

## BIOGRAPHICAL SKETCH

NAME John D. Spengler	TITLE Akira Yamaguchi Professor of Environmental Health
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### EDUCATION

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
University of Notre Dame, South Bend, IN	B.S.	1963	Physics
State University of New York, Albany, NY	Ph.D.	1971	Atmos. Science
Harvard School of Public Health, Boston, MA	M.S.	1973	Environ. Health Sci.

### Experience

1971-1972	Research Associate in Meteorology, Harvard School of Public Health
1972-1973	Special Fellow, U.S.E.P.A., Harvard School of Public Health
1972-1985	Assistant Professor, Harvard School of Public Health
1985-1998	Professor of Environmental Health, Harvard School of Public Health
1986-present	Director, Exposure Assessment and Engineering Program, Harvard School of Public Health
1998-present	Akira Yamaguchi Professor of Environmental Health & Human Habitation, Harvard School of Public Health

### U.S. E.P.A. Science Advisory Board

1985-1989	Indoor Air Quality/Total Human Exposure Committee, Consultant
1988-1992	Research Strategies Advisory Committee, Member

### National Academy of Science Advisory Committee Member/Consultant

1978-1979	Controlling Airborne Particulates	1985-1986	Aircraft Cabin Air Quality & Safety (Vice Chair)
1979-1981	Indoor Pollutants (Chairman, 1981)	1985-1986	Passive Tobacco Smoke
1984-1985	Air Pollution Epidemiology	1991-1993	Risk Assessment of Hazardous Air Pollutants

### Relevant Research (PI or Co-PI)

- In a World Bank-funded environmental epidemiology project in two industrialized regions in Russia, investigators are assessing existing environmental and health monitoring systems, as well as conducting several exposures and health surveys to assess the impacts of air and water pollution.
- In an NIEHS-sponsored exposure assessment study in two southern California communities, individual ozone exposures were measured for approximately 200 children, from June 1995-May 1996. New personal monitoring techniques for ozone exposure were used in the study and methods are being developed for estimating individual lifetime exposures.
- In a Boeing-sponsored study, transportation exposures to VOCs, CO, particles, ozone, bacteria, endotoxin, and fungi, as well as comfort parameters of noise, temperature, air velocity and ventilation were measured on commercial airplanes, trains, buses and public subways.
- Assessing indoor air quality and energy performance of conventional and manufactured housing in Japan and the US is being funded through the Winter Research Institute Corporation of Japan. The work is being extended to studies of life-cycle analysis comparisons of design/construction versus operation/maintenance.
- In an EPA-sponsored study of large buildings, investigators are looking at how ozone, generated photochemically outside, affects indoor air quality as a result of chemical reactions with indoor surfaces.
- In an CIAR-sponsored study, the nature of surface dust and its synthetic vitreous fiber content have been studied in buildings in order to develop reliable methods to assess potential exposures, perception and effectiveness of cleaning.
- The Harvard Six Cities Study followed the respiratory health and air pollution exposure of children and adults living in six US communities between 1975 and 1988. Techniques were advanced to understand the indoor, outdoor and personal exposures to particles, acid aerosol, acid gases, nitrogen dioxide and ozone among other contaminants. Sponsors included NIEHS, EPRI and the US EPA.
- Respiratory health effects of acid aerosols and ozone were the primary focus of a cross-sectional health study of school-age children conducted in 24 communities in the U.S. and Canada. Sponsors were the NIEHS and Health and Welfare Canada.
- In the EPA/NICs-sponsored Kanawha Valley Health Study, irritation responses and respiratory illnesses among 9,000 school-age children

living in communities with chemical manufacturing were investigated.

— In a Gas Research Institute sponsored study 1,000 individuals living in Los Angeles or Boston participated in a personal exposure study. Nitrogen dioxide (NO<sub>2</sub>) was measured in homes, work place, and the ambient environment as well as on the person. Models which include predictive factors are being developed to test mitigation strategies.

— In the HEI-funded ANO<sub>2</sub> and Respiratory Infections in Infants@study, done in cooperation with the Univ. of New Mexico Medical School, the health effects of NO<sub>2</sub> were examined for 1,000 newborns in Albuquerque, NM.

#### Publications (Selected Publications)

Spengler, J.D., and G.D. Thurston. Mass and elemental composition of fine and coarse particles in six U.S. cities. *J. Air Pollut. Control Assoc.* 33(12):1162-1171, 1983.

Spengler, J.D., R.D. Treitman, T.D. Tosteson, D.T. Mage, and M.L. Soczek. Personal exposures to respirable particulates and implications of air pollution epidemiology. *Environ. Sci. Technol.* 19(8):700-707, 1985.

Spengler, J.D., G. Keeler, P. Koutrakis, P.B. Ryan, M. Raizenne, and C. Franklin. Exposures to acidic aerosols. *Environ. Health Perspect.* 79:43-51, 1989.

Spengler, J.D., M. Brauer, and P. Koutrakis. Acid air and health. *Environ. Sci. Technol.* 24:946-956, 1990.

Chan, C., H. Ozkaynak, J.D. Spengler, and L. Sheldon. Driver exposure to volatile organic compounds, CO, ozone, and NO<sub>2</sub> under different driving conditions. *Environ. Sci. Technol.* 25:964-972, 1991,.

Samet, J., and J.D. Spengler, Eds. *Indoor Air Pollution: A Health Perspective*. John Hopkins University Press: New York, 1991.

Spengler, J.D., M. Brauer, J.M. Samet, and W.E. Lambert. Nitrous acid in Albuquerque, New Mexico, homes. *Environ. Sci. Technol.* 27:841-845, 1993.

Ware, J.H., J.D. Spengler, L.M. Neas, J.M. Samet, G.R. Wagner, D. Coultas, H. Ozkaynak, and M. Schwab. Respiratory and irritant health effects of ambient volatile organic compounds. 137:1287-1301, 1993.

Dockery, D.W., C.A. III Pope, X. Xu, J.D. Spengler, J.H. Ware, M.E. Fay, B.G. Jr. Ferris. An association between air pollution and mortality in six U.S. cities. *N. Engl. J. Med.* 329:1753-1759, 1993.

Spengler, J., M. Schwab, P.B. Ryan, I. Billick, S. Colome, A.L. Wilson, E. Becker. Personal exposure to nitrogen dioxide in the Los Angeles Basin," *J. Air & Waste Manage. Assoc.* 44:39-47, 1994.

Brauer, M., and J.D. Spengler. Nitrogen dioxide exposures inside ice skating rinks. *Am. J. Public Health.* 84:429-433, 1994.

Spengler, J.D., L. Neas, S. Nakai, D. Dockery, F. Speizer, J. Ware, and M. Raizenne. Respiratory symptoms and housing characteristics. *Indoor Air.* 4:72-82, 1994.

Brauer, M., T. Dumyah, J. Spengler, K. Gutschmidt, J. Heinrich, and H. Wichmann. Measurement of acidic aerosol species in Eastern Europe: implications for air pollution epidemiology. *Environ. Health Perspect.* 103:482-488, 1995.

Brook J.R., and J.D. Spengler. Exposure to fine particle acidity and sulfate in 24 North American communities: the relationship between single year observations and long-term exposures. *J. Air & Waste Manage. Assoc.*, 45:709-721, 1995.

Spengler, J.D., and J.F. McCarthy. Indoor air quality in hospitals: not just another building. In: *Ventilation and Indoor air Quality in Hospitals*. Netherlands: Kluwer Academic Publishers, pp. 3-17, 1996.

Spengler, J.D., P. Koutrakis, D.W. Dockery, M. Raizenne, and F.E. Speizer. Health effects of acid aerosols on North American Children: air pollution exposures. *Environ. Health Perspect.* 104: 492-499, 1996.

Wilson, R., and J. Spengler, Eds. *Particles in Our Air: Concentrations and Health Effects*. Distributed by Harvard University Press: Cambridge, MA, 1996.

Spengler, J.D., and T. Ford. From the Environmentally Challenged City to the Ecological City. In: *Cities in Our Future*, R. Geddes, Ed. Washington, D.C.: Island Press, 1997, pp. 33-62.

Park J-H, Spengler JD, Yoon D-W, Dumyah T, Lee K, Ozkaynak H. Measurements of air exchange rate of stationary vehicles and estimation of in-vehicle exposure. *J. Expos Anal. Environ. Epidemiol.* 8:65-78, 1998.

Levy JI, Lee K, Spengler JD et al. Impact of residential nitrogen dioxide exposure on personal exposure: an international study. *J. Air Waste Manage. Assoc.* 48:553-560, 1998.

Levy JL, Lee K, Yanagisawa Y, Hutchinson P, Spengler JD. Determinants of nitrogen dioxide concentrations in indoor ice skating rinks. *Am. J. Public Health.* 88:1781-1786, 1998.

Kildeso J, Vallarino J, Spengler JD, Brightman HS, Schneider T. Dust build-up on surfaces in the indoor environment. *Atmos. Environ.* 33:699-707, 1999.