

JHIH-SHYANG SHIH

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EDUCATION	Post-Doc., Engineering and Public Policy, Carnegie Mellon University Ph.D., System Analysis and Economics for Public Decision Making, Johns Hopkins University M.S., Environmental Systems, National Cheng-Kung University B.S., Environmental Engineering, National Cheng-Kung University	1991-1995 1985-1990 1981-1983 1977-1981
RESEARCH EXPERIENCE	Fellow, Resources for the Future Consultant, Resources for the Future AAAS-EPA Fellow, US EPA Research Associate, Department of Engineering and Public Policy, Carnegie Mellon University Consultant, Argonne National Laboratory	1998-present 1995-1997 1995 1991-1995 1995
TEACHING EXPERIENCE	Instructor, Mathematical Foundation for Public Decision Making, Part-Time Programs in Engineering and Applied Science, Whiting School of Engineering, The Johns Hopkins University	1997
HONORS AND AWARDS	Assistant Editor, International Journal of Society Systems Science RFF New Frontiers Fund Award AWWA Small Systems Division Best Paper Award Who's Who in Science and Engineering, 4th-Ed Director, Oversea Chinese Environmental Engineering and Scientist Association American Association for the Advancement of Science (AAAS)/EPA Fellow Ji-Dian Liang Fellowship Junior Scientist Traveling Award, NATO Advanced Study Institute Research Assistant Fellowship, The Johns Hopkins University Tuition Fellowship, The Johns Hopkins University Chairman of Chinese Graduate Student Association, The Johns Hopkins University Graduate Scholarship, National Cheng-Kung University	2007-present 2012 2007 1998 1997-1998 1995 1994 1993 1987-1990 1985-1990 1986 1981-1983
INVITED REVIEWER	<i>Agricultural and Resource Economics Review, American Association for the Advancement of Science, American Journal of Agricultural Economics, Annals of Regional Science, Automatica, Environment and Development Economics, Environmental Science and Technology, Growth and Change, International Transactions in Operational Research, Journal of the Air and Waste Management Association, Journal of Environmental Economics and Management, Journal of Hazardous Materials, Journal of Policy Analysis and Management, Land Economics, Municipal Engineer, Science of the Total Environment, Socio-Economic Planning Sciences, Utility Policy, Water Resource Management, Argonne National Laboratory, Swarthmore College Honors Program examiner (Operations Research and Environmental Systems Engineering), U.S. Environmental Protection Agency (EPA), World Resource Institute.</i>	
CERTIFICATION	SAS certified base programmer for SAS 9 ESRI certifications for ArcGIS Desktop I and II	
SKILLS	Software: GAMS, SAS, Stata, R, ArcGIS, Matlab, Analytica, IMPLAN, BenMAP, SPARROW, BASIN, ISCST3. Coding: FORTRAN, BASIC, Python, C. Languages: English, Mandarin Chinese	

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Climate Programs: The Case of Climate Wise.” In the Reality Check: The Nature and Performance of Voluntary Environmental Programs in the United States, Europe, and Japan. Morgenstern and Pizer, Editors. February, 2007. Resources for the Future, Washington DC.

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Macauley, Molly K., Karen L. Palmer, Jhih-Shyang Shih, Sarah Cline, and Heather Holsinger. "Modeling the Costs and Environmental Benefits of Disposal Options for End-of-Life Electronic Equipment: The Case of Used Computer Monitors," RFF Discussion Paper 01-27. June 2001.

Burtraw, Dallas, Alan J. Krupnick, Richard D. Morgenstern, William A. Pizer and Jhih-Shyang Shih. "Workshop Report: Pollution Abatement Costs and Expenditures (PACE) Survey Design for 2000 and Beyond," RFF Discussion Paper 01-09. April 2001.

Allen Blackman, Steven Newbold, Jhih-Shyang Shih and Joe Cook. "The Benefits and Costs of Informal Sector Pollution Control: Mexican Brick Kilns," RFF Discussion Paper 00-46. Oct. 2000.

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Morgenstern, Richard D., William A. Pizer and Jhih-Shyang Shih. "The Cost of Environmental Protection," RFF Discussion Paper 98-36. May 1998.

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**SELECTED
PRESENTATIONS**

Richard A Smith, Jhih-Shyang Shih, Gregory E Schwarz, John W Brakebill, Anne Hoos, Richard B Moore, Anne Walden Nolin, Celeste Journey and Molly Macauley. "Use of MODIS Data in Dynamic SPARROW Analysis of Watershed Loading Reductions. AGU Fall Meeting, San Francisco, 15-19 December, 2014.

Brian A Bergamaschi, Richard A Smith, Jhih-Shyang Shih, Terry L Sohl, Benjamin M Sleeter and Zhiliang Zhu. "Assessment of Changes in Nutrient and Sediment Delivery to and Carbon Accumulation in Coastal Oceans of the Eastern United States. AGU Fall Meeting, San Francisco, 15-19 December, 2014. (poster)

Joel Blomquist, John Brakebill, Andrew Lamotte, Ward Sanford, Andrew Sekellick, Greg Schwarz Jhih-Shyang Shih, and Dick Smith. "Integrating Long-Term Historical Source Data, a Groundwater Age Distribution Model, and a Seasonally-Dynamic SPARROW Model of Total Nitrogen Flux in the Upper Potomac River Basin." May 13, 2014. Shepherds Town, WV. (poster)

Smith, Richard A., Jhih-Shyang Shih, Gregory Schwarz and Molly Macauley. "Economic Valuation of Monitoring: Nutrient Trading is a Guide." National Water Quality Monitoring Council. 9th National Monitoring Conference, April 28-May 2, 2014. Cincinnati, OH. (poster)

Smith, Richard A., Gregory Schwarz, John Brakebill, Anne Hoos, Richard Moore, Jhih-Shyang Shih, Anne Nolin, Molly Macauley, David Ladd, Joel Blomquist, and Richard Alexander. "Seasonally-Dynamic SPARROW Modeling of Nitrogen Flux Using Earth Observation Data." American Geophysical Union, Fall Meeting, December 9-13, 2013, San Francisco, CA. (poster)

John Brakebill, Anne Hoos, Molly Macauley, Richard Moore, Anne Nolin, Dale Robertson, Gregory Schwarz, Jhih-Shyang Shih, and Richard A. Smith. "Improving Water Quality Management: Use of Earth Observations in SPARROW." Sixth International Nitrogen Conference, November 18-22, 2013, Kampala, Uganda.

Shih, Jhih-Shyang, Sheila Olmstead, Ziyang Chu, Alan Krupnick, Lucija Muehlenbachs, James Saiers, and Shimon Anisfeld. Wastewater Characteristics from Marcellus Shale Gas Development in Pennsylvania. Managing the Risks of Shale Gas Development Public Event. June 27, 2013. Resources for the Future, Washington, DC.

Shih, Jhih-Shyang, Sheila Olmstead, Lucija Muehlenbachs, Jessica Chu and Alan Krupnick. "Wastewater Characteristics from Marcellus Shale Gas Development." World Environmental & Water Resources Congress Conference, May 19-23, 2013, Cincinnati, OH. (canceled)

Smith, Richard A., Jhih-Shyang Shih, Gregory Schwarz and Molly Macauley. "A Method for

Economic Valuation of Nutrient Monitoring.” National Water Quality Monitoring Council. 8th National Monitoring Conference, April 30-May 4, 2012. Portland, OR (poster)

Smith, Richard A., John Brakebill, Gregory Schwarz, Anne Nolin, Jhih-Shyang Shih, Joel Blomquist, Richard Alexander, and Molly Macauley. “Use of MODIS Vegetation Data in Dynamic SPARROW Modeling of Reactive Nitrogen Flux.” American Geophysical Union, Fall Meeting, December 3-7, 2012, San Francisco, CA. (poster)

Smith, Richard A., John Brakebill, Gregory Schwarz, Richard Alexander, Jhih-Shyang Shih, Robert Hirsch, Anne Nolin, Molly Macauley, Eric Sproles, Qingyuan Zhang, and Weibing Wang. “Dynamic SPARROW Modeling of Nitrogen Flux With MODIS Vegetation Indices and Climate as Driver” American Geophysical Union, Fall Meeting, December 5-9, 2011, San Francisco, CA. (poster)

Shih, Jhih-Shyang. “China SPARROW.” USGS, Feb. 22th, 2008, Reston, VA.

Shih, Jhih-Shyang, Dallas Burtraw, Karen L. Palmer, and Juha Siikamäki. “Air Emissions of Ammonia and Methane from Livestock Operations: Valuation and Policy Options.” Trans-Atlantic INFRADAY Conference on Applied Infrastructure Modeling and Policy Analysis. *“Critical Infrastructures in Energy and Other Networked Industries”* College Park, MD (USA). November 2, 2007.

Shih, Jhih-Shyang, Dallas Burtraw, Karen Palmer, and Juha Siikamäki. “Air Emissions of Ammonia and Methane from Livestock Operations: Valuation and Policy Options.” Invited poster presentation. The Fourth California Annual Climate Change Research Conference, Sept. 10-13, 2007, Sacramento, CA.

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Shih, Jihh-Shyang, Armistead G. Russell and Gregory J. McRae. "Optimal Photochemical Air Pollution Control." The 5th MTETS conference, May 26 to May 30, 1998, Southeast University, Nanjing, PRC.

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Shih, Jihh-Shyang, Armistead G. Russell and Laurie McNair. "An Air Quality Management Model: Considering Uncertainty and Spatial Distribution of Pollutants." INFORMS National Meeting, May 5 - 8, 1996, Washington DC.

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