

Paul Switzer Curriculum Vitae

Education

University of Manitoba, B.A. (hons.), Mathematics, 1961;
Harvard University, A.M., Statistics, 1963;
Harvard University, Ph.D., Statistics, 1965.

Positions

Professor, Statistics Department, Stanford University, 1965-2010; Professor Emeritus 2010-
Professor, School of Earth Sciences, Stanford University, 1965--2010; Professor Emeritus 2010-
Visiting Professor, Columbia University, 2005
Visiting Professor, Singapore National University, 1997
Visiting Professor, University of Rome La Sapienza, Rome, 1992
Visiting Scientist, Goddard Institute for Space Studies, New York, 1991
Visiting Scientist, Environmental Protection Agency, Washington, 1981 & 1991
Visiting Professor, Ecole des Mines, Fontainebleau, France, 1977 & 1988
Visiting Professor, Massachusetts Institute of Technology, 1984
Visiting Professor, E.T.H., Zurich, Switzerland, 1984
Visiting Scientist, C.S.I.R.O. Division of Mineral Physics and
Division of Mathematics and Statistics, Sydney, Australia, 1983
Visiting Fellow, Japan Society for Promotion of Science, Tokyo 1983
Chairman, Statistics Department, Stanford University, 1979-82
Visiting Professor, Statistics Department, Princeton University, 1974
Visiting Professor, Imperial College, University of London, 1973

Honors and Awards

Griffiths Teaching Award of the International Association for Mathematical Geology, 2006
Elected to Council, International Statistical Institute, 2001-2004
J.S. Hunter Lecturer, The International Environmetrics Society, 2001
20th Century Distinguished Service Award [Environmental Statistics], Lukacs Symposium, 2000
Presidential Invited Speaker, Canadian Statistical Society, 1996
Nomination, Phi Beta Kappa Excellence in Teaching award, 1996
Topical Lecturer, American Association for the Advancement of Science, 1994
Distinguished Achievement Medal, American Statistical Ass'n,
Section on the Environment, 1993
Presidential Neyman Lecturer, International Statistical Institute, 1991
Closing Plenary Lecturer, European Meeting of Statisticians, 1991
Fellow, International Statistical Institute, 1982
Fellow, American Statistical Association, 1980
Fellow, Institute of Mathematical Statistics, 1980
Best Paper Award, International Association for Mathematical Geology, 1980

Editorships

Editorial Board, Journal of Statistical Planning and Inference, 2000-08
Editorial Board, Stochastic Environmental Research and Risk Assessment, 1998-2010
Editorial Board, Statistics Surveys, 2005-2006
Editorial Advisory Board, Atmosphere Environment, 1992-2009
Editorial Board, Oxford University Press, Series on Spatial Information Systems, 1989-2005
Executive Editor, Statistical Science, 1995-1997
Editorial Board, Chapman & Hall series "Interdisciplinary Statistics", 1992-95
Consulting Editor, Canadian Journal of Statistics, 1992-94
Editor, Journal of the American Statistical Association, 1986-88
Editor, Statistical Science, 1984
Statistics Editor, Littlefield, Adams Publishing Co., 1983-88
Associate Editor, Canadian Journal of Statistics, 1980-85
Associate Editor, Journal of the American Statistical Association, 1975-78
Associate Editor, Mathematical Geology, 1974-76

Professional Organizations

Institute of Mathematical Statistics
American Statistical Association
International Statistical Institute
Royal Statistical Society
International Association for Mathematical Geology
American Geophysical Union
Canadian Statistical Society

Research Contracts and Grants [Selected]

Principal Investigator. "Measuring and Modeling Exposure to Tobacco Smoke"
FAMRI 2003-2007
Principal Investigator: "Integration of Model & Measurements of Environmental Contaminants"
U.S. Environmental Protection Agency [via LBNL], 1999-2003
Principal Investigator: "Human Exposure to Tobacco Smoke",
California Department of Health [via UCB], 1991-94 & 1997-2001
Principal Investigator: "Indoor Air Pollution",
Center for Indoor Air Research, 1996-2000
Principal Investigator: "Environmental Statistics",
U.S. Environmental Protection Agency, 1975-1996
Principal Investigator: "Spatial Statistics",
National Science Foundation, 1987-1990
Principal Investigator: "Evaluation of Earthquake Predictions",
U.S. Geological Survey, 1990

University, Public and Professional Service [selected]

Chair, Stanford Committee on Undergraduate Admissions & Financial Aid, 2007-09
Planning Committee, Institute for Mathematical Statistics Annual Meeting 2008-09
Promotion Review, Columbia University 2008
Proposal reviewer, Int. Assn for Mathematical Geology 2007
Proposal reviewer, American Mathematical Society 2007
Promotion reviewer, North Carolina State University, 2007
Organizer, invited paper session, Joint Statistical Meetings 2007
Organizer, invited paper session, International Statistical Institute 2007
Organizer, invited paper session, Vilnius Conference on Probability and Statistics 2006
Promotion reviewer, University of Washington, 2006
Book Reviewer, Wiley, Springer 2006
Proposal reviewer, National Science Foundation 2005
Visiting Committee, Columbia University, 2005
Promotion reviewer, Australian National University, 2005 and 2006
Organizer, invited paper session, WNAR, 2005
Promotion reviewer, Universitat Pompeu Fabra, Barcelona, 2004
Promotion reviewer, Brigham Young University, 2004
Promotion reviewer, UC Davis, 2004
Promotion reviewer, UC Santa Barbara [2], 2004
Reviewer, Canadian J. of Statistics, 2004
Promotion review and examiner, University of Paris, 2004
Organizer, invited paper session, WNAR, 2004
International Statistical Institute, Nomination Committee 2003-2005
Reviewer, Springer-Verlag, 2003
Promotion Review, Center for Geostatistics, Fontainebleau, France, 2004
Promotion Reviews, Tel Aviv University, Israel, Stellenbosch University, South Africa,
University of California, Santa Barbara, 2003
Reviewer, J. of Comput. Graphics & Statistics, 2003
Reviewer, J. of Scientific Exploration, 2003
Promotion Review, University of Washington Department of Statistics, 2002
Appointment Review, University of Chicago Department of Statistics, 2002
Reviewer, Environmental Science and Technology, 2002
Organizer, Invited Panel, Joint Statistical Meetings, New York, 2002
Organizer, Invited Paper Session, IMS, Los Angeles, 2002
Indoor Air 2002, Paper Review Committee, Berkeley, 2002
Research review, South African National Research Council, 2002
Publication Committee, Bernoulli Society, 2001
International Statistical Institute, Council Member 2001- 2005
Ph.D. Examiner, Danish Technical University, 2001
Institute of Mathematical Statistics, Journal Editor Selection Committee, 2000
National Science Foundation, Reviewer, 1984-2005
Research Council of Norway, Reviewer, 2000
National Science Foundation, Review Panel for University/Industry Research, 2000
Swiss National Science Foundation, Reviewer, 2000
Institute of Mathematical Statistics, Publications Committee, Chair 2000
National Science Foundation, Review Panel for Environmental Statistics, 1999
External Doctoral Thesis Reviewer, Monash University, Australia, 1999
American Statistical Association, S. Calif Chapter, Leader: Workshop on Spatial Statistics, 1999
Extramural Program Review, University of California Riverside, 1998
Promotion Reviews, Yale University and Louisiana State University, 1998
External Doctoral Thesis Reviewer, Bayreuth University, U. New South Wales, 1998
Advisory Panel on Health of Deployed U.S. Forces, National Research Council, 1998-2000

Board of Directors, Societal Institute of the Mathematical Sciences, 1995-
 Reviews of Manuscripts, Research Proposals, and Book Proposals, various including
 Applied Probability, GeoEnv98, NRC Canada, Springer, Atmospheric Environment
 Committee on Global & Environmental Change, American Geophysical Union, 1993-2000
 Research Proposal Reviews: NSF, Netherlands NSF, NSERC Canada, 1997
 Promotion Review, Dept of Statistics, University of Washington, 1997
 Extramural Program Review, Dept of Statistics & Operations Research, Kuwait University, 1996
 Promotion Reviews, Stockholm University, Penn State University, 1996
 National Advisory Council on Environmental Policy and Technology,
 US Environmental Protection Agency, 1995-
 Environmental Statistics Technical Advisory Committee,
 American Statistical Association, 1995-97
 Student Conduct Legislative Council, Stanford University, 1993-95
 Humanities & Sciences Council, Stanford University, 1993-94
 Statistics Steering Committee, National Center for Atmospheric Research, 1993-98
 Promotion Reviews, University of Minnesota, Woods Hole Oceanographic Inst,
 UC Santa Barbara, New York University, 1995
 Promotion Reviews, New York University, Northeastern University, University of Wisconsin, 1994
 Promotion Reviews, University of Chicago, NYU, Washington, Arizona,
 UC Berkeley, Virginia, 1993
 Research Proposal Reviews, National Science Foundation, SERC [UK], IMA, NOAA, others
 Organizer, Climate Patterns and Change, ASA Annual Meeting, 1995
 Organizer, Data Analysis for Physical Sciences, IMS Annual Meeting, 1994
 Organizer, Global Climate Change, Inst.Math.Statistics Annual Meeting, 1992
 Scientific Committee, Fifth World Geostatistics Congress, 1992
 Organizer, Workshop on Monte Carlo Methodologies in Human Exposure Analysis, EPA 1992
 Panel for Earth Sciences & Statistics. National Science Foundation, 1991
 Program Committee, Institute of Mathematical Statistics, 1991-92
 Organizer, 5th Internat. Meteorology & Statistics Congress, 1991-92
 Review Panel, Mathematical Sciences Division Office of Naval Research, 1991
 Climate Science Advisory Committee, EPRI, 1990-
 Committee for Statistics in the Physical Sciences, Bernoulli Society, 1990-94
 Organizer, AAAS Annual Meeting, Earthquake Prediction and Validation, 1990-91
 Board Member, American Statistical Association, 1990
 Organizer, Institute for Mathematics Applications, Summer Program for Environment, 1989-92
 Chair, Review Committee on Undergraduate Mathematical Sciences, Stanford Univ., 1989
 Program Committee, 2nd World Congress Bernoulli Society, Upsalla, 1989-90
 ASA Review Panel EPA Ecological Monitoring and Assessment Program[EMAP] 1989-
 Organizer, AAAS Symposium on Spatial Statistics, Annual Meeting, 1989
 Program Committee, Statistics in the Earth Sciences, International Statistical Institute, 1989
 National Academy of Sciences Panel on Undiscovered Petroleum Resources, 1988-91
 Editorial Search Committee, American Statistical Association, 1988
 American Statistical Association Committee on Publications, 1986-88
 Committee on Energy Statistics, American Statistical Association 1984-88
 Program Reviewer, Norwegian Computation Center, Oslo, 1987
 Vice President, International Association for Mathematical Geology, 1985-89
 Organizer, Pattern Recognition and Remote Sensing, International Statistical Institute, 1985
 Member, Panel on Energy Statistics, Chinese Academy of Sciences, 1984
 Chairman, Institute of Mathematical Statistics Committee on Human Rights, 1980-84
 Chairman, National Academy of Sciences Panel on Statistics, U.S. Bureau of Mines, 1981-82
 Advisory Panel on Mathematical Sciences of the National Science Foundation, 1981-84
 Council (elected), Institute of Mathematical Statistics, 1981-84
 Program Committee, NATO Advanced Study Institute on Geostatistics, 1983
 Organizing Committee, Society of Industrial and Applied Mathematics Annual Meeting, 1982
 Organizer, Program Session on Environmental Statistics, American Statistical Association, 1981

Invited Presentations [selected]

EPA-Stanford Symposium on Climate Change and Air Pollution 2008
Australian National University, Canberra 2008
The International Environmetrics Society, Seattle, 2007
International Statistical Institute, invited discussant, 2007
University of British Columbia, 2007
University of Florida workshop on Environmental Statistics 2007
European Meeting of Statistician, Poland, 2006
University of Zurich, 2006
International Association for Mathematical Geology, 2006
School of Mines, Fontainebleau, 2006
Biometric Society, Anchorage, 2005
Columbia University, 2005
Barcelona University, 2005
Accuracy 2004, Portland [Maine], 2004
University of California, Los Angeles, 2003
Biostatistics Workshop, Stanford University, 2003
American Statistical Association Annual Meeting, San Francisco, 2003
Institute of Mathematical Statistics, Golden, CO, 2003
International Statistical Institute Biennial, Berlin, 2003
Wonderfest, Stanford University, 2003
American Statistical Association Annual Meeting, New York, 2002
Danish Technical University, Lyngby, Denmark, 2001
International Environmetrics Society, Portland, 2001
ESRI Workshop on Geographical Information Systems, Redlands, 2001
Institute of Mathematical Statistics workshop of oceanography, Tallahassee, 2001
International Statistical Institute, Biennial Meeting, Seoul, 2001
International Biometric Society, Charlotte, 2001
Stanford Exploration Series for high schools, Stanford, 2001
University of California, Santa Barbara, 2001
NSF/CBMS Regional Conference on Environmental Statistics, Seattle, 2001
Air & Waste Management Association, Charleston, 2000 and Salt Lake City, 2000
Spatial Statistical Methods in Archaeological Research, Pescara, 2000
Columbia University, New York, 2000
Rice University, Houston, 2000
International Statistical Institute, Biennial Meeting, Helsinki, 1999
American Statistical Association, Annual Meeting, Baltimore, 1999
EPA Particulate Methodology Workshop, Seattle, 1998
American Statistical Association, Annual Meeting, Dallas, 1998
American Statistical Association, Annual Meeting, Anaheim, 1997
National University of Singapore, 1997
University of California, Berkeley, 1996
Canadian Statistical Society, Annual Meeting, Waterloo, 1996
American Statistical Association, Orlando, Annual Meeting, 1995
New York University, New York, 1995
Columbia University, New York, 1995
Southern California Chapter, American Statistical Association, Los Angeles, 1994
American Statistical Association Annual Meeting, Toronto, 1994
American Assn for Advancement of Science Annual Meeting, Topical Lecturer, 1994
Institute for Mathematical Statistics Annual Meeting, San Francisco, 1993
International Association for Mathematical Geology, Prague, 1993
Biostatistics Seminar, Stanford University, 1993
Japan Indoor Air Research Society, Tokyo, 1993
Earth Sciences Undergraduate Seminar, Stanford University, 1993

American Statistical Association Annual Meeting, San Francisco, 1993
 Tobacco Related Disease Scientific Conference, San Francisco, 1993
 Institute for Mathematical Statistics Annual Meeting, Boston, 1992
 Toxicology Forum Annual Meeting, Aspen, 1992
 First Iranian Statistics Congress, Isfahan, 1992
 Summer Workshop on Environmental Mathematics, IMA, Minnesota, 1992
 University of Rome la Sapienza, Rome, 1992
 Laboratorio di Statistica, Venice, 1992
 Fifth International Meeting on Statistical Climatology, Toronto, 1992
 International Society of Exposure Analysis, Atlanta, 1991
 National Institute for Standards & Technology, Washington, 1991
 European Meeting of Statisticians [plenary lecture], Barcelona, 1991
 International Statistical Institute [Neyman lecture], Cairo, 1991
 Institute for Geophysics and Earthquake Prediction, Moscow, 1990
 Moscow University, Statistics and Probability Seminar, Moscow, 1990
 Oslo University Statistics Department, Oslo, 1990
 Conference on Environmetrics, Keynote Lecture, Como, 1990
 NASA Goddard Space Flight Center, Washington, 1990
 Panel on Directions for Statistics and the Environment, ASA Annual Meeting, Anaheim, 1990
 Environmental Protection Agency, Annual Meeting, Special Invited Paper, Williamsburg, 1990
 London Mathematical Society Symposium on Image Analysis, Durham, 1989
 International Statistical Institute, Leuven and Paris, 1989
 Rand Corporation Statistics Seminar, Santa Monica, 1988
 EPA Workshop on Modelling Commuter Exposures, Raleigh, 1988
 AMS Summer Workshop on Image Processing, Bowdoin College, 1988
 Third International Geostatistics Congress, Avignon, 1988
 National Center for Geographic Information Systems, Santa Barbara, 1988
 Workshop Leader, EPA Conference on Statistics, Washington, 1987
 South African Geostatistical Meeting, Johannesburg, 1986
 South African Statistical Association Annual Meeting, 1986
 Environmetrics 1986, Statistical Issues in Acid Rain, Ottawa, Canada
 American Statistical Association, Chicago, 1986
 Environmental Protection Agency Statisticians Conference, Williamsburg, 1986
 NATO Advanced Study Institute on Statistics and Resources, Italy, 1986
 Workshop on Statistics and Pattern Recognition, Edinburgh, 1985
 National Bureau of Standards Chemometrics Conference, 1985
 International Statistical Institute Biennial Meeting, Amsterdam, 1985
 Workshop on Energy Statistics, Beijing, 1984
 Geological Society of America, Reno, 1984
 Environmental Protection Agency Statisticians Conference, Research Triangle 1984
 NSF Workshop on Efficient Data Collection, Berkeley, 1984
 Computer Science and Statistics Symposium on the Interface, Atlanta, 1984
 Technical University of Denmark, Copenhagen, 1984
 Air Pollution Control Association Annual Meeting, San Francisco, 1984
 International Statistical Institute Biennial Meeting, Madrid, 1983
 Institute of Statistical Mathematics, Tokyo, 1983
 Tokyo University, Faculty of Economics, 1983
 CSIRO, Sydney, Australia, lecture series, 1983
 NATO Geostatistics Advanced Study Institute, 1983
 Australian Minerals Foundation, Sydney, lecture series, 1983
 Uncertainty in Air Quality Modeling, American Meteorological Society, Woods Hole, 1982
 Workshop on Solute Migration from Utility Solid Wastes, Nashville, 1982
 University of California at Santa Barbara, Geography and Mathematics, 1982
 Pacific Area Statistical Conference, Tokyo, 1982
 Society for Industrial and Applied Mathematics, Annual Meeting, Stanford, 1982
 (special invited paper)

Ph.D. Student Dissertations

- Frederick Glick, 1969, "Estimating Unconditional Probabilities of Correct Classification"
- Peter Bryant, 1972, "Tests and Estimates for the Number of Components in a Mixture"
- Jay Devore, 1972, "Noisy Markov Chains"
- Larry Muenz, 1974, "A Method for the Selection of Variables for Classification of High-dimensional Data"
- Harry Parker, 1974, "The Geostatistical Evaluation of Ore Reserves Using Conditional Probability Distributions: A Case Study for the Area 5 Prospect"
- David Berengut, 1975, "Confidence Intervals Based on Rank Tests"
- Albert Tubilla, 1975, "Error Convergence Rates for Estimates of Multidimensional Integrals of Random Functions"
- Beth Gladen, 1977, "Inference from Stopped Bernoulli Trials"
- Robert Norland, 1977, "Empty Confidence Sets in Nonparametric Problems"
- Edward Korn, 1978, "Classification Errors in Contingency Tables Analyzed with Hierarchical Log Linear Models"
- Andre Cabannes, 1979, "Estimation of Random Fields from Network Observations"
- Cyril Grivet, 1979, "Modeling and Analysis of Air Quality Data"
- Chen-Hui Foo, 1980, "Probability Modeling and Estimation for Hourly Variation of Air Pollution Concentrations"
- Mahmood Samiei, 1980, "Tests of Symmetry and Confidence Intervals for Treatment Effects in the Paired Comparison Model"
- Michael Crager, 1982, "Exponential Tail Quantile Estimators for Air Quality Data"
- Glenn Galfond, 1982, "Robust Estimation of Extreme Quantiles"
- David Fairley, 1983, "Statistical Analysis of Ambient Oak Pollen Concentrations: San Francisco Bay Area Case Study"
- Khosrow Dehnad, 1984, "Boundary Detection Smoothers for Classification of Spatial Data"
- Michael Stein, 1984, "Estimation of Spatial Variability"
- Mark Knowles, 1987, "Simultaneous Confidence Bands for Random Functions"
- Kevin Coakley, 1988, "Flow Statistics for Fractured Rock"
- Achilles Venetoulis, 1989, "Estimation of Parameters for a Class of Spatial Fields"
- Kirk Cameron, 1989, "Two Stage Sampling for Autocorrelated Fields"
- Hugh Xiao, 1990, "Estimation of Conditional Distributions for Spatial Fields"
- Ken Baron, 1992, "Predicting Changes in Financial Time Series"
- Ilya Gluhovsky, 1999, "Image Restoration through Modifications of Markov Chain Samplers"
- Sandra McBride, 2002, "Indoor Air Pollution Time Series Models"
- Steven Roberts, 2003, "Models for the Study of Air Pollution and Mortality"
- Milena Banjevic, 2004, "Spatial Sampling Design"
- Zepu Zhang, 2005, "Spatial-Temporal Rainfall Models"
- Tuanfang Zhang, 2006, "Filter-based Training Pattern Classification for Spatial Pattern Simulation"
- Jiehua Chen, 2008, "Regression Models with Spatially Correlated Residuals"
- YiFang Chen, 2010, "Statistical Combination of Climate Models"

Technical Reports and Conference Papers [selected]

- "Variance and autocorrelations for time-averaged concentrations," SIMS Working Paper #17, May 1981.
- "Comments on the calculation of the expected number of exceedances of a standard," SIMS Working Paper #18, May 1981.
- "Comments on the use of activity patterns as a basis for calculating pollutant exposure distributions," SIMS Working Paper #19, July 1981.
- "A statistical comparison of two studies on trace element composition of coal ash leachates," with B. Eynon, EPRI Technical Report 1487, 1983.
- "Statistical methods for exploration and mining," notes for a short course, Australian Minerals Foundation, 1983.
- "Medians and percentiles for emission inventory totals," with T.S. Mangat and L.H. Robinson, BAAQMD Technical Report, 1984.
- "Approximate prediction intervals for spatial interpolation" with H. Xiao, SIMS Technical Report 118, 1988.
- "Extracting time trends from multiple monitoring sites" with D. Shapiro, SIMS Technical Report 132, 1989.
- "Semiparametric Estimation of Nonstationary Spatial Covariance Models by Metric Multidimensional Scaling" with P. Monestiez, SIMS Technical Report 165, 1991.
- "An Analysis of Regional Climate Data" with K. Solna, Stanford, 1992.
- "Smoking Activities and Exposure to Environmental Tobacco Smoke" with J. Robinson and W.R. Ott, , 1993, Report #1, Tobacco Related Disease Research Program, Stanford University.
- "Exposure to Environmental Tobacco Smoke Among Smokers and Nonsmokers", with J. Robinson & W. Ott, 1994, Report #2, Tobacco Disease Related Research Program, Stanford University.
- "Microenvironmental Factors Related to Californian's Potential Exposure to Environmental Tobacco Smoke", with J. Robinson & W. Ott, 1994, Report #3, Tobacco Disease Related Research Program, Stanford University.
- "Real-Time Monitoring of Polycyclic Aromatic Hydrocarbons and Respirable Suspended Particulates from Environmental Tobacco Smoke" with Wayne Ott, Nancy Wilson, and Neil Klepheis.
- "Spatial Sampling Designs for Stratified Correlated Units with Unequal Variances" with G. Arbia, 1994.
- "Total Human Exposure Model [THEM] for Respirable Suspended Particulates" with N.E. Klepheis and W.R. Ott, 1994.
- "Exposure of Californians to Environmental Tobacco Smoke by Time of Day", with J. Robinson & W. Ott, 1995, Report #4, Tobacco Disease Related Research Project, Stanford University.
- "Modelng Environmental Tobacco Smoke in the Home Using Mathematical Transfer Functions" with W.R.Ott and N.E. Klepheis, 1995.
- "Modeling the Time Series of Respirable Suspended Particulates and Carbon Monoxide from Multiple Smokers" with W.R. Ott & N.E. Klepheis, 1995.
- "Analysis of U.S. Roadside Vehicle Emissions and Tampering Survey Data" with D.R. Lawson and P.A. Walsh, 1996.

"A Study of a Russian Earthquake Prediction Method" with A.C. Fraser-Smith et al., 1996
U.S.-Russian Joint Commission on Economic and Technological Cooperation.

"Real-Time Monitoring Experiments to Investigate the Differences Between Personal Exposures and Indoor Air Quality" with L. Hildemann, W. Ott, S. McBride, S. Wien, Interim Report 2 CIAR, Stanford University 1996.

"Preliminary Results from an Investigation of the Differences Between Indoor Air Quality and Personal Exposures" with S.J. McBride, W.R. Ott, L. Hildemann, and S. Wien, Proceedings Air & Waste Management Assn 90th Annual Meeting 1997.

"Multiple Site CO Monitoring in a Room with Controlled CO Emissions from a Point Source" with L. Hildemann, W. Ott, S. McBride, S. Wien, Interim Report 3 CIAR, Stanford University 1997.

"Discriminating Shapes of Galaxies" with I. Gluhovsky, Stanford University, 1999.

"Particle and PAH Monitoring: Effects of a Continuously Emitting Point Source and Human Activity" with L.R. Hildemann, W.R. Ott, S.J. McBride, and A.R. Ferro, CIAR Stanford University, 1998.

"Derivation of an Indoor-Outdoor Averaging Time Model from the Mass Balance Equation" with W. Ott., Stanford University Technical Report 2000.

"Estimating Exposure to Environmental Tobacco Smoke Particles Using 24-Hour Time-Activity Recall Diaries," with W. Ott and N. Klepeis. Air and Waste Management Specialty Conference & Exhibition, "PM2000: Particulate Matter and Health-The Scientific Basis for Regulatory Decision-making, Charleston, South Carolina, 2000.

"Predicting Indoor fine Particles Using a Recursive Indoor-Outdoor Model and Real-Time Measurements of Particulate PPAH in 7 California Houses," with W. Ott and N. Klepeis, Air and Waste Management Specialty Conference & Exhibition, PM2000: Particulate Matter and Health-The Scientific Basis for Regulatory Decision-making, Charleston, South Carolina, 2000.

"Measurements of Respirable Particle Concentrations (RSP) in Nonresidential Settings in Northern California," with Ott, W., Hildemann, L., Klepeis, N., Flachsart, P., Hallerbach, D., and Rozenberg, M. Air and Waste Management Specialty Conference & Exhibition, "PM2000: Particulate Matter and Health-The Scientific Basis for Regulatory Decision-making, Charleston, South Carolina, 2000.

"Determining Particle Emission Source Strengths for Common Residential Indoor Sources Using Real-Time Measurements and Piecewise Solutions to the Mass Balance Equation," with W. Ott and N. Klepeis and V. Zatarian. Annual Meeting of the International Society of Exposure Analysis, Monterey, CA, 2000.

"Development of a Continuous Automated Monitoring Package for Monitoring Indoor Air Quality" with W. Ott and N. Klepeis, TRDRP Technical Report, Stanford University 2001.

"Mixing Characteristics of a Continuous Point Source Emitting in a Room" with W. Ott and S. McBride, Indoor Air 2002, Monterey, CA, 2002.

"A Modular Framework for Automated Space-Time Surveillance analysis of Public Health Data", with DL Buckeridge and Mark Musen, Stanford, 2003.

"Long-Term Trends in Exposure to Carbon Monoxide on a California Arterial Highway", with P Flachsart and WL Ott, Stanford, 2003.

"Time Trend Estimation from Spatial Monitoring Data using Maximum Autocorrelation Factors, Proc. Int. Assn Math Geology, Liege, 2006.

Publications [excluding abstracts]

- "Vector images in document retrieval," *Statistical Association Methods for Mechanized Documentation*, 1964. (Reviewed in *J. Amer. Statist. Assn.* 62, p. 1083.)
- "Significance bounds for rank orderings," *Ann. Math. Statist.*, 36, 1965.
- "A random set process with a Markovian property," *Ann. Math. Statist.*, 37, 1966.
- "Reconstructing patterns from sample data," *Ann. Math. Statist.*, 38, 1967.
- "Methods of clustering and pattern recognition," *Proc. Soc. Statist. Section 1968, Am. Statist. Assn.*
- "Mapping a geographically correlated environment," *Proc. Internat. Symp. on Statist. Ecology*, 1969.
- "Numerical classification," *Geostatistics*, 1979, Plenum.
- "Efficiency robustness," *Proc. Sixth Berkeley Symp. on Prob. And Statist.*, 1970.
- "Possible high-frequency modulation of light from the Crab pulsar,"
with P.A. Sturrock and R.N. Bracewell, *Nature* 229, 186, 1971.
- "Numerical classification of eocene nummulitids," with R. Wright, *Mathematical Geology*, Vol. 3, No. 3, 1971.
- "Periodicity in the radiofrequency spectrum of the Pulsar CP0238," with P.A. Sturrock, S. Antiochus, and G. Vallie, *The Astrophysical Journal*, Vol. 172, 1972.
- "Effect of laboratory sampling error in geochemistry and geochronology," with C.O. Ingamells and J.C. Engels, *Proc. of the 24th Internat. Geo. Cong.*, 1972.
- "Longitude distribution of solar flares," with P.C.W. Fung, P.A. Sturrock, and G. Van Hoven, *Solar Physics*, 1973.
- "A proposed sampling constant for use in geochemical analysis," with C.O. Ingamells, *Talanta*, 20, 1973.
- "Remote geologic mapping," *Statistics by Example*, ed. Mosteller et al., Addison, 1973.
- "A morphometric study of pulmonary cancer," *Cancer Research* 34, 1974, pp. 248-254.
- "Karyometry in the estimation of nuclear population in pulmonary carcinomas,"
with B. Gerstl and J. Greenspoon, *J. Nat. Cancer Inst.* 52, 1974, pp. 1699-1704.
- "Estimation of the accuracy of qualitative maps," *Display & Analysis of Spatial Data*, Wiley, 1975, pp 1-13.
- "A model for undetected geomagnetic polarity changes; its consequences for the observed rate of reversals,"
with A. Cox and J.D. Tacier, *J. of Geoph. Res.* 80, 1975, pp. 4446-4448.
- "Confidence procedures for two-sample problems", *Biometrika*, 1976, pp. 13-25.

- "Geometrical measures of smoothness of random functions," *Appl.Prob.*, 1976, pp. 86-95.
- "Applications of random process models to the description of spatial distribution of qualitative geologic variables," *Random Processes in Geology*, Springer, 1976, pp. 124-134.
- "The problem of ore versus waste discrimination for individual blocks," with H.M. Parker, *Advanced Geostatistics in the Mining Industry*, Reidel, 1976, pp. 203-220.
- "The distribution of redshifts of quasars and related objects," with J.W. Knight and P.A. Sturrock, *Astrophysical Journal*, 1976, pp. 286-290.
- "Estimation of spatial distributions from point sources with application to air pollution measurement," *Bull. International Statist. Inst.*, 1977, pp. 123-137.
- "Some problems of validation and testing of air pollution models," with P. Zannetti, *Proc. Fourth Symp. on Turbulence, Diffusion, and Air Pollution*, 1979, pp. 405-410.
- "Statistical considerations in network design," *Water Res. Research*, 1979, pp.1712-1716.
- "The Kalman filtering method and its application to air pollution episode forecasting" with P. Zannetti, *Proc. Conf. on Quality Assurance in Air Pollution Measurement*, 1979.
- "Some challenging applications of statistics in the earth sciences," *Mathematical Geology*, 1980, pp. 417-423.
- "Extensions of linear discriminant analysis for statistical classification of remotely sensed satellite imagery," *Mathematical Geology*, 1980, pp. 367-376.
- "Resolving the percentage of component terrains within single resolution elements," with S. Marsh, W. Kowalik, R. Lyon, *Photogrammetric Engineering and Remote Sensing*, 1980, pp. 1079- 1086.
- "Estimation of atmospheric path radiance by a covariance matrix method," with W. Kowalik and R. Lyon, *Photogrammetric Engineering and Remote Sensing*, 1981, pp. 1469-1476.
- "Stochastic processes in the analysis of environmental data," *Environmetrics*, 1981, pp. 63-75.
- "Statistics in geography," *Encyclopedia of Statistical Sciences*, Wiley, 1983, pp. 387-392.
- "A prior probability method for smoothing discriminant analysis classification maps," with W. Kowalik and R. Lyon, *Mathematical Geology*, 1982, pp. 433-444.
- "Policy issues in environmental statistics," (in Japanese), *Environmental Studies Quarterly*, 46, 1983, pp. 123-130.
- "Methods and applications of spatial discriminant analysis," *Recent Developments in Statistical Theory and Data Analysis*, PASC, 1982, pp. 162-166.
- "A review of the statistical program of the Bureau of Mines," *National Academy of Sciences*, 1982, 210 pp. (Prepared by NAS Panel, P. Switzer, Chair).
- "The variability of rainfall acidity," with B. Eynon, *Canadian Journal of Statistics*, 11, 1983, pp. 11-25.

"The effects of additive radiance terms on ratios of LANDSAT data," with W.S. Kowalik and R.J.P. Lyon, *Photogrammetric Engineering and Remote Sensing*, 49, 1983, pp. 659-669.

"A two-sample sequential test for shift with one sample size fixed in advance," *Recent Advances in Statistics* (M.H. Rizvi, J. Rustagi, and D. Siegmund, eds.), Academic Press, 1983, pp. 95-116.

"Some spatial statistics for the interpretation of satellite data" (with discussion), *Bull. Int. Statist. Inst.*, 50, 1983, pp. 962-972.

"Inference for spatial autocorrelation functions," *Geostatistics for Natural Resources Characterization*, edited by M. David et al., pp. 127-140, Reidel, 1984.

"Chi-plots for independence," with N.I. Fisher, *Biometrika*, 72, 1985, pp. 253-265.

"Projection pursuit," (discussion of paper by P.J. Huber) *Ann. Statist.*, 13, 1985, pp. 515-517.

"Variability of elemental concentrations in power plant ash," with L.J. Holcombe and B.P. Eynon, *Environmental Science and Technology*, 1985, pp. 615-620.

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