

CURRICULUM VITAE

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Birthdate: July 28, 1949

EDUCATION

<u>Degree</u>	<u>Institution</u>	<u>Year</u>	<u>Field</u>
B.S.	University of California, Riverside	1971	Chemistry (Honors)
M.S.	University of California, Riverside	1973	Organic Chemistry
Ph.D.	University of California, Riverside	1975	Physical Organic Chemistry

RESEARCH AND PROFESSIONAL EXPERIENCE

<u>Date</u>	<u>Position</u>
July 2006 – Present	Chair, Department of Chemistry – Professor of Chemistry University of Arkansas at Little Rock
August 2005 – June 2006	Program Manager Global Change Research Senior Chemist, Environmental Science Division, Argonne National Laboratory
April 2000-Aug. 2005	Senior Chemist, Environmental Research Division, Argonne National Laboratory
March 2004 – present	Lead Scientist, Megacity Aerosol Experiment- Mexico City (MAX-Mex) Implementation Team Member, Science Steering Committee Member DOE/BER Atmospheric Science Program (ASP)
December 2005- June 2006	Director, Center for Environmental Science, The University of Chicago/Argonne National Laboratory
March 2003 – March 2004	Lead Scientist, Atmospheric Chemistry Program DOE/OBER Atmospheric Science Program (ASP)
December 2002-March 2003	Acting Lead Scientist, Atmospheric Chemistry Program DOE/BER Atmospheric Science Program (ASP)
June 1998-Present	Chief Scientist, DOE/BER Global Change Education Program (GCEP)
October 2002 –June 2006	Senior Fellow, Center for Environmental Science, The University of Chicago
Jan. 1989-March 2000	Chemist, Environmental Research Division, Argonne National Laboratory
Dec. 2001-Present	Faculty Adjunct Professor, Earth and Environmental Sciences University of Illinois at Chicago
Jan. 1992-Present	Faculty Adjunct and Adjunct Research Chemist New Mexico Institute of Technology and Mining
1985-1988	Staff Scientist, Group INC-7, Isotope and Nuclear Chemistry, Los Alamos National Laboratory
1980-1985	Chemist, Dept. of Applied Science, Brookhaven National Laboratory
1977-1980	Associate Chemist, Dept. of Applied Science, Brookhaven National Laboratory
1975-1977	Postdoctoral Research Associate, Chemistry Department Brookhaven National Laboratory
1971-1975	Graduate Research Assistant, Chemistry Department University of California, Riverside, Professor J.N. Pitts, Jr., Advisor

HONORS

Graduated with honors (B.S., 1971); U.S. Public Health Service Environmental Sciences Pre-doctoral Trainee (1971-72); IBM Pre-doctoral Fellow (1973-75). Suffolk County Summer Institute for the Gifted and Talented Teaching Award (1985); United States Information Agency American Participant (AMPART)

to Mexico (1988) and Canada (1989). Certificate of Recognition from the Society of Environmental Engineering of the College of Civil Engineering of the State of Jalisco, Mexico (1988), Honorary Degree from the Autonomous University of Guadalajara (1988), Chairman, Environmental Research Division Seminar Committee (1993-2003), Member American Chemical Society Environmental Chemistry Awards Committee (1993-1996), Member of the American Chemical Society Books Editorial Advisory Board (1997-2000), Member of the Argonne Laboratory Directors Research and Development Review Committee (1998), Vice-Chair, Argonne Laboratory Directors Research and Development Review Committee (1999), Chair, Argonne Laboratory Directors Research and Development Review Committee (2000), Program Chair, Atmospheric Chemistry, American Meteorological Society (1999-2004), American Chemical Society, Science Policy Award for Outstanding Individual Achievement in Public Policy, 2000. South Florida Water Management District Expert Assistance Program Pool Expert (2001-2006); Committee Associate of the Joint Board Council Committee on Chemistry and Public Affairs, American Chemical Society (2002-2012); Executive Committee, Center for Environmental Science, The University of Chicago (2002-2006); American Meteorological Society History Committee (2003-2009); Environmental Research Division, Advisory Committee on Hiring and Promotion, Chair (2003); Argonne National Laboratory, Energy and Environmental Science and Technology Directorate, Program and Operations Committee on Hiring and Promotion Committee (POC-HP) (2003-2004); Argonne National Laboratory, Applied Science and Technology Directorate, Program and Operations Committee on Hiring and Promotion, Environmental Research Division Alternate Member (2005); Argonne National Laboratory, Program and Operations Committee on Hiring and Promotion Oversight Committee – (Oversight POC-HP) (2003-2006), American Chemical Society Legislative Action Honor Roll (2002-2008); Mexico City – Megacity Research Science Advisory Committee, MIT (2003-2006), Chicago Section American Chemical Society Candidate Nominating Committee (2005), Argonne National Laboratory Nominee for DOE BER Distinguished Scientist Fellowship (2005), American Meteorological Society Commission on Education and Human Resources - Board on Women and Minorities (2006-2012), UALR Patent Committee (2008-).

OTHER BIOGRAPHICAL INFORMATION:

Who's Who in America; American Men and Women of Science; Who's Who in the West; Who's Who in Technology Today; Who's Who in Emerging Leaders in America; Who's Who in Science and Engineering; Who's Who in the Midwest; 2000 Outstanding Scientists of the 20th Century; Outstanding People of the 20th Century; Dictionary of International Biography; Lexington Who's Who, National Registers Who's Who of Professional Executives, Who's Who in Sciences Higher Education (WWSHE).

PROFESSIONAL AFFILIATIONS

American Meteorological Society, American Chemical Society (Geochemistry and Environmental Chemistry Divisions); American Association for Aerosol Research; American Geophysical Union; American Association for the Advancement of Science; Chicago Chemists' Club, International Commission on History of Meteorology

RESEARCH INTERESTS

Atmospheric chemistry of organic molecules, organic photochemistry, gas phase kinetics and product analyses, tropospheric chemical modeling, air pollution monitoring, chromatographic detector development, chemiluminescent trace level detection of organics, synthetic production of organic oxidants, organic geochemistry, organic tracer development, and natural abundance isotope ratio determinations and interpretation. Groundwater chemistry and colloid characterization of subsurface aqueous systems; humic and fulvic acid interactions with radionuclides, particularly actinides; natural system interactions with pollutants in air and groundwater chemistries; natural radioactive aerosol tracers. Air toxic and aerosol health impacts.

EXPERIMENTAL TECHNIQUE EXPERIENCE

Gas chromatography/mass spectrometry; isotope ratio mass spectrometry; Fourier transform infrared spectroscopy (long-path, internal reflectance, etc.); chemiluminescent detection systems; gas and liquid chromatography; pyrolysis gas chromatography; X-ray, vacuum ultraviolet, ultraviolet, visible, infrared, far-infrared spectroscopies; circular dichroism spectroscopy; photothermal laser detection methodologies; aerosol and trace gas sampling and analysis. Ultrafiltration methods (hollow-fiber and membrane filters), laser Raman spectroscopy, correlation spectroscopy, radiochemical and organic characterization of background and pollutants in air and water samples.

PUBLICATIONS - J. S. GAFFNEY

Ph.D. Thesis

J.S. Gaffney, "Kinetics, Products, and Mechanism of the Gas Phase Reactions of O(³P) Atoms with Unsaturated Organic Compounds." Ph.D. Dissertation in Chemistry, University of California, Riverside, June 1975, *Dissertation Abstracts International Section B* **37**(6) 3854-B (1976). James N. Pitts, Advisor.

Peer Reviewed Journal Articles

1. B.J. Finlayson, **J.S. Gaffney**, and J.N. Pitts, Jr., "The Ozone-Induced Chemiluminescent Oxidation of Acetaldehyde." *Chem. Phys. Lett.* **17** 22-24 (1972).
2. J.N. Pitts, Jr., H. Fuhr, **J.S. Gaffney**, and J.W. Peters, "Chemiluminescent Reactions of Peroxyacetyl Nitrate and Ozone with Triethylamine: Possible Atmospheric Monitor for Peroxyacetyl Nitrate." *Environ. Sci. Technol.* **7** 550-552 (1973).
3. P.H. Wendschuh, H. Fuhr, **J.S. Gaffney**, and J.N. Pitts, Jr., "Reaction of Peroxyacetyl Nitrate with Amines." *J.C.S. Chem. Comm.* 74-75 (1973).
4. **J.S. Gaffney**, R. Atkinson, and J.N. Pitts, Jr., "Relative Rate Constants for the Reaction of O(³P) Atoms with Selected Olefins, Monoterpenes, and Unsaturated Aldehydes." *J. Am. Chem. Soc.* **97** 5049-5051 (1975).
5. **J.S. Gaffney**, R. Atkinson, and J.N. Pitts, Jr., "Temperature Dependence of the Relative Rate Constants for the Reaction of O(³P) Atoms with Selected Olefins, Monoterpenes, and Unsaturated Aldehydes." *J. Am. Chem. Soc.* **97** 6481-6483 (1975).
6. **J.S. Gaffney**, R. Atkinson, and J.N. Pitts, Jr., "Reaction of O(³P) Atoms with Toluene and 1-Methylcyclohexene." *J. Am. Chem. Soc.* **98** 1828-1832 (1976).
7. **J.S. Gaffney**, R.C. Pierce, and L. Friedman, "Mass Spectrometer Study of Evaporation of α -Amino Acids." *J. Am. Chem. Soc.* **98** 4293-4298 (1977).
8. **J.S. Gaffney**, R.C. Pierce, and L. Friedman, "Ammonia Chemical Ionization of Some Free Amino Acids and Underivatized Peptides." *Int. J. Mass Spec. Ion Phys.* **25** 439-454 (1977).
9. **J.S. Gaffney**, A.P. Irsa, L. Friedman, and D.N. Slatkin, "Natural ¹³C/¹²C Ratio Variations in Human Populations." *Biomedical Mass Spectrometry* **5** 495-497 (1978).
10. D.N. Slatkin, L. Friedman, A.P. Irsa, and **J.S. Gaffney**, "The ¹³C/¹²C Ratio in Black Pulmonary Pigment: A Mass Spectrometric Study." *Human Pathology* **9** 259-267 (1978).
11. **J.S. Gaffney**, A.P. Irsa, L. Friedman, and E. Emken, "¹³C/¹²C Analysis of Vegetable Oils, Starches, Proteins, and Soy-Meat Mixtures." *J. Agr. Food Chem.* **27** 475-478 (1979).
12. **J.S. Gaffney** and S.Z. Levine, "Predicting Gas Phase Organic Molecule Reaction Rates Using Linear Free Energy Correlations I. O(³P) and OH Addition and Abstraction Reactions." *Int. J. Chem. Kinetics* **XI**, 1197-1209 (1979).

13. R.L. Tanner, R. Fajer, and **J.S. Gaffney**, "Determination of Parts Per Billion Concentration of Aqueous Nitrate by Derivatization Gas Chromatography with Electron Capture Detection." *Anal. Chem.* **51** 865-870 (1979).
14. **J.S. Gaffney**, E.T. Premuzic, and B. Manowitz, "On the Usefulness of Sulfur Isotope Ratios in Crude Oil Correlations." *Geochim. et Cosmochim. Acta* **44** 135-139 (1980).
15. **J.S. Gaffney**, R. Sapienza, T. Butcher, C. Krishna, W. Marlow, and T. O'Hare, "Soot Reduction in Diesel Engines: A Chemical Approach." *Combustion Science and Technology* **24** 89-92 (1980).
16. **J.S. Gaffney** and S.Z. Levine, "Reply to Comments on the Paper -Predicting Gas Phase Organic Molecule Reaction Rates Using Linear Free Energy Correlations I. O(³P) and OH Addition and Abstraction Reactions." *Int. J. Chem. Kinetics* **12** 767-769 (1980).
17. M. Hillman, B. Gordon, N. Dudek, R. Fajer, **J.S. Gaffney**, P. Jones, A.J. Weiss, and S. Takagi "Bridged Ferrocenes VI. Hydrogenation with Pd/C Catalyst." *J. Organometallic Chem.* **194** 229-256 (1980).
18. H.B. Lin, **J.S. Gaffney**, and A.J. Campillo, "A Non-Destructive Detector for Gas Chromatography: A Phase Fluctuation Optical Heterodyne Spectrometer (PFLOHS)." *J. Chromatography* **206** 205-214 (1981).
19. **J.S. Gaffney** and S.Z. Levine, "Comments on the Linear Free Energy Correlation Between O₃ and OH Addition Reactions Reported in the Paper, 'Rate Constants for the Gas Phase Reactions of Ozone with a Series of Carbonyls at 296K'." *Int. J. Chem. Kinetics* **14** 1281-1283 (1982).
20. A.S. Goldberg, C. Hubby, D. Cobb, P. Millard, N. Ferrara, G. Galdi, E.T. Premuzic, and **J.S. Gaffney**, "Sterol Distribution in Red Algae from the Waters of Eastern Long Island." *Botanica Marina* **XXV** 351-355 (1982).
21. T.J. Kelly, M.F. Phillips, R.L. Tanner and **J.S. Gaffney**, "Real-Time Instrument for Ambient Monitoring of Hydrogen Sulfide, Dimethylsulfide, and Other Reduced Organosulfur Species Using Ozone Chemiluminescent Detection." *Air Pollution Control Association (APCA) Paper No. 82-51-8*, 16 pages (*Brookhaven National Laboratory Report BNL 31252*) (1982).
22. E.T. Premuzic, C.M. Benkovitz, **J.S. Gaffney**, and J.J. Walsh, "The Nature and Distribution of Organic Matter in the Surface Sediments of World Oceans and Seas." *Organic Geochem.* **4** 63-77 (1982).
23. R.L. Tanner, **J.S. Gaffney**, and M.F. Phillips, "Determination of Organic and Elemental Carbon in Atmospheric Aerosol Samples by Thermal Evolution." *Anal. Chem.* **54** 1627-1630 (1982).
24. **J.S. Gaffney**, E.T. Premuzic, T. Orlando, S. Ellis, and P. Snyder, "A Gas Chromatography/Circular Dichroism (GC/CD) System for Detection of Optically Active Substances." *J. Chromatography* **262** 321-327 (1983).
25. T.J. Kelly, **J.S. Gaffney**, M.F. Phillips, and R.L. Tanner, "Chemiluminescent Detection of Reduced Sulfur Compounds with Ozone." *Anal. Chem.* **55** 135-138 (1983).
26. J.M. Olson, E.K. Shaw, **J.S. Gaffney**, and C.J. Scandella, "A Fluorescent Aminolipid from the Cytoplasmic Membrane of a Green Photosynthetic Bacterium." *Biochem.* **22** 1819-1827 (1983).
27. **J.S. Gaffney**, R.L. Tanner, and M. Phillips, "Separating Carbonaceous Aerosol Source Terms Using Thermal Evolution, Carbon Isotopic Measurements, and C/N/S Determinations." *The Science of the Total Environment* **36** 53-60 (1984).

28. **J.S. Gaffney**, "Are Air Pollutants Damaging Our Forests?" *Adirondac* **48** (4) 8-10 (1984).
29. **J.S. Gaffney**, R. Fajer, and G.I. Senum, "An Improved Procedure for High Purity Gaseous Peroxyacetyl Nitrate Production: Use of Heavy Lipid Solvents." *Atmos. Environ.* **18** 215-218 (1984).
30. G.I. Senum, Y.-N. Lee, and **J.S. Gaffney**, "The Ultraviolet Absorption Spectrum of Peroxyacetyl Nitrate." *J. Phys. Chem.* **88** 1269-1271 (1984).
31. R.L. Tanner and **J.S. Gaffney**, "Biogenic and Anthropogenic Carbonaceous Aerosols and Their Precursors Within a Forest Canopy." *Air Pollution Control Association (APCA) Paper No.84-16-2*, 13 pages (*Brookhaven National Laboratory Report BNL34747*) (1984).
32. J.J. Walsh, E.T. Premuzic, **J.S. Gaffney**, G.T. Rowe, G. Harbottle, W.L. Balsam, and P.R. Betzer, "Organic Storage of CO₂ Within the Last Century on the Continental Slope off the Mid-Atlantic Bight." *Deep Sea Research* **32** (7) 853-885 (1985).
33. **J.S. Gaffney**, D.J. Spandau, T.J. Kelly, and R.L. Tanner, "Gas Chromatographic Detection of Reduced Sulfur Compounds Using Ozone Chemiluminescence." *J. Chromatography* **347** 121-127 (1985).
34. G.I. Senum, R. Fajer, and **J.S. Gaffney**, "Fourier Transform Infrared Spectroscopic Study of the Thermal Stability of Peroxyacetyl Nitrate." *J. Phys. Chem.* **90** 152-156 (1986).
35. **J.S. Gaffney**, R. Fajer, G.I. Senum, and J.H. Lee, "Measurement of the Reactivity of OH with Methyl Nitrate: Implications for Prediction of Alkyl Nitrate-OH Reaction Rates." *Int. J. Chem. Kinetics* **18** 399-407 (1986).
36. E.T. Premuzic, **J.S. Gaffney**, and B. Manowitz, "The Importance of Sulfur Isotope Ratios in the Differentiation of Prudhoe Bay Crude Oils." *J. Geochem. Expl.* **26** 151-159 (1986).
37. K.H. Fung and **J.S. Gaffney**, "Non-Destructive Gas Chromatographic Detection Using Laser Intracavity Photothermal Spectroscopy (LIPS)." *J. Chromatography* **363** 207-215 (1986).
38. **J.S. Gaffney**, G.E. Streit, W.D. Spall, and J.H. Hall, "Beyond Acid Rain: Do Soluble Oxidants and Organic Toxins Interact with SO₂ and NO_x to increase ecosystem effects?" Feature Article in *Environ. Sci. Tech.* **21** (6) 519-524 (1987).
39. R.L. Tanner, A.H. Miguel, J.B. de Andrade, **J.S. Gaffney**, and G.E. Streit, "Atmospheric Chemistry of Aldehydes: Enhanced Peroxyacetyl Nitrate Formation from Ethanol-Fueled Vehicular Emissions." *Environ. Sci. Technol.* **22** 1026-1034 (1988).
40. **J.S. Gaffney**, G.E. Streit, W.D. Spall, and J.H. Hall, "Authors Reply to Comments on Beyond Acid Rain by R. Blevitt." *Environ. Sci. Tech.* **21** (9) 828 (1987).
41. **J.S. Gaffney**, G.E. Streit, W.D. Spall, and J.H. Hall, "Authors Reply to Comments on Beyond Acid Rain, 'Words, Words, Words'." *Environ. Sci. Tech.* **21** (11) 1028 (1987).
42. N.A. Marley, P. Bennett, D.R. Janecky, and **J.S. Gaffney**, "Spectroscopic Evidence for Organic Diacid Complexation with Dissolved Silica in Aqueous Systems. I. Oxalic Acid." *Organic Geochemistry* **14** 525-528 (1989).
43. N.A. Marley, M. Ott, B.L. Fearey, T.M. Benjamin, P.S.Z. Rogers, and **J.S. Gaffney**, "High Temperature and Pressure System for Laser Raman Spectroscopy of Aqueous Solutions." *Rev. Sci. Instruments* **59** (10) 2247-2253 (1989).

44. **J.S. Gaffney**, N.A. Marley, and D.R. Janecky, "Comment on 'The Dissolution of Quartz as a Function of pH and Time at 70 °C.'" *Geochim. Cosmochim. Acta* **53** 1469-1470 (1989).
45. E. Franzblau, C.J. Popp, E.W. Prestbo, N.A. Marley, and **J.S. Gaffney**, "Remote Measurement of NO₂ in the Brown Cloud over Albuquerque, New Mexico." *Environmental Monitoring and Assessment* **24** 231-242 (1993).
46. N.A. Marley and **J.S. Gaffney**, "Laser Raman Spectral Determination of Zinc Halide Complexes in Aqueous Solutions as a Function of Temperature and Pressure" *Applied Spectroscopy* **44** 469-476 (1990).
47. **J.S. Gaffney** and N.A. Marley, "The Search for Clean Alternative Fuels: There's No Such Thing as a Free Lunch!" *Atmospheric Environment* **24A** 3105-3107 (1990).
48. N.A. Marley, **J.S. Gaffney**, K.A. Orlandini, K.C. Picel, and G.R. Choppin, "Chemical Characterization of Size-fractionated Humic and Fulvic Materials in Aqueous Samples." *The Science of the Total Environment* **113** 159-177 (1992).
49. N.A. Marley, **J.S. Gaffney**, K.A. Orlandini, and C.P.M. Dugue, "An Evaluation of an Automated Hollow-Fibre Ultrafiltration Apparatus for the Isolation of Colloidal Materials in Natural Waters." *Hydrological Processes* **5** 291-299 (1991).
50. **J.S. Gaffney**, N.A. Marley, and K.A. Orlandini "Evidence for Thorium Isotopic Disequilibria in Natural Waters due to Organic Complexation: Geochemical Implications." *Environ. Sci. Technol.* **26** 1248-1250 (1992).
51. K.A. Orlandini, **J.S. Gaffney**, and N.A. Marley "An Improved Technique for the Rapid Analysis of Radium Isotopes in Natural Waters." *Radiochimica Acta* **55** 205-207 (1991)
52. N.A. Marley, **J.S. Gaffney**, K.A. Orlandini, and M.M. Cunningham, "Evidence for Radionuclide Transport and Mobilization in a Shallow, Sandy Aquifer." *Environ. Sci. Technol.* **27** 2456-2461 (1993).
53. **J.S. Gaffney**, N.A. Marley, M.M. Cunningham, "Measurement of the Absorption Constants for Nitrate in Water Between 270-335 nm." *Environ. Sci. Technol.* **26** 207-209 (1992).
54. N.A. Marley, **J.S. Gaffney**, and M.M. Cunningham, "Aqueous Greenhouse Species in Clouds, Fogs, and Aerosols." *Environ. Sci. Technol.* **27** 2864-2869 (1993).
55. P.V. Doskey and **J.S. Gaffney**, "Trace Gases in the Arctic Atmosphere at Barrow, Alaska." *Geophysical Research Letters* **19** 381-384 (1992).
56. N.A. Marley, **J.S. Gaffney**, and M.M. Cunningham, "Cylindrical Internal Reflectance Spectroscopy: The Determination of Infrared Absorption Coefficients in Aqueous Solution." *Spectroscopy* **7** 44-53 (1992).
57. **J.S. Gaffney**, K.A. Orlandini, N.A. Marley, and C.J. Popp, "Measurement of ⁷Be and ²¹⁰Pb in Rain, Snow, and Hail." *J. Applied Meteor.* **33** 869-873 (1994).
58. **J.S. Gaffney**, N.A. Marley, and E.W. Prestbo, "Measurements of Peroxyacetyl Nitrate (PAN) at a Remote Site in the Southwestern United States: Tropospheric Implications." *Environ. Sci. Technol.* **27** 1905-1910 (1993).

59. Nancy A. Marley, **Jeffrey S. Gaffney**, and Mary M. Cunningham, "Lambert Absorption Coefficients of Water in the Frequency Range 3000-934 cm^{-1} ." *Applied Optics* **33** 8041 (1994).
60. **Jeffrey S. Gaffney**, "Letter to the Editor: Comments on the Article Entitled: 'The Natural Production of Chlorinated Compounds.'" *Environ. Sci. Technol.* **29** 8A (1995).
61. **J.S. Gaffney**, K.A. Orlandini, N.A. Marley, and C.J. Popp, "Reply to Comments on 'Measurement of ^7Be and ^{210}Pb in Rain, Snow, and Hail.'" *J. Appl. Meteor.* **34** 2106-2109 (1995).
62. **J.S. Gaffney**, R.M. Bornick, Y.-H. Chen, and N.A. Marley, "Capillary Gas Chromatographic Analysis of Nitrogen Dioxide and PANs with Luminol Chemiluminescent Detection." *Atmospheric Environment*, **32**, 1145-1154 (1998).
62. N.A. Marley and **J.S. Gaffney**, "A Comparison between Flame Ionization and Ozone Chemiluminescence for the Detection of Atmospheric Hydrocarbons." *Atmospheric Environment*, **32**, 1435-1444 (1998).
63. **J.S. Gaffney**, N.A. Marley, R.S. Martin, R.W. Dixon, L.G. Reyes, and C.J. Popp. "Potential Air Quality Effects of Using Ethanol-Gasoline Fuel Blends: A Field Study in Albuquerque, New Mexico." *Environmental Science & Technology*, **31**, 3053-3061 (1997).
64. **J.S. Gaffney** and N.A. Marley, "Uncertainties in Climate Change Predictions: Aerosol Effects." *Atmospheric Environment*, New Directions contribution, **32**, 2873-2874 (1998).
65. **J.S. Gaffney**, N.A. Marley, R.S. Martin, R.W. Dixon, L.G. Reyes, and C.J. Popp. "Reply to Dr. G. Whitten's Comment on the paper entitled 'Potential Air Quality Effects of Using Ethanol-Gasoline Fuel Blends: A Field Study in Albuquerque, New Mexico.'" *Environmental Science & Technology*, **32**, 3842-3844 (1998).
66. **J.S. Gaffney**, N.A. Marley, H. D. Steele, P.J. Drayton, and J.M. Hubbe, "Aircraft Measurements of Nitrogen Dioxide and Peroxyacyl Nitrates Using Luminol Chemiluminescence With Fast Capillary Gas Chromatography." *Environ. Sci. Technol.*, **33**, 3285-3289 (1999).
67. N.A. Marley, **J.S. Gaffney**, K.A. Orlandini, P.J. Drayton, and M.M. Cunningham, "An Improved Method for the Separation of ^{210}Bi and ^{210}Po from ^{210}Pb Using Solid Phase Extraction Disk Membranes: Environmental Applications." *Radiochimica Acta*, **85**, 71-78 (1999).
68. Nancy A. Marley, **Jeffrey S. Gaffney**, J. Christopher Baird, Cherelle A. Blazer, Paul J. Drayton, and John E. Frederick, "The Determination Of Scattering And Absorption Coefficients Of Size-Fractionated Aerosols For Radiative Transfer Calculations." *Aerosol Science & Technology*, **34**, 535-549 (2001).
69. S.A. Edgerton, J.L. Arriaga J. Archuleta, X. Bian, J.E. Bossert, J.C., Chow, R.L. Coulter, J.C. Doran, P.V. Doskey, S. Elliot, J.D. Fast, **J.S. Gaffney**, F. Guzman, J.M. Hubbe, J.T. Lee, E.L. Malone, N.A. Marley, L.A. McNair, W. Neff, E.Ortiz, R. Petty, M. Ruiz, W.J. Shaw, G.Sosa, E. Vega, J.G. Watson, C.D. Whiteman, and S. Zhong, "Particulate Air Pollution in Mexico City: A Collaborative Research Project." *Journal of Air & Waste Management Association*, **49**, 1221-1229 (1999).
70. N.A. Marley, **J.S. Gaffney**, M.M. Cunningham, K.A. Orlandini, R. Paode, and P.J. Drayton, "Measurement of ^{210}Pb , ^{210}Po , and ^{210}Bi in Size Fractionated Atmospheric Aerosols: An Estimate of Fine Aerosol Residence Times." *Aerosol Science and Technology*, **32**, 569-583 (2000).

71. **J.S. Gaffney**, N.A. Marley, M.M. Cunningham, and P.V. Doskey, "Measurements of Peroxyacyl Nitrates (PANs) in Mexico City: Implications for Megacity Air Quality Impacts on Regional Scales." *Atmospheric Environment*, **33**, 5003-5012 (1999).
72. S. Elliott, G.E. Streit, **J.S. Gaffney**, J.E. Bossert, M. Brown, J. Reisner, and L.A. McNair, "Pathways for the Oxidation of Sarin in Urban Atmospheres." *Environ. Sci. & Pollut. Res.* **6**, 103-105 (1999).
73. **J.S. Gaffney**, N.A. Marley, P.J. Drayton, P.V. Doskey, V.R. Kotamarthi, M.M. Cunningham, J.C. Baird, J. Dintaman, and H.L. Hart, "Field Observations of Regional and Urban Impacts on NO₂, Ozone, UV-B, and Nitrate Radical Production Rates: Nocturnal Urban Plumes and Regional Smoke Effects." *Atmospheric Environment* **36**, 825-833 (2002).
74. V.R. Kotamarthi, **J.S. Gaffney**, N.A. Marley, and P.V. Doskey, "Heterogeneous NO_x Chemistry in the polluted PBL." *Atmospheric Environment* **35**, 4489-4498 (2001).
75. **J.S. Gaffney** and N.A. Marley, "Comments on 'Environmental Implications on the Oxygenation of Gasoline with Ethanol in the Metropolitan Area of Mexico City'". *Environ. Sci. Technol.*, **35**, 4957-4958 (2001).
76. **Jeffrey S. Gaffney** and Nancy A. Marley, "Atmospheric Chemistry and Air Pollution." Invited Mini-review. *Scientific World*, **3**, 199-234 (2003).
77. **Jeffrey S. Gaffney**, Nancy A. Marley, and John E. Frederick, "Formation and Effects of Smog". Encyclopedia of Life Support Systems, United Nations Educational, Cultural and Scientific Organization, UNESCO, Environmental and Ecological Chemistry Section, Aleksandar Sabljic, ed. Atmospheric Chemistry, 6.13.2.8 Formation and Effects of Smog, 2002, in Encyclopedia of Life Support Systems (EOLSS), Developed under the Auspices of the UNESCO, EOLSS Publishers, Oxford, UK, [<http://www.eolss.net>], 22 pages, two figures.
78. **Jeffrey S. Gaffney**, "Acids May Play Bioremediation Role." *Applied Genetics News* **16**,2-3 (1996).
79. **Jeffrey S. Gaffney**, Nancy A. Marley, and Mary M. Cunningham, "Natural radionuclides in fine aerosols in the Pittsburgh area." *Atmospheric Environment*, **38**, 3191-3200 (2004).
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Dr. Gaffney has presented over 400 papers and lectures at national and international meetings. He has been funded by the Department of Energy's Atmospheric Science Program to do work in atmospheric chemistry research on organic oxidants, atmospheric pollution, aerosols and climate change since 1980.