

**JAMES E. GIRARD PhD**  
**CURRICULUM VITAE**

James E. Girard PhD  
Professor and Chairman  
Department of Chemistry  
The American University  
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**EDUCATION**

Lewis College, Lockport, Illinois, B.A. in Chemistry, 1967

The Pennsylvania State University, Ph.D. in Chemistry, September 1971

**EMPLOYMENT HISTORY**

Professor	January 2006 – Present, American University Department of Chemistry
Professor and Chairman	January 2003 – December 2005, American University Department of Chemistry
Professor	July 1991 – December 2002, American University Department of Chemistry
Professor and Chairman	September 1985 - July 1991, American University Department of Chemistry
Chemistry Department Chair	June 1984, American University Department of Chemistry
Associate Professor	September 1979, American University Department of Chemistry
Staff Scientist	1977 - August 1979, General Electric Company, Corporate Research and Development Center

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Assistant Professor	1973 - 1977, College of the Holy Cross Department of Chemistry
Visiting Professor	Summer 1974, University of California-San Diego, Department of Chemistry
NIH Postdoctoral Fellow	September 1972 - September 1973, University of California, Department of Chemistry
Postdoctoral Fellow	June 1971 - September 1972, The Pennsylvania State University, Department of Chemistry
Research Fellow	June 1967 - June 1971, The Pennsylvania State University, Department of Chemistry

### **HONORS AND AWARDS**

Lewis College	Four year scholarship, NSF undergraduate research participation grant, graduated "with honors."
University of California, San Diego	NIH Postdoctoral Fellowship
College of the Holy Cross	College Nominee Camille and Henry Dreyfus Foundation Teacher-Scholar Grant, Recipient Research Corporation Grants
The American University	Recipient of the Senior Scholar Award under the auspices of the Mellon Foundation Fund for Faculty and Curricular Development, 1986 – 1987
Washington Academy of Sciences	1995 Recipient of the Leo Schubert Award for Outstanding Teaching at the College level.
The American University	1995-1996 CAS Award for Outstanding Teaching by a Full-time Faculty Member 1996-1997 Distinguished Scientist Award

### **PUBLICATIONS**

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## **Books:**

Principles of Environmental Chemistry, Jones and Bartlett Publishers, Sudbury, Massachusetts, 2004, ISBN 0763724718.

Chemistry Fundamentals: An Environmental Perspective, Second Edition, with P.E. Buell, Jones and Bartlett Publishers, Sudbury, Massachusetts, 2003, ISBN 0773710741.

Laboratory Manual for Chemistry Fundamentals: An Environmental Perspective, Second Edition, with P.E. Buell, Jones and Bartlett Publishers, Sudbury, Massachusetts, 2003, ISBN 0773712051.

Chemistry: An Environmental Perspective, with P.E. Buell, Prentice- Hall, Englewood Cliffs, New Jersey, 1994, ISBN 0 13 644 658 0.

## **Articles (since 1979):**

"Ion Chromatography with Coulometric Detection for the Determination of Inorganic Ions", Anal. Chem., 51, 836, (1979).

"Analysis of Branching in Polycarbonate Resins" with D.J. Cietek, P.E. Gundlach, and S.R. Weissman, Polymer Preprints, 20(2), 134-6, (1979).

"Pheromone of the Male flesh Fly, *Sarcophaga bullata*" with F.J. Germino, J. P. Budris, J.P. Vita, M.P. Garrity, Journal of Chemical Ecology, 5(1), 125-30, (1979).

"Isolation and Identification of a Sex Attractant of a Mushroom-Infesting Sciarid Fly", with James G. Kostelc, Lawrence B. Hendry, Journal of Chemical Ecology, 6(1), 1-11, (1980).

"Recent Advances in Ion Chromatography", with J.A. Glatz, Power Plant Instrumentation for Measurement of High Purity Water Quality, ASTM STP 742, R.W. Lane and Gerrard Otten, Eds., American Society for testing and Materials, 105-115, (1981).

"How to do Ion Chromatography with Conventional HPLC Instrumentation", with J.A. Glatz, American Laboratory, October 1981, 26-35.

"Determination of Formaldehyde in Air by an HPLC Method", with J.R. Heuser, Varian Instruments at Work, LC 132, 1-8, (1981).

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"Factors Affecting the Resolution and Detectability of Inorganic Anions by Non-Suppressed Ion Chromatography", with J.A. Glatz. Journal of Chromatographic Science, 20, 266-273, (1982).

"A Comparison of Coulometric Detectors for Catecholamine Analysis by LC-EC", with Chaiyod Bunyagidj. Life Sciences, 31, 2627, (1982).

"Determination of 4-Hydroxyanisole in Serum Using Liquid Chromatography with Electrochemical Detection", with Phyllis E. Buell, Life Sciences, 34, 2605-2611 (1984).

"The Determination of 4-Hydroxyanisole in Serum", Hydroxyanisole: Recent Advances in Anti-Melanoma Therapy, pp. 165-176, Ed. P.A. Riley. Oxford: IRL Press, 1984, with P.E. Buell.

"Capacity Variation of Silica Based Single Column Ion Chromatography Columns", with David Yube Badio, Anal. Chem., 56, 2992-2994, (1984).

"Trace Metal Analysis by High Performance Liquid Chromatography Interfaced to an Electrochemical Detector", with John Heuser, Electric Power Research Institute Technical Report, EPRI NP-3697, September 1984, pp 1-58.

"Electrocatalytic Effect: Mechanism and Application to Ion Chromatography", with John R. Heuser, Analytical Chemistry, 57, 2847-2850, (1985).

"Development of Selective Inhibitors of Transglutaminase. Phenylthiourea Derivatives" With K.N. Lee, L. Fesus, S. T. Yancey, S. I. Chung, Journal of Biological Chemistry, 260(7), 14689-94, (1985).

"Gluconate/Borate Eluent for Anion Chromatography: Nature of the Complex and Comparison with other Eluents", with Gabriella Schmuckler, A. Louie Jagoe, and Phyllis E. Buell, Journal of Chromatography, 356, 413-419, (1986)

"Ion Exclusion Chromatography", with P.E. Buell, invited chapter for Ion Chromatography, Chromatographic Science Series, Vol. 37, Ed. James G. Tarter, Marcel Dekker, Inc., New York, (1987).

"Metal Ion Interaction with Anion Ion Chromatography", with Archava Siriraks and Phyllis E. Buell, Anal. Chem., 59, 2665-2669, (1987).

"Continuous Detection of Resin Leakage from Mineral Polishers and Make-up Demineralizers", with P.E. Buell, C. Bunyagidj, A.E. Emery and C.M.B. Kieber, Electric Power Research

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Institute.

"Gluconate/Borate Eluent for Anion Chromatography: Nature of the Driving Ion", with Nacer Rebbani, Phyllis E. Buell and A.H.E. Al-Khalidi, Journal of Chromatography, 448, 355, (1988).

"Investigation of Pure Water Contaminants Stemming from Ion Exchange Materials", with A.P. Emery and P. Jandik, Ultrapure Water, October 1988, pp. 49-54.

"Evaluation of Phenylthiourea Derivatives as Inhibitors of Transglutaminase-Catalyzed Reaction in Chinese Hamster Ovary Cells", with K.N. Lee, L. Fesus, S. I. Chung, Biochimica et Biophysica Acta, 972, 120-130, (1988).

"Epidermal and Hair Follicle Transglutaminases: Partial Characterization of Soluble Enzymes in Newborn Mouse Skin" with Nadine Martinet, Hee Chul Kim, Thomas P. Nigra, David H. Strong, Soo Il Soo, and J. E. Folk, Journal of Biological Chemistry, 263(9), 4236-41, (1988).

"Protransglutaminase E from Guinea Pig Skin, Isolation and Partial Characterization" with H.C. Kim, M. S. Lewis, J.J. Gorman, S.C. Park, J. E. Folk, S.I. Chung, Journal of Biological Chemistry, 265(35), 21971-8, (1990).

"Isolation of Natural and Anthropogenic Organic Compounds from Estuarine Bed Sediments Using Supercritical Fluid Extraction," with J. F. Morrison and N.S. Simon, Proceedings of the 201<sup>st</sup> ACS national Meeting, Atlanta, GA, April 1991, 31, 71, (1991).

"Electrophoretic Separations of Polymerase Chain Reaction-Amplified DNA Fragments in DNA typing Using a Capillary Electrophoresis-laser Induced Fluorescence System," with K. Srinivasan, P. Williams, R.K. Roby, V.W. Weedn, S.C. Morris, M.C. Kline, and D.J. Reeder, Journal of Chromatography, A, 652 (1993), 83-91.

"Enhanced Detection of PCR Products Through the Use of TOTO and YOYO Intercalating Dyes with Laser Induced Fluorescence Capillary Electrophoresis," with K. Srinivasan, S.C. Morris, M.C. Kline, D.J. Reeder, Applied Theoretical Electrophoresis, 3, 235-9, (1993).

"Quantitative Analysis of Selected PCB Congeners in Marine Matrix Reference Materials" with B. Hillery, M. Schantz and S.A. Wise, Sixteenth International Symposium on Capillary Chromatography, Vol. I, 399-404, (1994).

"Comparison of Selectivities for a Series of Cyanobiphenyl Stationary Phases" with B. Hillery, M. Schantz, and S.A. Wise, Sixteenth International Symposium on Capillary Chromatography, Vol. I, 252-257, (1994).

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"Quantative Analysis of Selected PCB Congeners in Marine Matrix Reference Materials Using a Novel Cyanobiphenyl Stationary Phase", with B. Hillery, M.M. Schantz, and S.A. Wise, J. High Resolution Chromatography, 18, 89-96, (1995).

"Comparison of Selectivities for PCB's in Gas Chromatography for a Series of Cyanobiphenyl Stationary Phases" with B. Hillery, M.M. Schantz, S.A. Wise, A. Malik, and M.L. Lee, Journal of Microcolumn Separations, Vol 7, No.3, 221-230, (1995).

"Analysis of Amino Acids in Biological Fluids by Pentafluorobenzyl Chloroformate Derivatization and Detection by Electron Capture Negative Ion Chemical Ionization Mass Spectroscopy", with J.T. Simpson, D.S. Torok, and S.P. Markey, Analytical Biochemistry, 233, 58-66, (1996).

"Evaluation of Peptide Nucleic Acid Synthesis Products Using MALDI-TOF", with John M. Butler, Ping Jiang-Baucom, Meng Huang, and Phillip Belgrader, Proceedings of the 44th ASMS Conference on Mass Spectrometry and Allied Topics, 984, (1996).

"Using MALDI-TOF for PNA Identification", with John Butler, Nea Wheeler, Kristal Allen, Philip Belgrader, and Michael Marino, Proceedings of the 44th ASMS Conference on Mass Spectrometry and Allied Topics, 985, (1996).

"Peptide Nucleic Acid Characterization by MALDI-TOF Mass Spectrometry", with John M. Butler, Ping Jiang-Baucom, Meng Huang, and Phillip Belgrader, Analytical Chemistry, 68, 3283, (1996).

"Characterization of Mitochondrial DNA Using Low-Stringency Single Specific Primer Amplification Analyzed by Laser Induced Fluorescence-Capillary Electrophoresis", with Michael A Marino, Kristal R. Weaver, Lois A. Tully, Phillip Belgrader, Electrophoresis, 17, 1499-1504, (1996).

"DNA Typing Using Peptide Nucleic Acid, PNA Probes; Identification Accomplished by MALDI-TOF MS", with Ping Jiang-Baucom, Phillip Belgrader, and John Butler, Proceedings of the 45th ASMS Conference on Mass Spectrometry and Allied Topics, 287, (1997).

"Characterization of Three Aroclor Mixtures Using a New Cyanobiphenyl Stationary Phase" with B. Hillery, M. M. Schantz and S.A. Wise, Fresenius J. Anal. Chem., 357, 723-731, (1997).

"DNA Typing of Human Leukocyte Antigen Sequence Polymorphisms by Peptide Nucleic Acid Probes and MALDI-TOF MS" with Ping Jiang-Baucom, John Butler and Phillip Belgrader,

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Analytical Chemistry, 69, 4894-4898, (1997).

"Sequencing Using Capillary Electrophoresis of Short Tandem Repeat Alleles Separated and Purified by High Performance Liquid Chromatography", with Michael A. Marino, Joseph M. Delaney, Jonathan K. Smith. Electrophoresis, 17, 108-118, (1998).

"Spectral Measurements of Intercalated PCR-Amplified Short Tandem Repeat Alleles", with Marino, M.A., Devaney, J.M., Davis, P.A., and Smith, J.K., Analytical Chemistry, 70, 4514-4519, (1998).

"Optimization of Intercalation Dye Concentration for Short Tandem Repeat Allele Genotyping Using Capillary Electrophoresis with Laser-induced Fluorescence Detection", with M. Marino, J. M. Devaney, and P. A. Davis, Journal of Chromatography B, 732, 365-374, (1999).

"Multivariate Mixture Analysis Using Reduced Mass Resolution-Membrane Introduction Mass Spectrometry and Variable Selection", with William P. Gardner, John H. Callahan, and Ronald E. Shaffer, Proceeding of the SPIE Conference on Internal Standardization and Calibration Architectures for Chemical Sensors, 181-192, (1999).

"High Performance Liquid Chromatography Separation Methods for the Analysis of Peptide Nucleic Acids" with Yinging Wei, Michael Marino, and Barry Thompson, Journal of Chromatography A, 864, 49-57, (1999).

"DNA Microsatellite Analysis Using Ion-Pair Reversed-Phase High-Performance Liquid Chromatography" with Joseph Devaney and Michael A. Marino, Analytical Chemistry, 72, 858-864, (2000).

"Instrumental Analysis Lecture and Laboratory: A Survey", with Constance Diamant, Journal of Chemical Education, 77, 646-648, (2000).

"Detection of Hemochromatosis Through the Analysis of Single-Nucleotide Extension Products by Capillary Electrophoresis", with Qi Liang, P. Ann Davis, John T. Simpson, Barry H. Thompson, and Joseph Devaney, Journal of Biomolecular Techniques, 11:67-73, (2000).

"Application of Quantative Chemometric Analysis Techniques to Direct Sampling Mass Spectrometry", with William P. Gardner, Ronald Shaffer and John Callahan, Proceedings of the 48<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, 109-110, (2000).

"Detection of Point Mutations of Forensic Importance by Peptide Nucleic Acid Probes and MALDI-TOF Mass Spectrometry", with Brian Wendelburg and John T. Simpson, Proceedings of the 48<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, 246-247, (2000).

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“Application of MALDI-TOF-MS for the Multiplex Detection of Hereditary Hemochromatosis”, Proceedings of the 48<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, 248-249, (2000).

“Analysis of Common Household Cleaner/Disinfectants by Capillary Electrophoresis”, with William P. Gardner, Journal of Chemical Education, 77, 1335-1338, (2000).

“Application of Quantitative Chemometric Analysis Techniques to Direct Sampling Mass Spectrometry”, with William P. Gardner, Ronald Shaffer and John H. Callahan, Analytical Chemistry, 73, 596-605, (2001).

“NIST-Sponsored Interlaboratory Comparison of Polystyrene Molecular Mass Distribution Obtained by Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometry: Statistical Analysis”, with C.M. Guttman, S.J. Wetzel, W.R. Blair, B.M. Franconi, R.J. Goldschmidt, W.E. Wallace, Analytical Chemistry, 73, 1252-1262, (2001).

“Genotyping of a Short Tandem Repeat System Using Ion-Pair Reverse-Phase High Performance Liquid Chromatography”, Journal of Liquid Chromatography and Related Techniques, 24(13), 1997-2005, (2001).

“Characterization of Linear and Branched Polyethyleneimine (PEI) by ESI-MS and MALDI-TOF-MS” with Monical Konaklieva, Jianghong Gu, Charles Guttman and Stephanie Wetzel, Proceedings of the 51<sup>st</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Abstract 032088, (2003).

“A Study of the Effects of MALDI Matrix and Laser Energy on the Molecular Mass Distribution of Synthetic Polymers” with Stephanie J. Wetzel and Charles Guttman, Proceedings of the 51<sup>st</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Abstract 030481, (2003).

“Analysis of Covalently Cationized Polystyrenes Using Liquid Chromatography and Mass Spectrometry”, With Zohreh Vakili, Charles Guttman, Mark Arnould, H.C. Michelle Byrd, Proceedings of the 52<sup>nd</sup> ASMA Conference on Mass Spectrometry and Allied Topics, Abstract 04251 (2004).

“The Influence of Matrix and Laser Energy on the Molecular Mass Distribution of Synthetic Polymers Obtained by MALDI TOF MS”, with Stephanie J. Wetzel and Charles M. Guttman, International Journal of Mass Spectrometry, 283(3), 215-225, (2004).

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“Capillary Electrophoresis for the Investigation of Prostate-Specific Antigen Heterogeneity,” with Maura J. Donohue, Mary B. Satterfield, Joseph J. Dalluge, Michael J. Welch, and David M. Bunk, Analytical Biochemistry, 339, 318-327, (2005).

“Development and Evaluation of Methods for Determination of Naphthodianthrones and Flavonoids in St. John’s Wort” with L. Sanders and Felicia Williams, Journal of Chromatography A, 1115, 93-102, 2006.

## **Lectures**

"An Analysis of Branching in Polycarbonate Resins," American Chemical Society National Meeting, Fall 1979, Washington, DC.

"Recent Advances in Ion Chromatography," ASTM - Committee D-19, June 1979, Milwaukee.

"Synthesis and Characterization of Alkylnitrosoureas," National Foundation for Cancer Research Annual Meeting, Sea Island, Georgia, September 1979.

"Gluconate/Borate Eluent for Anion Chromatography: Nature of the Complex and Comparison with other Eluents," Millipore Corporation Waters Chromatography Division, Bedford, MA, December 1985.

"Ion Chromatography of Transition Metals," Monthly Seminar Speaker, George Washington University, Washington, DC, January 1986.

"Metal Ion Interaction with Anion Ion Chromatography," American Chemical Society Meeting, Washington, DC, February 1987.

"The Analysis and Identification of Ion Exchange Degradation Products in Ultra Pure Water," Proceedings of 7th Annual Semiconductor Pure Water Conference, Santa Clara, CA, January 1988.

"Effect of Resin Decomposition Products on Inconel 600 and Carpenter 20 Alloys," 1988 Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, February 1988.

"Characterization of Cation Exchange Resin Degradation Products Using Ion Exclusion Chromatography With Ultraviolet and Fluorescence Detection," 1988 Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, February 1988.

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"Investigation of Pure Water Contaminants Stemming From Ion Exchange Materials,"  
Proceedings of Ultra Pure Water Conference and Exposition, Philadelphia, PA, March 1988.

"Speciation of Metals by Ion Chromatography," 15th Annual Meeting of the Federation of  
Analytical Chemistry & Spectroscopy Societies (FACSS), Boston, MA, October/November  
1988.

"Detecting Groundwater Contaminants" and "Water Quality Issues," Karst Groundwater  
Conference, Spring & Groundwater Resources Institute, Shepherdstown, WV, November 1988.

"Isolation of Natural and Anthropogenic Organic Compounds from Estuarine Bed Sediments  
Using Supercritical Fluid Extraction," with J. Morrison and N.S. Simon, presented before the  
Division of Environmental Chemistry, American Chemical Society, Atlanta, GA, April 1991.

"SFE of Chloramphenicol from Silica Gel Using Analog Modifier," with A.H.E. Al-Khalidi, The  
Fourth International Symposium on Supercritical Fluid Chromatography and Extraction,  
Cincinnati, OH, May 20, 1992.

"SFE and On-Line Methylation of Long Chain Fatty Acids, Using Hydrochloric Acid as a  
Catalyst," with Li Tian, The Fourth International Symposium on Supercritical Fluid  
Chromatography and Extraction, Cincinnati, OH, May 20, 1992.

"Inorganic Metal Behavior in Modified Supercritical Carbon Dioxide Extractions of  
metallo-Organics from Aqueous Samples," with A. Papageorgiou, The Fourth International  
Symposium on Supercritical Fluid Chromatography and Extraction, Cincinnati, OH, May 20,  
1992.

"Application of Capillary Electrophoresis in Analyzing PCR Products," with K. Srinivasan and  
D. Reeder, Electrophoresis Society, 1992.

"Supercritical Fluid Extraction of Environmental Samples," Catholic University Chemistry  
Department, 10/10/92.

"Supercritical Fluid Extraction of Environmental Samples," Hampton University, November,  
1992.

"Supercritical Fluid Extraction of Environmental Samples," Washington Chromatography  
Discussion Group, November, 1993.

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"Supercritical Fluid Extraction of Environmental Samples," Howard University, February, 1994.

"Analysis of Protein Nucleic Acids, PNA by Matrix Assisted Laser Desorption Ionization Time-of-flight Mass Spectroscopy, MALDI-TOF", Armed Forces Institute of Pathology, July, 1995.

"Supercritical Fluid Extractions," College of William and Mary, 12/5/97.

"Forensic Typing of Mitochondrial DNA Using PNA Probes," National Institutes of Justice, Principal Investigator Meeting, San Francisco, 2/98.

"New DNA Typing Methods", Chemical Society of Washington, 5/14/98.

"Instrumental Analysis: State of the Course", Middle Atlantic Regional Academic Analytical Conference", Georgetown University, 5/22/98.

"New DNA Typing Methods", University of the Sciences in Philadelphia, October 14, 1998.

"Analysis of polymorphisms in mitochondrial DNA using peptide nucleic acid probes and capillary electrophoresis laser-induced fluorescence", with Pyatski, Y., Devaney, J.M., J.E., Davis, P.A., and Marino, M.A., Frederick Conference on Capillary Electrophoresis, Frederick, MD October 20, 1998.

"Forensic Typing of Mitochondrial DNA Using PNA Probes," National Institutes of Justice, Principal Investigator Meeting, Orlando Florida, 2/99.

"The Detection of SNPs by Use of Ion-Pair Reverse-Phase HPLC" Armed Forces Institute of Pathology, Washington, D.C., 7/11/99.

"Forensic Typing of Mitochondrial DNA Using PNA Probes," National Institutes of Justice, Principal Investigator Meeting, Reno, Nevada, 2/2000.

"Application of Quantative Chemometric Analysis Techniques to Direct Sampling Mass Spectrometry", with William P. Gardner, Ronald Shaffer and John Callahan 48<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Long Beach, CA, 6/2000.

"Detection of Point Mutations of Forensic Importance by Peptide Nucleic Acid Probes and MALDI-TOF Mass Spectrometry", with Brian Wendelburg and John T. Simpson, 48<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Long Beach, CA, 6/2000.

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“Application of MALDI-TOF-MS for the Multiplex Detection of Hereditary Hemochromatosis”,  
48<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Long Beach, CA, 6/2000.

“The Application of DNA Technology For the Identification of the Remains of Tsar Nicholas II,” Faculty Forum, American University, 1/25/2001.

“Quantitation of Polymer End Groups Using MALDI TOF MS”, with Alia P. Weaver, and Charles M. Guttman, Proceedings of the 50<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Orlando, Florida, June 2-6, 2002.

“Development of Multiplex SNP Assays for Electrophoretic Analysis”, with Gordon Spangler, Peter M. Vallone, and John M. Butler, Proceedings of Electrophoresis 2002, Frederick, MD, October 21-22, 2002.

“Development of Multiplex SNP Assays for Electrophoretic Analysis”, with Gordon Spangler, Peter M. Vallone, and John M. Butler, Proceedings of the Third Annual NIH DNA Grantees Workshop, Washington, DC June 24-26, 2002.

“Chemical Warfare Research at the American University 1915-1920 or As and Old AU” American Chemical Society, Washington, DC, February 13, 2003.

“Analysis of Polyethylenimine by ESI-MS and MALDI-TOF-MS” 225<sup>th</sup> American Chemical Society National Meeting, New Orleans, LA, March 2003.

“Characterization of Linear and Branched Polyethylenimine (PEI) by ESI-MS and MALDI-TOF-MS” 51<sup>st</sup> Conference of Mass Spectrometry and Allied Topics, Montreal, Quebec, Canada, June 2003.

“Chemical Warfare Research at the American University 1915-1920 or As and Old AU” Retired Chemists of the American Chemical Society, Washington, DC, September, 2003.

“Analysis of Polyethylenimine by ESI-MS and MALDI-TOF-MS” 225<sup>th</sup> Black Sea Basin Conference on Analytical Chemistry, Sile, Turkey, September 2003.

“Forensic DNA Testing in the USA – CODIS” University of Kuwait, March 6, 2005

“Analysis of Polyethylenimine by ESI-MS and MALDI-TOF-MS” University of Kuwait, March 8, 2005

“Forensic DNA Testing in the USA – CODIS” Al Ain University, United Arab Emirates, March 12, 2005

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“Forensic DNA Testing in the USA – CODIS” American University of Sharjah, United Arab Emirates, March 13, 2005

“Environmental Testing for Chemical Warfare Agents” American University of Sharjah, United Arab Emirates, March 13, 2005

“Forensic DNA Testing in the USA – CODIS,” Phi Beta Kappa Induction, American University, April 5, 2006

## **GRANTS**

National Institutes of Health (NIH)

"Quantitative Determination of Catecholamines"

6/1/80-5/31/81 \$14,477, no cost extension to 11/30/81.

Department of Interior, Office of Water Resources Technology

"Analysis of Inorganic Anions in Potomac Water, Sediment and Flocc by Ion Chromatography"

10/1/80-9/31/81 \$12,216.

National Foundation for Cancer Research

"Synthesis and Characterization of New Cancerostatic Agents"

12/1/80-9/31/83 \$246,849.

Electrical Power Research Institute (EPRI)

"Chromatography Systems for Turbine Protection"

11/15/80-3/31/88 \$518,794

U.S. Geological Survey of the U.S. Department of the Interior through the Water Resources Research Center of the District of Columbia. "An Ion Chromatography (IC) Field Method for the Determination of Dissolved Metals Introduced into Municipal Water as a Result of Deterioration of Water Distribution Lines."

08/01/88 - 07/31/89 \$15,035

National Bureau of Standards (NBS)

"Analysis of the Concentration of Benzococaine and Cocaine in Urine."

10/01/87 - 09/30/88 \$50,000

Department of Education Fellowship with Dr. Nina Roscher.

"Graduate Assistantships to Meet National Need in Chemistry."

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10/01/88 - 8/31/92 \$300,000  
08/01/91 - 8/31/94 \$288,000

National Institute of Standards and Technology (NIST)  
"Polynuclear Aromatic Hydrocarbons (PAH)"  
06/23/89 - 02/28/90 \$7,350

Department of the Interior, U.S. Geological Survey  
"Isolation and Fraction of Humic Substances from Environmental Matrices By Supercritical  
Fluid Extraction."  
08/01/90 - 08/31/91 \$17,540

Department of Education - Fellowship Award with Dr. Nina Roscher.  
"Graduate Assistantships to Meet National Need in Chemistry."  
08/01/91 - 8/31/94 \$100,000

National Institute of Standards and Technology  
"Capillary Electrophoretic Separations"  
8/01/92 - 9/30/92, \$6,000

Naval Research Laboratory  
"Separation of Polyethers by Super Critical Fluid Chromatography"  
6/01/92 - 9/01/92, \$700

National Institute of Standards and Technology  
"Capillary Zone Electrophoresis"  
6/01/94 - 9/01/94, \$24,333

National Institute of Standards and Technology  
"IPA - Sabbatical Support"  
1/95 - 12/95, \$ 87,435

National Institute of Standards and Technology  
"Student Support and Travel"  
6/15/95 - 12/31/95, \$18,000

National Institute of Standards and Technology  
"Student Support and Travel"  
9/1/96 - 6/30/97, \$45,000

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National Science Foundation  
“Capillary Electrophoresis for laboratory Instrumentation and Undergraduate Research”  
9/1/97 - 8/31/99, \$ 22,455

National Institute of Justice  
“Forensic Typing of Mitochondrial DNA Using PNA Probes”  
7/1/97 - 8/31/98, \$ 49,965

National Institute of Standards and Technology  
“MALDI-TOF MS for detecting p53 Gene Base Mutations”  
9/1/97 - 8/31/98, \$ 54,602

National Institute of Standards and Technology  
"Student Support and Travel"  
8/1/97 - 8/31/98, \$45,000

National Science Foundation, with Nancy Fluornoy  
"Graduate Research Traineeships in Environmental Chemometrics"  
9/1/95 - 8/31/96, \$ 112,500  
9/1/96 - 8/31/97, \$ 112,500  
9/1/97 - 8/31/98, \$ 112,500  
9/1/98 - 8/31/99, \$ 112,500  
9/1/99 - 8/31/00, \$ 112,500

Armed Forces Institute of Pathology  
“Detection of DNA Polymorphisms”  
1/198 - 5/30/99, \$ 30,000

Armed Forces Institute of Pathology  
“Detection of DNA Polymorphisms”  
10/1/99 - 9/30/01, \$ 30,000

National Institute of Justice  
“Forensic DNA Typing Using High Performance Liquid Chromatography”  
6/1/99 - 5/31/00, \$ 54,996.00

Naval Research Laboratory  
“Techniques for Drugs-of-Abuse Detection”

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1/10/00 - 9/09/01, \$ 94,604

Department of Education, with Nina Roscher  
Graduate Assistance in Areas of National Needs, GAANN  
8/15/00 – 8/14/04 \$ 326,142

National Institutes of Justice  
“Development of Y SNP Assays for Multicolor Fluorescence Detection Platform”  
1/1/02 – 12/31/03 \$ 55,568

U.S. Department of Energy  
“Experimental Kinetics and Mechanical Investigations of Hydrocarbon Radicals Relevant to Combustion”  
9/02 – 10/05 \$ 190,555

### **Theses/Dissertations Supervised**

Joseph Glatz, M.S. 1981  
"Factors Affecting the Resolution and Detectability of Inorganic Anions by Ion Chromatography"

Tyranny Hunter, M.S. 1982  
"Isocyanate/Ascorbic Acid Compounds, Possible Cancerostatic Agents"

Thomas Burke, Ph.D. 1983  
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