

Appendix D: Listing of References for Uncertainty and Sensitivity Analysis¹

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References

1. NCRP (National Council on Radiation Protection and Measurements). 1996. *A Guide for Uncertainty Analysis in Dose and Risk Assessments Related to Environmental Contamination*, NCRP Commentary No. 14. Bethesda, MD: National Council on Radiation Protection and Measurements.
2. Aceil, S., M. and D.R. Edwards. 1991. "Sensitivity Analysis of Thermal-Hydraulic Parameters and Probability Estimation of Boiling Transition in a Standard BWR/6," *Nuclear Technology*. Vol. 93, no. 2, pp. 123-129.
3. Archer, G.E.B., A. Saltelli, and I.M. Sobol'. 1997. "Sensitivity Measures, ANOVA-like Techniques and the Use of Bootstrap," *Journal of Statistical Computation and Simulation*. Vol. 58, no. 2, pp. 99-120.
4. Beck, M.B. 1987. "Water-Quality Modeling: A Review of the Analysis of Uncertainty," *Water Resources Research*. Vol. 23, no. 8, pp. 1393-1442.
5. Blower, S.M. and H. Dowlatabadi. 1994. "Sensitivity and Uncertainty Analysis of Complex Models of Disease Transmission: an HIV Model, as an Example," *International Statistical Review*. Vol. 62, no. 2, pp. 229-243.
6. Bonano, E.J. and G.E. Apostolakis. 1991. "Theoretical Foundations and Practical Issues for Using Expert Judgments in Uncertainty Analysis of High-Level Radioactive Waste Disposal," *Radioactive Waste Management and the Nuclear Fuel Cycle*. Vol. 16, no. 2, pp. 137-159.
7. Cacuci, D.G. and M.E. Schlesinger. 1994. "On the Application of the Adjoint Method of Sensitivity Analysis to Problems in the Atmospheric Sciences," *Atmósfera*. Vol. 7, no. 1, pp. 47-59.
8. Castillo, E., C. Solares, and P. Gómez. 1997. "Tail Uncertainty Analysis in Complex Systems," *Artificial Intelligence*. Vol. 96, no. 2, pp. 395-419.
9. Castillo, E., J.M. Sarabia, C. Solares, and P. Gómez. 1999. "Uncertainty Analyses in Fault Trees and Bayesian Networks Using FORM/SORM Methods," *Reliability Engineering and System Safety*. Vol. 65, no. 1, pp. 29-40.
10. Caswell, H., S. Brault, A.J. Read, and T.D. Smith. 1998. "Harbor Propose and Fisheries: An Uncertainty Analysis of Incidental Mortality," *Ecological Applications*. Vol. 8, no. 4, pp. 1226-1238.
11. Chan, K., A. Saltelli, and S. Tarantola. 2000. "Winding Stairs: A Sampling Tool to Compute Sensitivity Indices," *Statistics and Computing*. Vol. 10, no. 3, pp. 187-196.
12. Chan, M.S. 1996. "The Consequences of Uncertainty for the Prediction of the Effects of Schistosomiasis Control Programmes," *Epidemiology and Infection*. Vol. 117, no. 3, pp. 537-550.
13. Considine, D.B., R.S. Stolarski, S.M. Hollandsworth, C.H. Jackman, and E.L. Fleming. 1999. "A Monte Carlo Uncertainty Analysis of Ozone Trend Predictions in a Two-Dimensional Model," *Journal of Geophysical Research*. Vol. 104, no. D1, pp. 1749-1765.
14. Cox, D.C. 1982. "An Analytic Method for Uncertainty Analysis of Nonlinear Output Functions, with Applications to Fault-Tree Analysis," *IEEE Transactions on Reliability*. Vol. 3, no. 5, pp. 465-468.
15. Cryer, S.A. and P.L. Havens. 1999. "Regional Sensitivity Analysis Using a Fractional Factorial Method for the USDA Model GLEAMS," *Environmental Modelling & Software*. Vol. 14, no. 6, pp. 613-624.
16. Cukier, R.I., C.M. Fortuin, K.E. Shuler, A.G. Petschek, and J.H. Schiably. 1973. "Study of the Sensitivity of Coupled Reaction Systems to Uncertainties in Rate Coefficients, I. Theory," *Journal of Chemical Physics*. Vol. 59, no. 8, pp. 3873-3878.

17. Cukier, R.I., H.B. Levine, and K.E. Shuler. 1978. "Nonlinear Sensitivity Analysis of Multiparameter Model Systems," *Journal of Computational Physics*. Vol. 26, no. 1, pp. 1-42.
18. Dougherty, E.P. and H. Rabitz. 1979. "A Computational Algorithm for the Green's Function Method of Sensitivity Analysis in Chemical Kinetics," *International Journal of Chemical Kinetics*. Vol. 11, no. 12, pp. 1237-1248.
19. Dougherty, E.P., J.T. Hwang, and H. Rabitz. 1979. "Further Developments and Applications of the Green's Function Method of Sensitivity Analysis in Chemical Kinetics," *Journal of Chemical Physics*. Vol. 71, no. 4, pp. 1794-1808.
20. Fischer, F., I. Hasemann, and J.A. Jones. 2000. "Techniques Applied in the COSYMA Accident Consequence Uncertainty Analysis," *Radiation Protection Dosimetry*. Vol. 90, no. 3, pp. 317-323.
21. Fish, D.J. and M.R. Burton. 1997. "The Effect of Uncertainties in Kinetic and Photochemical Data on Model Predictions of Stratosphere Ozone Depletion," *Journal of Geophysical Research*. Vol. 102, no. D21, pp. 25,537-25,542.
22. Gilbert, R.O., E.A. Bittner, and E.H. Essington. 1995. "On the Use of Uncertainty Analyses to Test Hypotheses Regarding Deterministic Model Predictions of Environmental Processes," *Journal of Environmental Radioactivity*. Vol. 27, no. 3, pp. 231-260.
23. Goossens, L.H.J. and F.T. Harper. 1998. "Joint EC/USNRC Expert Judgement Driven Radiological Protection Uncertainty Analysis," *Journal of Radiological Protection*. Vol. 18, no. 4, pp. 249-264.
24. Goossens, L.H.J., F.T. Harper, B.C.P. Kraan, and H. Metivier. 2000. "Expert Judgement for a Probabilistic Accident Consequence Uncertainty Analysis," *Radiation Protection Dosimetry*. Vol. 90, no. 3, pp. 295-301.
25. Gwo, J.P., L.E. Toran, M.D. Morris, and G.V. Wilson. 1996. "Subsurface Stormflow Modeling with Sensitivity Analysis Using a Latin-Hypercube Sampling Technique," *Ground Water*. Vol. 34, no. 5, pp. 811-818.
26. Hamby, D.M. 1994. "A Review of Techniques for Parameter Sensitivity Analysis of Environmental Models," *Environmental Monitoring and Assessment*. Vol. 32, no. 2, pp. 135-154.
27. Hamby, D.M. 1995. "A Comparison of Sensitivity Analysis Techniques," *Health Physics*. Vol. 68, no. 2, pp. 195-204.
28. Harris, C.M., K.L. Hoffman, and L.-A. Yarrow. 1995. "Obtaining Minimum-Correlation Latin Hypercube Sampling Plans Using an IP-Based Heuristic," *OR Spektrum*. Vol. 17, no. 2-3, pp. 139-148.
29. Haskin, F.E., B.D. Staple, and C. Ding. 1996. "Efficient Uncertainty Analyses Using Fast Probability Integration," *Nuclear Engineering and Design*. Vol. 166, no. 2, pp. 225-248.
30. Helton, J.C. 1993. "Uncertainty and Sensitivity Analysis Techniques for Use in Performance Assessment for Radioactive Waste Disposal," *Reliability Engineering & System Safety*. Vol. 42, no. 2-3, pp. 327-367.
31. Helton, J.C. 1997. "Uncertainty and Sensitivity Analysis in the Presence of Stochastic and Subjective Uncertainty," *Journal of Statistical Computation and Simulation*. Vol. 57, no. 1-4, pp. 3-76.
32. Helton, J.C. 1999. "Uncertainty and Sensitivity Analysis in Performance Assessment for the Waste Isolation Pilot Plant," *Computer Physics Communications*. Vol. 117, no. 1-2, pp. 156-180.
33. Helton, J.C. and D.E. Burmaster. 1996. "Guest Editorial: Treatment of Aleatory and Epistemic Uncertainty in Performance Assessments for Complex Systems," *Reliability Engineering and System Safety*. Vol. 54, no. 2-3, pp. 91-94.

34. Helton, J.C. and F.J. Davis. 2000. *Sampling-Based Methods for Uncertainty and Sensitivity Analysis*, SAND99-2240. Albuquerque, NM: Sandia National Laboratories.
35. Helton, J.C. and M.G. Marietta, eds. 2000. "Special Issue: The 1996 Performance Assessment for the Waste Isolation Pilot Plant.," *Reliability Engineering and System Safety*. Vol. 69, no. 1-3, pp. 1-451.
36. Helton, J.C., D.R. Anderson, B.L. Baker, J.E. Bean, J.W. Berglund, W. Beyeler, K. Economy, J.W. Garner, S.C. Hora, H.J. Iuzzolino, P. Knupp, M.G. Marietta, J. Rath, R.P. Rechar, P.J. Roache, D.K. Rudeen, K. Salari, J.D. Schreiber, P.N. Swift, M.S. Tierney, and P. Vaughn. 1996. "Uncertainty and Sensitivity Analysis Results Obtained in the 1992 Performance Assessment for the Waste Isolation Pilot Plant," *Reliability Engineering and System Safety*. Vol. 51, no. 1, pp. 53-100.
37. Helton, J.C., J.D. Johnson, M.D. McKay, A.W. Shiver, and J.L. Sprung. 1995. "Robustness of an Uncertainty and Sensitivity Analysis of Early Exposure Results with the MACCS Reactor Accident Consequence Model," *Reliability Engineering and System Safety*. Vol. 48, no. 2, pp. 129-148.
38. Helton, J.C., J.E. Bean, J.W. Berglund, F.J. Davis, K. Economy, J.W. Garner, J.D. Johnson, R.J. MacKinnon, J. Miller, D.G. O'Brien, J.L. Ramsey, J.D. Schreiber, A. Shinta, L.N. Smith, D.M. Stoelzel, C. Stockman, and P. Vaughn. 1998. *Uncertainty and Sensitivity Analysis Results Obtained in the 1996 Performance Assessment for the Waste Isolation Pilot Plant*, SAND98-0365. Albuquerque, NM: Sandia National Laboratories.
39. Helton, J.C., J.E. Bean, K. Economy, J.W. Garner, R.J. MacKinnon, J. Miller, J.D. Schreiber, and P. Vaughn. 2000. "Uncertainty and Sensitivity Analysis for Two-Phase Flow in the Vicinity of the Repository in the 1996 Performance Assessment for the Waste Isolation Pilot Plant: Undisturbed Conditions," *Reliability Engineering and System Safety*. Vol. 69, no. 1-3, pp. 227-261.
40. Helton, J.C., J.E. Bean, K. Economy, J.W. Garner, R.J. MacKinnon, J. Miller, J.D. Schreiber, and P. Vaughn. 2000. "Uncertainty and Sensitivity Analysis for Two-Phase Flow in the Vicinity of the Repository in the 1996 Performance Assessment for the Waste Isolation Pilot Plant: Disturbed Conditions," *Reliability Engineering and System Safety*. Vol. 69, no. 1-3, pp. 263-304.
41. Hofer, E. 1999. "Sensitivity Analysis in the Context of Uncertainty Analysis for Computationally Intensive Models," *Computer Physics Communications*. Vol. 117, no. 1-2, pp. 21-34.
42. Homma, T. and A. Saltelli. 1996. "Importance Measures in Global Sensitivity Analysis of Nonlinear Models," *Reliability Engineering and System Safety*. Vol. 52, no. 1, pp. 1-17.
43. Hora, S.C. and R.L. Iman. 1989. "Expert Opinion in Risk Analysis: The NUREG-1150 Methodology," *Nuclear Science and Engineering*. Vol. 102, no. 4, pp. 323-331.
44. Hoshino, N. and A. Takemura. 2000. "On Reduction of Finite-sample Variance by Extended Latin Hypercube Sampling," *Bernoulli*. Vol. 6, no. 6, pp. 1035-1050.
45. Hwang, J.-T., E.P. Dougherty, S. Rabitz, and H. Rabitz. 1978. "The Green's Function Method of Sensitivity Analysis in Chemical Kinetics," *Journal of Chemical Physics*. Vol. 69, no. 11, pp. 5180-5191.
46. Hyman, T.C. and D.M. Hamby. 1995. "Parameter Uncertainty and Sensitivity in a Liquid-Effluent Dose Model," *Environmental Monitoring and Assessment*. Vol. 38, no. 1, pp. 51-65.
47. IAEA (International Atomic Energy Agency). 1989. *Evaluating the Reliability of Predictions Made Using Environmental Transfer Models*, Safety Series No. 100. Vienna: International Atomic Energy Agency.
48. Iman, R.L. 1992. "Uncertainty and Sensitivity Analysis for Computer Modeling Applications," *Reliability Technology - 1992, The Winter Annual Meeting of the American Society of Mechanical Engineers, Anaheim, California, November 8-13, 1992*. Ed. T.A. Cruse. AD-Vol. 28, pp. 153-168. New York: American Society of Mechanical Engineers.

49. Iman, R.L. 1982. "Statistical Methods for Including Uncertainties Associated with the Geologic Isolation of Radioactive Waste Which Allow for a Comparison with Licensing Criteria," *Proceedings of the Symposium on Uncertainties Associated with the Regulation of the Geologic Disposal of High-Level Radioactive Waste, Gatlinburg, TN, March 9-13, 1981*. NUREG/CP-0022; CONF-810372. Ed. D.C. Kocher. Washington, DC: U.S. Nuclear Regulatory Commission, Directorate of Technical Information and Document Control. pp. 145-157.
50. Iman, R.L. and J.C. Helton. 1988. "An Investigation of Uncertainty and Sensitivity Analysis Techniques for Computer Models," *Risk Analysis*. Vol. 8, no. 1, pp. 71-90.
51. Iman, R.L. and J.C. Helton. 1991. "The Repeatability of Uncertainty and Sensitivity Analyses for Complex Probabilistic Risk Assessments," *Risk Analysis*. Vol. 11, no. 4, pp. 591-606.
52. Iman, R.L. and J.M. Davenport. 1980. *Rank Correlation Plots for Use with Correlated Input Variables in Simulation Studies*, SAND80-1903. Albuquerque: Sandia National Laboratories.
53. Iman, R.L. and J.M. Davenport. 1982. "Rank Correlation Plots for Use with Correlated Input Variables," *Communications in Statistics: Simulation and Computation*. Vol. B11, no. 3, pp. 335-360.
54. Iman, R.L. and M.J. Shortencarier. 1984. *A FORTRAN 77 Program and User's Guide for the Generation of Latin Hypercube and Random Samples for Use with Computer Models*, NUREG/CR-3624; SAND83-2365. Albuquerque: Sandia National Laboratories.
55. Iman, R.L. and W.J. Conover. 1980. "Small Sample Sensitivity Analysis Techniques for Computer Models, with an Application to Risk Assessment," *Communications in Statistics: Theory and Methods*. Vol. A9, no. 17, pp. 1749-1842.
56. Iman, R.L. and W.J. Conover. 1982. "A Distribution-Free Approach to Inducing Rank Correlation Among Input Variables," *Communications in Statistics: Simulation and Computation*. Vol. B11, no. 3, pp. 311-334.
57. Iman, R.L., J.C. Helton, and J.E. Campbell. 1981. "An Approach to Sensitivity Analysis of Computer Models, Part 1. Introduction, Input Variable Selection and Preliminary Variable Assessment," *Journal of Quality Technology*. Vol. 13, no. 3, pp. 174-183.
58. Iman, R.L., J.C. Helton, and J.E. Campbell. 1981. "An Approach to Sensitivity Analysis of Computer Models, Part 2. Ranking of Input Variables, Response Surface Validation, Distribution Effect and Technique Synopsis," *Journal of Quality Technology*. Vol. 13, no. 4, pp. 232-240.
59. Keramat, M. and R. Kielbasa. 1997. "Latin Hypercube Sampling Monte Carlo Estimation of Average Quality Index for Integrated Circuits," *Analog Integrated Circuits and Signal Processing*. Vol. 14, no. 1-2, pp. 131-142.
60. Kleijnen, J.P.C. 1992. "Sensitivity Analysis of Simulation Experiments: Regression-Analysis and Statistical Design," *Mathematics and Computers in Simulation*. Vol. 34, no. 3-4, pp. 297-315.
61. Kleijnen, J.P.C. 1997. "Sensitivity Analysis and Related Analyses: A Review of Some Statistical Techniques," *Journal of Statistical Computation and Simulation*. Vol. 57, no. 1-4, pp. 111-142.
62. Kleijnen, J.P.C., G. van Ham, and J. Rotmans. 1992. "Techniques for Sensitivity Analysis of Simulation Models: A Case Study of the CO₂ Greenhouse Effect," *Simulation*. Vol. 58, no. 6, pp. 410-417.
63. Koehler, J.R. and A.B. Owen. 1996. "Computer Experiments," *Handbook of Statistics*. Vol. 13, pp. 261-308. New York: Elsevier.
64. Kros, J., E.J. Pebsema, G.J. Reinds, and P.A. Finke. 1999. "Uncertainty Assessment in Modeling Soil Acidification at the European Scale: A Case Study," *Journal of Environmental Quality*. Vol. 28, no. 2, pp. 366-377.

65. Lee, S.H., J.S. Kim, and S.H. Chang. 1987. "A Study on Uncertainty and Sensitivity of Operational and Modelling Parameters for Feedwater Line Break Analysis," *Journal of the Korea Nuclear Society*. Vol. 19, no. 1, pp. 10-21.
66. Lewins, J. and M. Becker, eds. 1982. *Sensitivity and Uncertainty Analysis of Reactor Performance Parameters*. Advances in Nuclear Science and Technology. Vol. 14. New York: Plenum Press.
67. Loh, W.-L. 1996. "On Latin Hypercube Sampling," *Annals of Statistics*. Vol. 24, no. 5, pp. 2058-2080.
68. Loh, W.-L. 1997. "Estimating the Integral of a Squared Regression Function with Latin Hypercube," *Statistics & Probability Letters*. Vol. 31, no. 4, pp. 339-349.
69. Ma, J.Z. and E. Ackerman. 1993. "Parameter Sensitivity of a Model of Viral Epidemics Simulated with Monte Carlo Techniques. II. Durations and Peaks," *International Journal of Biomedical Computing*. Vol. 32, no. 3-4, pp. 255-268.
70. Ma, J.Z., E. Ackerman, and J.-J. Yang. 1993. "Parameter Sensitivity of a Model of Viral Epidemics Simulated with Monte Carlo Techniques. I. Illness Attack Rates," *International Journal of Biomedical Computing*. Vol. 32, no. 3-4, pp. 237-253.
71. Mathé, P. 2001. "Hilbert Space Analysis of Latin Hypercube Sampling," *Proceedings of the American Mathematical Society*. Vol. 129, no. 5, pp. 1477-1492.
72. McKay, M. and M. Meyer. 2000. "Critique of and Limitations on the use of Expert Judgements in Accident Consequence Uncertainty Analysis," *Radiation Protection Dosimetry*. Vol. 90, no. 3, pp. 325-330.
73. McKay, M.D. 1995. "Evaluating Prediction Uncertainty," LA-12915-MS; NUREG/CR-6311. Los Alamos, NM.
74. McKay, M.D. 1997. "Nonparametric Variance-Based Methods of Assessing Uncertainty Importance," *Reliability Engineering and System Safety*. Vol. 57, no. 3, pp. 267-279.
75. McKay, M.D., R.J. Beckman, and W.J. Conover. 1979. "A Comparison of Three Methods for Selecting Values of Input Variables in the Analysis of Output from a Computer Code," *Technometrics*. Vol. 21, no. 2, pp. 239-245.
76. McRae, G.J., Tilden, J.W. & Seinfeld, J.H. 1981. "Global Sensitivity Analysis - A Computational Implementation of the Fourier Amplitude Sensitivity Test (FAST)," *Computers & Chemical Engineering*. Vol. 6, no. 1, pp. 15-25.
77. Mrawira, D., W.J. Welch, M. Schonlau, and R. Haas. 1999. "Sensitivity Analysis of Computer Models: World Bank HDM-III Model," *Journal of Transportation Engineering*. Vol. 125, no. 5, pp. 421-428.
78. NRC (National Research Council). 1993. *Issues in Risk Assessment*. Washington, DC: National Academy Press.
79. Oh, B.H. and I.H. Yang. 2000. "Sensitivity Analysis of Time-Dependent Behavior in PSC Box Girder Bridges," *Journal of Structural Engineering*. Vol. 126, no. 2, pp. 171-179.
80. Owen, A.B. 1992. "A Central Limit Theorem for Latin Hypercube Sampling," *Journal of the Royal Statistical Society. Series B. Methodological*. Vol. 54, no. 2, pp. 541-551.
81. Owen, A.B. 1992. "Orthogonal Arrays for Computer Experiments, Integration and Visualization," *Statistica Sinica*. Vol. 2, no. 2, pp. 439-452.
82. Owen, A.B. 1994. "Controlling Correlations in Latin Hypercube Samples," *Journal of the American Statistical Association*. Vol. 89, no. 428, pp. 1517-1522.

83. Park, J.-S. 1994. "Optimal Latin-Hypercube Designs for Computer Experiments," *Journal of Statistical Planning and Inference*. Vol. 39, no. 1, pp. 95-111.
84. Parry, G.W. and P.W. Winter. 1981. "Characterization and Evaluation of Uncertainty in Probabilistic Risk Analysis," *Nuclear Safety*. Vol. 22, no. 1, pp. 28-42.
85. Pebesma, E.J. and G.B.M. Heuvelink. 1999. "Latin Hypercube Sampling of Gaussian Random Fields," *Technometrics*. Vol. 41, no. 4, pp. 303-312.
86. Rabitz, H., M. Kramer, and D. Dacol. 1983. "Sensitivity Analysis in Chemical Kinetics," *Annual Review of Physical Chemistry*. Vol. 34. Eds. B.S. Rabinovitch, J.M. Schurr, and H.L. Strauss. Palo Alto, CA: Annual Reviews Inc. pp. 419-461.
87. Rao, G.P. and P.K. Sarkar. 1997. "Sensitivity Studies of Air Scattered Neutron Dose From Particle Accelerators," *Journal of Statistical Computation and Simulation*. Vol. 57, no. 1-4, pp. 261-270.
88. Ronen, Y., ed. 1988. *Uncertainty Analysis*. Boca Raton, FL: CRC Press, Inc.
89. Sacks, J., S.B. Schiller, and W.J. Welch. 1989. "Designs for Computer Experiments," *Technometrics*. Vol. 31, no. 1, pp. 41-47.
90. Sacks, J., W.J. Welch, T.J. Mitchel, and H.P. Wynn. 1989. "Design and Analysis of Computer Experiments," *Statistical Science*. Vol. 4, no. 4, pp. 409-435.
91. Saltelli, A. and I.M. Sobol'. 1995. "About the Use of Rank Transformation in Sensitivity Analysis of Model Output," *Reliability Engineering and System Safety*. Vol. 50, no. 3, pp. 225-239.
92. Saltelli, A. and J. Marivoet. 1990. "Non-Parametric Statistics in Sensitivity Analysis for Model Output. A Comparison of Selected Techniques," *Reliability Engineering and System Safety*. Vol. 28, no. 2, pp. 229-253.
93. Saltelli, A. and R. Bolado. 1998. "An Alternative Way to Compute Fourier Amplitude Sensitivity Test (FAST)," *Computational Statistics & Data Analysis*. Vol. 26, no. 4, pp. 267-279.
94. Saltelli, A., S. Tarantola, and F. Campolongo. 2000. "Sensitivity Analysis as an Ingredient of Modeling," *Statistical Science*. Vol. 15, no. 4, pp. 377-395.
95. Saltelli, A., S. Tarantola, and K.P.-S. Chan. 1999. "A Quantitative Model-Independent Method for Global Sensitivity Analysis of Model Output," *Technometrics*. Vol. 41, no. 1, pp. 39-56.
96. Saltelli, A., T.H. Andres, and T. Homma. 1993. "Sensitivity Analysis of Model Output. An Investigation of New Techniques," *Computational Statistics and Data Analysis*. Vol. 15, no. 2, pp. 211-238.
97. Sanchez, M.A. and S.M. Blower. 1997. "Uncertainty and Sensitivity Analysis of the Basic Reproductive Rate: Tuberculosis as an Example," *American Journal of Epidemiology*. Vol. 145, no. 12, pp. 1127-1137.
98. Schaibly, J.H. and K.E. Shuler. 1973. "Study of the Sensitivity of Coupled Reaction Systems to Uncertainties in Rate Coefficients, II. Applications," *Journal of Chemical Physics*. Vol. 59, no. 8, pp. 3879-88.
99. Sobol', I.M. 1993. "Sensitivity Estimates for Nonlinear Mathematical Models," *Math. Modeling & Computational Experiment*. Vol. 1, no. 4, pp. 407-414.
100. Soutter, M. and A. Musy. 1999. "Global Sensitivity Analyses of Three Pesticide Leaching Models Using a Monte Carlo Approach," *Journal of Environmental Quality*. Vol. 28, no. 4, pp. 1290-1297.

101. Stein, M. 1987. "Large Sample Properties of Simulations Using Latin Hypercube Sampling," *Technometrics*. Vol. 29, no. 2, pp. 143-151.
102. Tang, B.X. 1993. "Orthogonal Array-Based Latin Hypercubes," *Journal of American Statistical Association*. Vol. 88, no. 424, pp. 1392-1397.
103. Tang, B.X. 1994. "A Theorem for Selecting OA-Based Latin Hypercubes Using a Distance Criterion," *Communications in Statistics-Theory and Methods*. Vol. 23, no. 7, pp. 2047-2058.
104. Tang, B.X. 1998. "Selecting Latin Hypercubes Using Correlation Criteria," *Statistica Sinica*. Vol. 8, no. 3, pp. 965-977.
105. Toran, L., A. Sjoreen, and M. Morris. 1995. "Sensitivity Analysis of Solute Transport in Fractured Porous Media," *Geophysical Research Letters*. Vol. 22, no. 11, pp. 1433-1436.
106. U.S. EPA (U.S. Environmental Protection Agency). 1993. *An SAB Report: Multi-Media Risk Assessment for Radon, Review of Uncertainty Analysis of Risks Associated with Exposure to Radon*, EPA-SAB-RAC-93-014. Washington, DC: U.S. Environmental Protection Agency.
107. Vuilleumier, L., R.A. Harley, and N.J. Brown. 1997. "First- and Second-Order Sensitivity Analysis of a Photochemically Reactive System (a Green's Function Approach)," *Environmental Science & Technology*. Vol. 31, no. 4, pp. 1206-1217.
108. Whiting, W.B., T.-M. Tong, and M.E. Reed. 1993. "Effect of Uncertainties in Thermodynamic Data and Model Parameters on Calculated Process Performance," *Industrial and Engineering Chemistry Research*. Vol. 32, no. 7, pp. 1367-1371.
109. Ye, K.Q. 1998. "Orthogonal Column Latin Hypercubes and Their Application in Computer Experiments," *Journal of American Statistical Association*. Vol. 93, no. 444, pp. 1430-1439.
110. Ye, K.Q., W. Li, and A. Sudjianto. 2000. "Algorithmic Construction of Optimal Symmetric Latin Hypercube Designs," *Journal of Statistical Planning and Inference*. Vol. 90, no. 1, pp. 145-159.