Engineering, UNC, Chapel Hill, NC.

Awards

Special Achievement Award, National Institutes of Health, 1978

Distinguished Alumnus Award, Appalachian State University, 1993

Other Professional Activities

Organizer of Workshop on "Negative Chemical Ionization Mass Spectrometry", NIEHS, Research Triangle Park, NC, May 26-27, 1977.

Organizer of Workshop on "Negative CI", 26th Annual Conference on Mass Spectrometry and Allied Topics, American Society for Mass Spectrometry, St. Louis, MO, June 1, 1978.

Co-organizer of Workshop on "Recent Advances in Analytical Techniques for Halogenated Aromatic Hydrocarbons", New York Academy of Sciences, New York, NY, June 26, 1978.

Instructor in American Chemical Society Short Course on Gas Chromatography/Mass Spectrometry, Research Triangle Park, NC, October, 1978.

Co-organizer of "Second Conference on Negative Chemical Ionization Mass Spectrometry", Chapel Hill, NC, March 22-23, 1979.

Chairperson "Symposium on the Analysis of Solid Environmental Samples", 27th Annual Conference of Mass Spectrometry and Allied Topics, American Society for Mass Spectrometry, Seattle, Washington, June 4-8, 1979.

Invited Participant "Workshop to Establish Regulatory Criteria for the Mass Spectrometric Identification and Confirmation of Tetrachlorodibenzo-p-dioxins", FDA, Washington, DC, Nov. 15-16, 1979.

Organizer, "Workshop on Field Desorption Mass Spectrometry", Research Triangle Park, NC, July 14-15, 1980.

Co-organizer, "Asilomar Conference on Mass Spectrometry", Monterey, California, September 21-24, 1980.

Session Chairperson: Symposium on Mass Spectrometry "The Search for Zero", FDA, Washington, D.C., October 15-17, 1980.

Co-organizer, "Asilomar Conference on High Sensitivity Mass Spectrometry and MS/MS", Monterey, California, September 3-7, 1981.

Co-organizer, "RTP Conference on Mass Spectrometry", North Carolina State University, Raleigh, NC, July 5, 1981.

Co-organizer, Grob short courses on Capillary Gas Chromatography., NIEHS, Research Triangle Park, June 15-18 and June 21-24, 1982.

Co-organizer of Symposium on MS/MS, 186 National Meeting of the American Chemical Society, Washington, D.C., August 29- September 2, 1983.

Co-organizer of Third Asilomar Conference on Mass Spectrometry, Asilomar, CA, September 18-22, 1983.

Chairman, Corporate Member Poster Session, 31st Annual Conference on Mass Spectrometry and Allied Topics, Boston, MA, May 8-13, 1983.

Chairman, Environmental Applications, 33rd Annual Conference on Mass Spectrometry and Allied Topics, San Diego, CA, May 27-31, 1985.

Invited Participant, "Workshop on How to Manage an Environmental Laboratory", 34th Annual Conference on Mass Spectrometry and Allied Topics, Cincinnati, OH, June 8-13, 1986.

Co-organizer of Fifth Asilomar Conference on Mass Spectrometry, Asilomar, CA, October 4-8, 1987.

Instructor in "Advanced Source Sampling Workshop", Air Pollution Training Institute, Research Triangle Park, NC, April 7-10, 1987.

Chairman, "Air Toxics Measurement", Engineering Foundation Conference on Source Evaluation, Santa Barbara, CA, March 12-17, 1988.

Peer Reviewer, Multispectral Identification Program, US-EPA Athens Environmental Research Laboratory, July 9-10, 1990.

Instructor, "Advanced Techniques in Source Sampling", Phoenix, AZ, September 9 - 12, 1990.

Session Chairperson, "Environmental Applications of Mass Spectrometry", FACSS XVII, Cleveland, OH, October 8, 1990.

Instructor, "Advanced Techniques in Source Sampling", Chicago, IL, October 9 - 10, 1990.

Instructor, "Advanced Techniques in Source Sampling", Chicago, IL, June 29 - 30, 1992.

Guest Lecturer, "Air Pollution Class", Department of Manufacturing and Industrial Technology, Arizona State University, Tempe, Arizona, October 26, 1992

Instructor, "Advanced Techniques in Source Sampling", Chicago, IL, November 22-23, 1992.

Panel Chairperson, "Environment and the world economy", North Carolina World Trade Center, Durham, NC, October 28, 1993.

Invited Participant, Workshop on "Innovation in the Environmental Testing Industry", National Academy of Engineering, Riverside, CA, March 21 - 22, 1994.

Chairperson, Organizing Committee for the "Second Annual Conference of the Environment, the Economy and World Trade", Durham, NC, November 15-16, 1994.

Performance Review Board for Promotion of Dr. William Brumley, EPA, Las Vegas, NV, December 14, 1994

Performance Review Board for Promotion of Dr. James D. McKinney, EPA, Research Triangle Park, NC., March 24, 1998.

Other Activities:

Various Offices in the Orange United Methodist Church including Chairman of the Finance Committee, Chairman of the Administrative Board, United Methodist Youth Fellowship Councillor, Chairman of the Personnel Committee, Chairman of the

Pastor-Parish Relations Committee, Chairman of the Stewardship Committee and Member of the Council on Ministries.

Advisory Board of the North Carolina Math Science Education Network. 1992 - 1998.

Advancement Council of the College of Arts and Sciences, Appalachian State University. 1992 - present. Chairman, 1994 - 1996.

Measurements Editorial Advisory Panel, Environmental Science & Technology, American Chemical Society. 1993 - 1995

Editorial Advisory Panel, The Encyclopedia of Environmental Analysis and Remediation, John Wiley & Sons. 1994 - present.

Foundation Board of Directors, School of Education, University of North Carolina at Chapel Hill. 1995 - 1997.

BIBLIOGRAPHY

Research Publications In Edited Journals:

- Hass, J. R., Bursey, M. M., Kingston, D. G. I., and Tannenbaum, H. P.: Reketonization of a McLafferty product ion studied by ion molecule reactivity. *J. Am. Chem. Soc.*, 94: 5095-5097, 1972.
- Buck, R. P., and Hass, J. R.: Radio frequency spark source mass spectra of group I and group II carboxylate salts. *Anal. Chem.*, 45: 2208-2214, 1973.
- Parker, C. E., Hass, J. R., Bursey, M. M. and Pedersen, L. G.: The ortho effect in mass spectra. Insight into the tightening of activated complexes for the loss of ketene from phenyl acetates and ethylene from phenetoles from INDO molecular orbital calculations. *Org. Mass Spec.*, 7: 1189- 1195, 1973.
- Hass, J. R., and Jennings, K. R.: Reactions of C₄H₉⁺ ions formed by electron impact ionization of isomeric butyl halides. The Sixth Triennial European Meeting for Mass Spectrometry, Edinburg Scotland, September 4-10, 1973. *Advances in Mass Spectrometry*, Volume VI, pp. 711-716, 1973.
- Hass, J. R., Sammons, M., Bursey, M. M., Kukuch, B. and Buck, R. P.: Chelation as a process following chemisorption upon emitters for field desorption mass spectrometry. *Org. Mass Spec.*, 9: 952-954, 1974.
- Hass, J. R., Bursey, M. M., and Stern, R.: Stereospecific reactivity by ion cyclotron resonance spectrometry. Optimization of reactivity differences in two isomeric esters. *Anal. Chem.*, 47: 1452-1455, 1975.
- Hass, J. R., Cooks, R. G., Elder, J. R., Bursey, M. M. and Kingston, D. G. I.: Unexpected course of olefin loss from some alkylcyclopentanone ions. Gaseous ion structure by ion cyclotron resonance spectrometry, mass analyzed ion kinetic energy spectrometry and collision induced dissociation. *Org. Mass Spec.*, 11, 697-711, 1976.
- Albro, P. W., Corbett, B. J. and Hass, J. R.: The mechanism of nonspecific lipase from rat pancreas. *Biochem. Biophys. Acta*, 431: 493-506, 1976.
- Harvan, D., Hass, J. R., and Lieberman, M.: Interaction of N-acetyl-N-acetoxy amino fluorene with synthetic DNA. *Chem.-Biol. Interact.*, 17: 203-210, 1977.

- Goldstein, J. A., Friesen, M., Linder, R. E., Hickman, P., Hass, J. R., and Bergman, H.: Effects of pentachlorophenol on hepatic drug-metabolizing enzymes and porphyria related to contamination with chlorinated dibenzo-p-dioxins. *Biochem. Pharmacol.*, 26: 1549-1557, 1977.
- Hass, J. R., Nixon, W. B. and Bursey, M. M.: Acetylation as a chemical ionization technique in medium-pressure chemical ionization mass spectrometry. *Anal. Chem.*, 49: 1071-1073, 1977.
- Hass, J. R., Jao, L. T., Wilson, N. K. and Matthews, H. B.: Metabolism of 4-chlorobiphenyl and 4,4'-dichlorobiphenyl in the rat: Qualitative and quantitative aspects. *J. Agr. Food Chem.*, 25, 1330-1333, 1977.
- Hass, J.R., McConnell, E.E., and Harvan, D.J.: Chemical and toxicological evaluation of Firemaster BP-6. *J. Agr. Food Chem.* 26, 94-99, 1978.
- Bursey, M. M., Rechsteiner, C. E., Youngless, T. L., Fraley, D. F., Sammons, M. C. and Hass, J. R.: Electrochemically generated metal dendrites for field desorption mass spectrometry experiments with a new instrument for producing emitters. *Adv. Mass Spectrom.*, 7B: 932-938, 1978.
- Christman, R.F., Johnson, J.D., Hass, J.R., Pfaender, F.K., Liao, W.T., Norwood, D.L., and Alexander, H.J.: Natural and model aquatic humics: reactions with chlorine. Water chlorination. *Environ. Impact Health Eff. Proc. Conf.* 2, 15-28, 1978.
- Pfaender, F. K., Stevens, A. A., Hass, J. R., Moore, L., and Jonas, R. B.: The evaluation of the direct aqueous injection method for the analysis of chloroform in drinking water. *Env. Sci. & Tech.* 12, 438-441, 1978.
- Goldstein, J. A., Hass, J. R., Harvan, D. J., and Hickman, P.: 2,3,7,8-Tetra-chlorodibenzofuran in a commercially available 99% pure polychlorinated biphenyl isomer identified as the inducer of hepatic cytochrome P-448 and aryl hydrocarbon hydroxylase in the rat. *Drug Metab. Disp.* 6, 258-264, 1978.
- Busch, K. L., Bursey, M. M., Hass, J. R., and Sovocool, G. W.: Comparison of five ionization methods for producing mass spectra of typical organophosphorus pesticides. *Appl. Spectrosc.* 32, 388-399, 1978.
- Hass, J. R., Friesen, M. D., Harvan, D. J., and Parker, C. E.: Analytical application of negative chemical ionization mass spectrometry. I. Polychlorinated dibenzo-p-dioxins in biological samples. *Anal. Chem.* 50, 1474-1479, 1978.

- Busch, K. L., Hass, J. R., and Bursey, M. M.: The gas enhanced negative ion mass spectra of polychloroanisoles. *Org. Mass Spectrom.* 13, 604-607, 1978.
- Goldstein, J.A., Friesen, M.D., Scotti, T., Hickman, P., Hass, J.R., Bergman, H.: Effects of hexachlorobenzene on hepatic drug-metabolizing and porphyria unrelated to contamination with chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans. *Toxicol. Appl. Pharmacol.* 46, 633-649, 1979.
- Hass, J. R., Friesen, M. D., and Hoffman, M. K.: The mass spectrometry of polychlorinated dibenzo-p-dioxins. *Org. Mass Spectrom.* 14, 9-16, 1979.
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- Hass, J. R. and Friesen, M. D.: Qualitative and quantitative methods of dioxin analysis. *Ann. N.Y. Acad. Sci.*, 320, 28-42, 1979.
- Hass, J. R., Harvan, D. J. and Bursey, M. M.: Mass-analyzed ion kinetic energy spectra of the protonated molecular ions of aliphatic esters. *Anal. Chim. Acta*, 105, 129-137, 1979.
- Albro, P. W., Hass, J. R. and Crummett, W.: Summary of workshop on recent advances for aromatic compounds. *Ann. N.Y. Acad. Sci.*, 320, 125-130, 1979.
- Hass, J. R., Bursey, M. M., Levy, L. A. and Harvan, D. J.: Structural correlations with kinetic energy release during loss of chlorine from nineteen selected chlorinated biphenyls. *Org. Mass Spectrom.*, 14, 319-325, 1979.
- Busch, K. L., Norstrom, A., Bursey, M. M. and Hass, J. R.: Methane-oxygen enhanced negative ion mass spectra of polychlorinated diphenyl ethers. *Biomed. Mass Spectrom.*, 6, 157-161, 1979.
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- Hass, J.R., Friesen, M.D., and Hoffman, M.K. Negative ion chemical ionization mass spectrometry, polychlorinated dibenzo-p-dioxins (PCDD). *Pract. Spectrosc.*, 3, 316-24, 1980.
- Norwood, D. L., Johnson, J.D., Christman, R.F., Hass, J.R. and Bobenrieth, M.J.: Reactions of chlorine with selected aromatic models of aquatic humic material. *Env. Sci. Tech.* 14, 187-190., 1980.
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- Harvan, D.J., Hass, J.R., Schroeder, J.L., and Corbett, B.J.: Detection of Tetrachlorodibenzodioxins in Air Filter Samples. *Anal. Chem.*, 53, 1755-1759, 1981.
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- Albro, P.W., Hass, J.R., Peck, C.C., Jordan, S.T., Corbett, J.T., and Schroeder, J. Applications of isotope differentiation for metabolic studies with di-(2-ethylhexyl) phthalate. *J. Environ. Sci. Health B17*: 701-714, 1982.
- Voyksner, R.D., Parker, C., Hass, J.R., and Bursey, M.M.: The effects of pressure, temperature, and solvent ratio in an analysis by direct liquid introduction liquid chromatography/mass spectrometry. *Anal. Chem.*, 54, 2583-2586, 1982.
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- Nystrom, J.A., Bursey, M.M. and Hass, J.R.: Conversion of kinetic energy to internal energy in the 2-pentanone molecular ion at threshold in low energy collisions with helium target atoms. *Int. J. Mass Spectrom. Ion Proc.* 55, 263-274 (1983).
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- Bursey, M.M., Harvan, D.J., Parker, C., Darden, T., and Hass, J.R.: Charge reversal of three alkylamide ions: Free nitrenium ions. *Org. Mass Spec.* 18: 530-533, 1983.
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- Nystrom, J.A., Bursey, M.M. and Hass, J.R.: Survey of reaction types in low energy collisional activation of protonated methyl alkyl ketones. *Anal. Chim. Acta* 159: 265-274, 1984.
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- Tondeur, Y., Chu, M., and Hass, J. R., Observations on the Analysis of Incineration Emission Samples for Polychlorinated Dibenzo-*p*-dioxins and Polychlorinated Dibenzofurans, Air Pollution Control Association 81st Annual Meeting, Dallas, Texas, 1988.

- Tondeur, Y., Chu, M. D., and Hass, J. R., Recent Developments in PCDD/PCDF Analysis by High Resolution Gas Chromatography/High Resolution Mass Spectrometry, Engineering Foundation Conference, Stack Sampling and Stationary Emission Evaluation, Santa Barbara, CA, March 13-18, 1988
- Tondeur, Y., Karam, H., Chu, M., Hass, J. R., Adaptation of RCRA Method 8290 to Ambient and Stack Emission Samples for the Determination of PCDDs and PCDFs by HRGC/HRMS, EPA/AWMA 1989 Symposium on Measurement of Toxic and Related Air Pollutants, Raleigh, N. C., May 1-9, 1989.
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- Chen, C.-Y., Albro, P. W., and Hass, J. R.: A Screening Method for PCDD/Fs and Non-ortho PCBs in Biological Matrices. 19th International Symposium on Halogenated Environmental Organic Pollutants and POPs, Sept. 12-17, 1999, Venice, Italy.

- Chen, C.-Y., Hamm, J. T., Hass, J. R., and Birnbaum, L. S.: Deposition of PCDD/Fs and Non-ortho PCBs in Long Evans Rats. 19th International Symposium on Halogenated Environmental Organic Pollutants and POPs, Sept. 12-17, 1999, Venice, Italy.
- Hamm, J. T., Chen, C.-Y., Hass, J. R., and Birnbaum, L. S.: Do Toxic Equivalency Factors Predict Adverse Reproductive Effects of a Mixture of Dioxin and Dioxin-like Compounds?. 19th International Symposium on Halogenated Environmental Organic Pollutants and POPs, Sept. 12-17, 1999, Venice, Italy.
- Chen, C.-Y., Hamm, J. T., Hass, J. R., and Birnbaum, L. S.: Time-Course Transfer of PCDD/Fs and Non-Ortho PCBs to Fetal and Neonatal Long Evans Rats. 20th International Symposium on Halogenated Environmental Organic Pollutants and POPs, August 13-17, 2000, Monterey, Ca.
- Chen, C.-Y., Hamm, J. T., Hass, J. R., Albro, P. W., and Birnbaum, L. S.: A Mixture of Polychlorinated Dibenzop-dioxins (PCDDs), Dibenzofurans (PCDFs), and Non-Ortho-Polychlorinated Biphenyls (PCBs) Changed the Lipid Content of Pregnant Long Evans Rats. 20th International Symposium on Halogenated Environmental Organic Pollutants and POPs, August 13-17, 2000, Monterey, Ca.
- Ham A. J. L., Zhan, Q., Hasan, K., Hass, J. R., and Swenberg, J. A.: Analysis of 1,N⁶-ethenodeoxyadenosine by LC/MS/MS. American Society of Mass Spectrometry. June 2001.
- Tochacek, L. E., Harvan, D. J., Ragsdale, P. L., and Hass, J. R.: Rapid Screen as an Innovative HRGC/HRMS Analytical Screening Tool for Environmental and Food Matrices. Dioxin 2003 23rd International Symposium on Halogenated Organic Environmental Pollutants and POPs, Boston, MA. August 24-29, 2003.
- Chandramouli, B., Tochacek, L. E., Harvan, D. J., and Hass, J. R.: A Comparison of Toxic Equivalency (TEQ) Obtained Using RapidScreen and the DIPS-CALUX Bioassay with EPA Method 8290 and 1668A Calculated TEQs. Dioxin 2003 23rd International Symposium on Halogenated Organic Environmental Pollutants and POPs, Boston, MA. August 24-29, 2003.

INVITED SEMINARS:

- Nov. 1, 1974 - Department of Chemistry, Appalachian State University, Boone, NC.
- May 9, 1975 - Department of Biochemistry and Nutrition, Virginia Polytechnic Institute and State University, Blacksburg, VA.
- Jan. 27, 1977 - Department of Chemistry, Florida State University, Tallahassee, Florida.
- Apr. 17, 1978 - Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, N.C.
- Sep. 18, 1978 - Second Annual Symposium of Developments in Mass Spectrometry. University of Alabama, Birmingham, Alabama.
- Nov. 13, 1978 - Columbus Mass Spectrometry Discussion Group, Columbus, Ohio.
- Nov. 14, 1978 - Department of Pharmacology, Ohio State University, Columbus, Ohio.
- Jan. 24, 1979 - Central-Piedmont Local Section of the American Chemical Society, Charlotte, NC.
- Feb. 23, 1979 - Department of Chemistry, Florida State University, Tallahassee, Florida.
- Apr. 4, 1979 - Association of State and Territorial Public Health Laboratory Directors. Research Triangle Park, NC.
- Apr. 7, 1980 - International Agency for Research on Cancer, Lyon, France.
- Apr. 14, 1980 - Ecole Polytechnique Federale de Lansanne, Switzerland.
- Apr. 16, 1980 - Ecole Polytechnique Federale de Berne, Switzerland.
- Apr. 17, 1980 - Ecole Polytechnique Federale de Berne, Switzerland.
- Apr. 18, 1980 - EAWAG, Duberdorf, Zurich, Switzerland.
- Apr. 7, 1982 - Department of Environmental Sciences, University of Texas at Dallas.

Sep. 10, 1982 - Department of Chemistry, Appalachian State University,
Boone, NC.

Mar. 26, 1983 - Department of Chemistry, University of North Carolina,
Chapel Hill, N.C.

Apr. 1, 1983 - Department of Chemistry, East Carolina University,
Greenville, N.C.

May 4, 1983 - University of North Carolina Cancer Research Seminar
Series.

Jun. 15, 1983 - Bay Area Mass Spectrometry Discussion Group, San
Francisco, CA.

Dec. 8, 1983 - Centre de Spectrometrie de Mass de Lyon, Lyon, France.

Feb. 8, 1984 - Department of Chemistry, University of Wales, Cardiff,
United Kingdom.

Mar. 19, 1984 - North Jersey American Chemical Society Local Section, Dobbs
Ferry, NY.

Oct. 15, 1985 - Western New York American Chemical Society Local Section,
Amherst, NY (Two Presentations).

Oct. 15, 1985 - Occidental Chemical Corporation, Niagara Falls, NY.

Dec. 14, 1989 - Brominated Flame Retardant Industrial Panel Users Meeting,
Washington, DC

Feb. 7, 1990 - VG Users Meeting, Manchester, UK

Oct. 4, 1991 - Department of Chemistry, Appalachian State University, Boone, NC

Feb. 24, 1992 - ITRI, Taipei, Taiwan

Nov. 7, 1992 - Chemical Business Panel, NC Institute of Chemsts, Research Triangle Park,
NC.

Feb. 1, 1993 - West Iredell High School Science Club, Statesville, NC

Aug 6, 1993 - Environmental Protection Authority of New South Wales, Sydney, Australia

Oct. 29, 1993 - Department of Chemistry, Appalachian State University, Boone, NC

April 13, 1995 - North Carolina Math Sciences Educational Network Pre-College Advisory Board. Research Triangle Park, NC

September 14, 1996 - Frontiers in Environmental Chemistry: Educational Partners Seminar, William and Ida Friday Center, University of North Carolina, Chapel Hill, NC.

March 13, 2000 – National Institute of Environmental Studies, Tokyo, Japan

June 19, 2000 – Asia-Pacific 2000 Seminar, Hong Kong

June 21, 2000 – Asia-Pacific 2000 Seminar, Quanzhou, China

June 22, 2000 – Asia-Pacific 2000 Seminar, Shanghai, China

June 23, 2000 – Asia-Pacific 2000 Seminar, Beijing, China

June 27, 2000 – Asia-Pacific 2000 Seminar, Pusan, South Korean

June 28, 2000 – Asia-Pacific 2000 Seminar, Seoul, South Korea

June 29, 2000 – Asia-Pacific 2000 Seminar, Tokyo, Japan

June 30, 2000 – Asia-Pacific 2000 Seminar, Osaka, Japan

July 3, 2000 – Asia-Pacific 2000 Seminar, Taipei, Taiwan, ROC

July 5, 2000 – Asia-Pacific 2000 Seminar, Kuala Lumpur, Malaysia

July 6, 2000 – Asia-Pacific 2000 Seminar, Singapore

July 7, 2000 – Asia-Pacific 2000 Seminar, Bangkok, Thailand

July 11, 2000 – Asia-Pacific 2000 Seminar, Ho Chi Minh City, Vietnam

July 13, 2000 – Asia-Pacific 2000 Seminar, Hanoi, Vietnam

September 30, 2002 – Florida Department of Health, Tampa, Florida

April 4, 2003 – Department of Chemistry, Appalachian State University