

## BIOGRAPHICAL SKETCH

NAME	TITLE
Petros Koutrakis	Professor of Environmental Science

### EDUCATION

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
University of Patras, Greece	B.S.E.	1980	Chemistry
University of Paris, France	M.S.	1982	Atmospheric Chemistry
University of Paris, France	S.M.	1984	Environmental Chemistry

### Experience

1995-present	Professor of Environmental Sciences, Department of Environmental Health, Harvard University, School of Public Health
1999-present	Director, EPA/Harvard Center on Ambient Particle Health Effects
1988-1991	Assistant Professor of Environmental Science and Director of the Environmental Chemistry Laboratory, Harvard School of Public Health
1991-1995	Associate Professor of Environmental Science and Director of the Environmental Chemistry Laboratory, Department of Environmental Health, Harvard School of Public Health
1994-present	Technical Editor-in-Chief, Journal of the Air and Waste Management Association
1995-present	Professor of Environmental Sciences and Director of Environmental Chemistry Laboratory, Harvard School of Public Health

### Professional Societies

1985-present	American Association for Aerosol Research
1985-present	Air and Waste Management Association
1991-present	International Exposure Society
1991-present	American Chemical Society

### Professional Activities

1994-present	Consultant, U.S. EPA Science Advisory Board
1998-2002	Member, National Research Council Committee on Research Priorities for Airborne Particulate Matter

### Patents

Ozone Measurements Using a Passive Monitor, Serial No. 07/662,164  
Honeycomb Denuder/Filter Pack System to Collect Gaseous and Particulate Pollutants, Serial No. 199/128  
Virtual impactor to remove particles from an airstream, including method for using same, Serial No. 08/384, 251  
Continuous ambient particle monitor, Serial No. 5,571,945  
Continuous particle nitrate monitor, submitted December 1996

### Book Chapters

Sioutas, C., and Koutrakis P. "Measurement of Acidic Particles and Gases" in *Handbook of Environmental Chemistry*, Editor Otto Hutzinger. Springer-Verlag: Berlin Heidelberg, 1995.  
Koutrakis P. and, Sioutas C. "Physico-chemical properties and monitoring of ambient particles" in *Health effects of fossil fuel burning*, Editors Richard Wilson and John Spengler; Harvard University Press, 1996.  
Lawrence, J. and Koutrakis, P. "Organic Composition of Ambient Particles Matter" in *Analytical Chemistry of Aerosols*, Editor Kvetoslav R. Spurny; Lewis Publisher (in press).  
Sioutas, C. and Koutrakis, P. "Sampling of Atmospheric Gases and Particles Using Denuder and Virtual Impactor Technologies" in *Analytical Chemistry of Aerosols*, Editor Kvetoslav R. Spurny; Lewis Publishers (in press).  
Suh, H. and Koutrakis, P. "Acid Aerosol Exposures and Health" in *Environmental Contaminants and Health*, Editors S.K. Majumdar, F.J. Brenner, E.W. Miller and Rosenfeld; Pennsylvania Academy of Sciences (in press).  
Publications (Selected Publications)

Koutrakis, P. and Spengler, J.D. "Source apportionment of ambient particles in Steubenville, OH, using specific rotation factor analysis." Atmospheric Environment, 21:1511-1519, 1987.

Koutrakis, P., Spengler, J.D., Chang, B.H., and Ozkaynak, H. "Characterizing sources of indoor and outdoor aerosols using PIXE." Nuclear Instruments and Methods in Physics Research, 22:331-336, 1987.

Koutrakis, P., Wolfson, J.M., and Spengler, J.D. "An improved method for measuring aerosol acidity: results from a nine-month study in St. Louis, MO, and Kingston, TN." Atmospheric Environment, 22:157-163, 1988.

Koutrakis, P., Wolfson, J.M., Slater, J.L., Brauer, M., Spengler, J.D., and Stevens, R.K. "Evaluation of an annular denuder/filter pack system to collect acidic aerosols and gases." Environmental Science and Technology, 22:1463-1468, 1988.

Spengler, J.D., Keeler, G.J., Koutrakis, P., Ryan, P.B., Raizenne, M.P., and Franklin, C.A. "Exposure to acidic aerosols." Environmental Health Perspectives, 79:43-51, 1989.

Koutrakis, P., Wolfson, J. M., Spengler, J. D., Stern, B., and Franklin, C. A. "Equilibrium size of atmospheric aerosol sulfates as a function of relative humidity." Journal of Geophysical Research. 94(D5): 6442-6448, 1989.

Brauer, M., Koutrakis, P., Wolfson, J.M., and Spengler, J.D. "Evaluation of an annular denuder system under simulated atmospheric conditions." Atmospheric Environment. 23: 1981-1986, 1989.

Koutrakis, P. and Mueller, P.K. "Atmospheric acidity: chemical and physical factors." Proceedings of the 1989 Annual Air Pollution Control Association Symposium. No. 89-71.4

Brauer, P., Koutrakis, P., and Spengler, J.D. "Personal exposures to acid aerosols and gases." Environmental Science and Technology. 23: 1408-1412, 1989.

Koutrakis, P., Fasano, A. M., Slater, J. L., Spengler, J. D., McCarthy, J. F., and Leaderer, B. "Design of a personal annular denuder sampler to measure atmospheric gases and particles." Atmospheric Environment. 23: 2767-2773, 1989.

Koutrakis, P., Wolfson, J. M., Brauer, M., and Spengler, J.D. "Design of a glass impactor for an annular denuder/filter pack system." Journal of Aerosol Science and Technology. 12: 607-612, 1990.

Keeler, G.J., Spengler, J.D., Koutrakis, P., Allen, G.A., and Raizenne, M. "Transported acid aerosols measured in Southern Ontario." Atmospheric Environment. 24A:2935-2950, 1990.

Spengler, J.D., Brauer, M., and Koutrakis, P. "Acid air and health." Environmental Science and Technology. 24:946-956, 1990.

Brauer, M., Ryan, B.P., Suh, H.H., Koutrakis, P., Spengler, J.D., Leslie, N.P., and Billick, I.H. "Measurement and modeling of nitrous acid in indoor air." Environmental Science and Technology. 24: 1521-1527, 1990.

Brauer, M., Koutrakis, P., Keeler, G.J., and Spengler, J.D. "Indoor and outdoor concentrations of acidic aerosols and gases." Journal of Air Pollution Control Association. 41:171-191, 1991.

Koutrakis, P., Brauer, M., Briggs, S.L.K., and Leaderer, B. P. "Indoor exposures to fine aerosols and acid gases." Environmental Health Perspectives, 95: 23-28, 1991.

Koutrakis, P., Wolfson, J.M., Thompson, K.M., Spengler, J.D., Keeler, J.G., and Slater, J.L. "Determination of aerosol strong acidity losses due to interaction of collected particles: results from laboratory and field studies." Atmospheric Environment. 26A: 987-995, 1992.

Weschler, C.J., Brauer, M., and Koutrakis, P. "Indoor ozone and nitrogen dioxide: a potential pathway to generation of nitrate radicals, dinitrogen pentoxide, and nitric acid indoors." Environmental Science and Technology, 26: 179-184, 1992.

Koutrakis, P., Briggs, S.L.K., and Leaderer, B.P. "Source apportionment of indoor aerosols in Suffolk and Onondaga Counties, New York." Environmental Science and Technology, 26: 521-527, 1992.

Koutrakis, P., Wolfson, J.W., Bunyaviroch, A., Froehlich, S. Hirano, K., and Mulik, J.D. "Measurement of ambient ozone using a nitrite-coated filter," Analytical Chemistry, 65: No. 3, 209-214, 1993.

Koutrakis, P. and Aurián-Blajeni, B. "Measurement of partial vapor pressure by an integral method: vapor pressure of ammonia over ammonium sulfate." Journal of Geophysical Research, 98: No. D2, 2941-2948, 1993.

Suh, H., Spengler, J.D., and Koutrakis, P. "Personal exposures to acid aerosol and ammonia." Environmental Science and Technology, 26: 2507-2516, 1993.

Liu, L.-J.S., Koutrakis, P., Suh, H.H., Mulik, J.D., and Burton, R.M. "Use of personal measurements for ozone exposure assessment - a pilot study." Environmental Health Perspectives, 101, 318-324, 1993.

Suh, H.H., Koutrakis, P., Allen, G.A., and Burton, R. A Spatial variation in acid sulfate and ammonia concentration within metropolitan Philadelphia. Journal of the Air & Waste Management Association, 45:442-452, 1995.

Spengler, J.D., Koutrakis, P., Dockery D., Raizenne, M., and Speizer, F.E. A health effects of acid aerosols North American children: air pollution. Environmental Health Perspectives, 104,5:492-499, 1996.

Sioutas, C., Wang, P.Y., Ferguson, S.T., Koutrakis, P., and Mulik, J.D. A Laboratory and field evaluation of an improved glass honeycomb denuder/filter pack sampler. Atmospheric Environment, 30:885-895, 1996.

Geyh, A.S., Wolfson, J.M., Koutrakis, P., Mulik, J.D., and Avol, E.L. A Development and evaluation of a small active ozone sampler. Environmental Science and Technology, 31: 2326-2330, 1997.

Abt, E., Suh, H. H., Koutrakis, P. "Characterization of Indoor Particle Sources: A Study Conducted in the Metropolitan Boston Area." Environmental Health Perspectives, 108: 35-44, 2000.

Clarke, R. W., Catalano, P. J., Koutrakis, P., Murthy, G. G., Krishna, Sioutas, C., Paulauskis, J., Coull, B., Ferguson, S., Godleski, J. J. "Urban Air Particulate Inhalation Alters Pulmonary Function and Induces Pulmonary Inflammation in a Rodent Model of Chronic Bronchitis." Inhalation Toxicology, 11:637-656, 1999.

Kavouras, I., Lawrence, J., Koutrakis, P., Stephanou, E., Oyola, P. "Measurement of Particulate Aliphatic and Polynuclear Aromatic Hydrocarbons in Santiago de Chile. Source Reconciliation and Evaluation of Sampling Artifacts." Atmospheric Environment, 33:4977-4986, 1999.