

## Jennifer Kuzma, Ph.D.

### Curriculum Vitae

Associate Professor, Humphrey Institute  
Center for Science, Technology, and Public Policy

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#### EDUCATION AND FELLOWSHIPS:

- American Association for the Advancement of Science (AAAS) Fellow: Risk Assessment Science Policy Fellow, United States Department of Agriculture, Washington, DC (1997-1998)
- Life Science Research Foundation Postdoctoral Fellow, The Rockefeller University, Plant Molecular Biology, New York, NY (1995-1997)
- Ph.D., University of Colorado at Boulder, Biochemistry (1995)
- B.A., College of St. Thomas, St. Paul, MN *summa cum laude*, Chemistry and Biology (1990)

#### ACADEMIC POSITIONS:

- 2007-present, **Associate Professor (tenure track)**, Humphrey Institute, University of Minnesota; Science, Technology, and Environmental Policy **Area Chair**
  - 2006-present, **Senior Member/Graduate Faculty** of the Conservation Biology Ph.D. Program
  - 2007-present, **Senior Member/Graduate Faculty**, NSF-funded U of MN Interdisciplinary Graduate Education and Research and Training (IGERT) program on Risk Analysis for Introduced Species and Genotypes
  - 2006-2007, **Interim Director**, Center for Science, Technology, and Public Policy, Humphrey Institute, University of MN
  - 2006-2007, **Assistant Professor (contract faculty)** Humphrey Institute, University of Minnesota
  - 2003-2006, **Affiliate Graduate Faculty** and **Associate Director**, Center for Science, Technology, and Public Policy, Humphrey Institute, University of MN
  - 2004-2005, **Associate Director**, Initiative for Renewable Energy and the Environment, University of MN
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#### HONORS AND AWARDS:

- Nominated for Secretary of the Society for Risk Analysis (2009)
  - Selected to serve on the United Nations WHO/FAO Expert Committee on Food and Nanotechnology (2009)
  - Institute on the Environment (IoE) Resident Fellow (2009-2012)
  - Elected to Executive Committee of international Society for the Study of Nanoscience and Emerging Technologies (2008)
  - Teacher of the Year, Humphrey Institute, (2004).
  - Elected to Board of the Bio Business Alliance of Minnesota, (2005).
  - Elected to the MN Governor's Biosciences Council, (2004).
  - United States Department of Agriculture, Cooperative Research, Education, Extension Service Outstanding Employee Award (1998)
  - American Association for the Advancement of Science Fellowship (1997-1998)
  - Department of Energy Life Sciences Research Fellow Award (1995-1997)
  - National Science Foundation Atmospheric Chemistry Traineeship (1993-1994)
  - National Institutes of Health (NIH) Traineeship (1990-1991)
  - College of St. Thomas Science Scholarship (full tuition, 4 years, 1986-1990)
  - USA-Today (newspaper) All-USA Academic Team (1990)
  - American Institute of Chemists Foundation Award (1990)
  - Chemical Rubber Company Chemistry Achievement Award (1986)
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## PUBLICATIONS:

### Peer-reviewed Articles<sup>1</sup>

**Kuzma, J.** “Nanotechnology: Piecing Together the Puzzle of Risk”. *Current Controversies in Science and Technology 2*: (in press).

**Kuzma, J.** Larson, J. and P. Najmaie. “Evaluating Oversight Systems for Emerging Technologies: A Case Study of Genetically Engineered Organisms,” *Journal of Law Medicine and Ethics* (in press for volume 4, 2009).

**Kuzma, J.**, Paradise, J., Kim, J., Kokotovich, A., G. Ramachandran, and Wolf, S.. “Integrated Oversight Assessment: A Historical Case Study and Multicriteria Approach” *Risk Analysis* 28(5): 1179-1195 (2008).

**Kuzma, J.** and J.C. Besley. “Ethics of Risk Analysis and Regulatory Review: From Bio- to Nanotechnology,” *Nanoethics* 2(2): 149-162 (2008).

**Kuzma, J.** Romanchek, J. and A. Kokotovich “Upstream Oversight Assessment for Agrifood Nanotechnology.” *Risk Analysis* 28(4): 1081-1098 (2008).

Talukder, K. and **J. Kuzma.** ”A multi-perspective analysis for regulatory policy for Bt cotton in India as a case study”. *Science and Public Policy* 35(2): 121-138. (2008).

<sup>2</sup>Paradise, J., Wolf, S., Ramachandran, G., Kokkoli, E., Hall, R., and **J. Kuzma.** “Developing Oversight Frameworks for Nanobiotechnology,” *MN Journal of Law, Science, and Technology* 9 (1): 399-416 (2008).

**Kuzma, J.** “Moving Forward Responsibly: Oversight for the Nanotechnology-Biology Interface,” *Journal of Nanoparticle Research*, 9:165-182 (2007).

<sup>3</sup>**Kuzma, J.** “Nanotechnology Oversight: Just do it” *Environmental Law Reporter* 36:10913-10920 (2006).

**Kuzma, J.** and A. Ahl. “Living with Bovine Spongiform Encephalopathy.” *Risk Analysis* 26:585-588 (2006).

Moon, HW, Baer, C.K, Ascher, M. Cook, R.J, Franz, D., Hoy, M, Husnik, D.F., Jensen, H.H., Keller, K.H., Lederberg, J., Madden, L.V., Powers, L.S., Steinberg, A.D., Strating, A., Smith, R.E., **Kuzma, J.**, Grossblatt, N., Holliday, L., Sweatt, D., and S. Strongin. “U.S. agriculture is vulnerable to bioterrorism.” *Journal. of Veterinary Medicine Education.* 30(2): 96-104 (2003).

Ahl, A. and **J. Kuzma.** “Microbes, Food Safety and the Environment: Issues in Risk Analysis.” *Technology* 6: 363-369 (1999).

Wu, Y., **Kuzma, J.**, Marechal, E., Graeff, R., Lee, H.C. and Chua, N-H. “Abscisic Acid Signaling Through Cyclic ADP-Ribose in Plants” *Science* 278: 2126-2130. (1997).

**Kuzma, J.**, Nemecek, -Marshall, M., Pollock, W., and R. Fall. “Bacteria Produce the Volatile Hydrocarbon Isoprene” *Current Microbiology* 30: 97 (1995).

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<sup>1</sup> Formal external peer-review process unless otherwise noted.

<sup>2</sup> Edited Law Journal with peer-review by faculty and editing by students.

<sup>3</sup> Edited Law Journal with peer-review by editorial board of professionals and faculty..

Nemecek-Marshall, M., Wojciechowski, C., **Kuzma, J.**, Silver, G., and R. Fall. "Marine *Vibrio* Species Produce the Volatile Organic Compound Acetone" *Applied and Environmental Microbiology* 61: 44 (1995).

**Kuzma, J.** and R. Fall. "Leaf Isoprene Emission Rate Is Dependent on Leaf Development and the Level of Isoprene Synthase" *Plant Physiology* 101: 435 (1993)

### **Manuscripts (in preparation):**

#### **For peer reviewed journals:**

**Kuzma, J.**, A. Kuzhabekova, S. Priest, and L. Yerhot.. "Stakeholder and Expert Elicitation for Emerging Technologies Oversight: Lessons for Nanotechnology from Biotechnology," *Risk Analysis* (submitted, under review)

**Kuzma, J.** & A. Kuzhabekova. "Room for Good Will: Management and Policy Perspectives on Corporate Social Responsibility and Nanotechnology," *Business and Society* (submitted, under review)

Meghani, Z. and **J. Kuzma.** "Addressing the Regulatory Agency-Industry Revolving Door Problem for Emerging Technologies: Re-Conceptualizing Objectivity," *Science and Engineering Ethics* (submitted, under review)

**Kuzma, J.** "Nanotechnology in Animal Production: Upstream Assessment of Applications". *Livestock Science* (submitted, under review).

**Kuzma, J.** and Kuzhabekova, A, Wilder, K.. "Improving Oversight of Genetically Engineered Organisms" *Policy & Society* (submitted, under review)

Paradise, J., **Kuzma, J.**, Wolf, S., Wedekind, A., Kokkoli, E. and Kuzhabekova, A., "Developing Oversight Strategies for Nanobiotechnology: Learning from Pas Oversight Experiences." *Journal of Law, Medicine, and Ethics* (in preparation)

**Kuzma, J.** and Kuzhabekova, A. "Voluntary nanotechnology oversight programs: What features of companies lead to participation?" *Journal of Nanoparticle Research* (in preparation).

Meghani, Z. and **J. Kuzma.** A possible change in the U.S. risk -based decision making for emerging technological products: Compromised or enhanced objectivity? *Science* (in preparation).

#### **For book chapters:**

**Kuzma, J.** "Multi-criteria decision making for studying nanotechnology & society," *Encyclopedia of Nanoscience and Society* Ed. David Guston, SAGE Publications (submitted, under review)

### **Peer-Reviewed, Edited Books**

*Contributions as study director to the following NRC studies were equivalent to being an editor of a published, peer-reviewed, scholarly book and contributor of chapters. The NRC has a very rigorous peer review process for books*

National Research Council. **J. Kuzma.** Study Director. *Countering Agricultural Bioterrorism.* (2003).

National Research Council. **J. Kuzma**, Study Director. *Genetically Modified Pest-Protected Plants: Science and Regulation*. (2000).

### **Reviewed & Edited Book Chapters**

**Kuzma, J.** “Nanotechnology Regulation and Oversight” In *Encyclopedia of Science and Technology Communication*. Ed. Susanna Priest. SAGE Publications in press (edited volume) 2009..

**Kuzma, J.** “Biotechnology: Technology and Future, Prosperity and Risks”, in *A Companion to the Philosophy of Technology*, Ed. Berg, Oslen, Pedersen, and Hendricks. Blackwell Publishing. in press (edited volume), 2009.

**Kuzma, J.** “Global Challenges: Technology and Future, Prosperity and Risks”, in *A Companion to the Philosophy of Technology*, Ed. Berg, Oslen, Pedersen, and Hendricks. Blackwell Publishing. in press (edited volume), 2009.

**Kuzma, J.** “Nanotechnology, Ethics and the Environment” *Encyclopedia of Environmental Ethics and Philosophy*. Eds. J. Baird Callicott and Robert Frodeman. Macmillian Publishers. (2008). (peer reviewed, edited volume)

**Kuzma, J.** “FDA, the Environment and Ethics” *Encyclopedia of Environmental Ethics and Philosophy*. Eds. J. Baird Callicott and Robert Frodeman. Macmillian Publishers. (2008). (peer reviewed, edited volume)

**Kuzma, J.** “Moving Forward Responsibly: Oversight for the Nanotechnology-Biology Interface,” *In Nanotechnology and Occupational Health*, A. Maynard & D. Pui Eds. Dordrecht, Netherlands: Springer. 2007. (reprint of *Journal of Nanoparticle* article)

Meekhof, R., **Kuzma, J.**, Mauriello, D., Osborn, T., Powell, M., Rice, C., and S. Shafer. (1998). “Adaptive Risk Analysis for Resource Conservation Programs.” *Proceedings of Risk Based Decision Making in Water Resources VII*: 172-186, Editors, Yacov Y. Haimes David A. Moser (Editor), Eugene Z. Stakhiv. American Society of Civil Engineering.

*Contributions as program officer or co-study director to the following NRC publications were equivalent to being a co-author of chapters for a published, peer-reviewed, scholarly book.*

National Research Council. **J. Kuzma**. Co-Study Director. *Indicators for Waterborne Pathogens*. 2004.

National Research Council. **J. Kuzma**. Senior Program Officer. *Countering Bioterrorism: The Role of Science and Technology* 2002.

### **Other Publications**

Warner, E., Riebe, M. and **J. Kuzma**. eds (2008). *Climate Change and Sustainable Development: Workshop Report*. Center for Science Technology and Public Policy, University of MN.

**Kuzma, J.** and P. VerHage. *Nanotechnology in Agriculture and Food Production: Anticipated Applications*. Project on Emerging Nanotechnologies, Woodrow Wilson International Center for Scholars. Washington DC September, 2006.

**Kuzma, J.** “Global Challenges and Biotechnology” *Economic Perspectives*: October, 2005.

**Kuzma, J.** Editor. *The Nanotechnology-Biology Interface: Exploring Models for Oversight*. September 15, 2005. Workshop Report, Center for Science, Technology, and Public Policy, University of Minnesota.

**Kuzma, J.** and L. Dobrovolsky. Editors. *The Global Climate and Economic Development*. Center for Science, Technology, and Public Policy. Humphrey Institute. 2005

Medical Technology Leadership Forum (MTLF). *The Search for Quality and Value in Health Care*. February 2004 (**J. Kuzma**, initial author, then reviewed by MTLF board members and published by MTLF)

Medical Technology Leadership Forum (MTLF). *Facilitating the Continuum from Experimental to Clinical Use: Designing Alternative Models*. A University of Minnesota Summit. July 2003. (**J. Kuzma**, initial author, then reviewed by MTLF board members and published by MTLF)

**Kuzma, J.** editor. *The Environmental Impact of Agriculture and Energy Use: How new technologies, including biotechnology, can provide sustainable solutions*. Report from Research & Technology Seminar at the Intersection of Energy, Agriculture, and Biotechnology, June 30, 2003. Co-hosted by The Royal Norwegian Embassy, Washington D.C. and University of Minnesota

MTLF. *Breaking Down the Institutional Barriers to Multi-Disciplinary Research*. April 2003. (**J. Kuzma**, initial author, then reviewed by MTLF board members and published by MTLF)

Gould F., and **J. Kuzma**. The Academy Responds (Biotech regulation). *The Scientist*. October 14, 2002.

National Research Council. **J. Kuzma**. Senior Program Officer. *Opportunities in Marine Biotechnology*. 2002.

National Research Council. **J. Kuzma**. Program Director. *Animal Biotechnology: Science-Based Concerns*. 2002.

National Research Council. **J. Kuzma**. Program Director. *Environmental Issues Associated with Transgenic Plants*. 2002.

National Research Council. **J. Kuzma**, Program Director. *Ecological Monitoring of Genetically Modified Crops*. 2001.

National Research Council. **J. Kuzma**, Program Officer. *Bioinformatics: Converting Data to Knowledge*. 2000.

National Research Council. **J. Kuzma**, Program Officer. *Finding the Path: Issues of Access to Research Resources*. 1999.

Food Safety and Inspection Service, *E. coli* 0157:H7 Risk Assessment Team. **Kuzma, J.** (member). Risk Assessment of the Public Health Impact of *Escherichia coli* 0157:H7 in Ground Beef (2001).

**PATENT:** R.R. Fall, J. Kuzma, and M. Nemecek-Marshall (1998). Materials and methods for the bacterial production of isoprene. U. S. patent 5,849,970.  
*Licensed*

**Refereed (or peer-reviewed, if noted) Conference Abstracts & Presentations (and Papers, if noted):**

**Kuzma, J.** “Science and Technology Policy: More Collaborative Modeling Approaches” as part of the panel on “Policy Informatics” organized by Yushim Kim, ASU. Association of Public Policy Analysis and Management, 2009 Annual Fall Research Conference, 5-7 November, Washington, DC. *Submitted abstract*.

**Kuzma, J.** Paradise, J., Ramachandran, G, and Kuzhabekova, A. “Comparative and Integrated Oversight Assessment for Emerging Technologies” Association of Public Policy Analysis and Management, 2009 Annual Fall Research Conference, 5-7 November, Washington, DC. *Submitted abstract*.

- Kuzma, J.**, Paradise, J., and A. **Kuzhabekova**. “Cross Case-Comparison of Genetically Engineered Organisms, New Human Drugs, and Medical Devices Oversight: Lessons for Oversight of Nanotechnology Applied to Biological Systems.” Society for the Study of Nanoscience and Emerging Technologies, First Annual Conference; Seattle, Washington; September 8-11, 2009. *Submitted abstract*
- Kuzma, J.** “Synthetic Biology: Identification of Policy Problems and Options,” *American Political Science Association, Annual Meeting*, Toronto, ON Sept. 3-6, 2009. *Referred abstract.(accepted)*
- Meghani, Z. and **J. Kuzma**. “Converging Technologies and Tailored Democratization of Risk Assessment.” *Society for the Philosophy of Technology*, University of Twente, the Netherlands, July 8-10, 2009. *Peer-reviewed abstract.(accepted)*
- Meghani, Z. and **J. Kuzma**. “ Democratization of Risk Assessment of Converging Technologies.” *Society for the Philosophy of Science in Practice*, University of MN, June 18-20, 2009. *Refereed abstract, accepted.*
- Kuzma, J.**, A. Kuzhabekova, S. Priest, and L. Yerhot.. “Emerging Technologies Oversight: Lessons for Nanotechnology from Biotechnology,” EPA and the University of Massachusetts Amherst International Conference on the Environmental Implications and Applications of Nanotechnology, June 9-11, 2009, in Amherst, Massachusetts. *Submitted abstract*
- Kuzma, J.** and P. Thompson. “Ethical and Policy Analysis of Linkages between Public Perception and Oversight of Emerging Technologies,” *Society for Risk Analysis Annual Meeting*, Boston, MA Dec. 2008. *refereed abstract.*
- Monson, M. and **J. Kuzma** "Minnesota biofuels policy: analysis of the impacts of a renewable fuels standard versus a low carbon fuels standard on greenhouse gas emissions" *System Dynamics Society Annual Meeting*, Athens, Greece. July 2008. *Refereed abstract*
- Kuzma, J.** Multi-criteria approach to evaluating oversight: Genetically Engineered Organisms to Nanotechnology. *American Political Science Association Annual Meeting Proceedings*. Boston, August 28-31, 2008 *refereed, paper*
- Kuzma, J.** Larson, J. and P. Najmaie. “Evaluating Oversight for Genetically Engineered Organisms in Food and Agriculture: An Integrated Approach,” *Gordon Conference on New Frontiers in S&T Policy*, August 17-22, 2008, Big Sky, MT, *peer-reviewed abstract*
- Kuzma, J.**, Paradise, J., Kim, J., Kokotovich, A., G. Ramachandran, and Wolf, S. “An Integrated Approach to Oversight for Emerging Technologies,” *Gordon Conference on New Frontiers in S&T Policy*, August 17-22, 2008, Big Sky, MT. *peer-reviewed abstract*
- Kuzma, J.** and J. Paradise. “Upstream and Integrated Oversight Assessment for Nanotechnology: A bidirectional approach to anticipatory risk analysis”. Society for Risk Analysis meeting, Dec. 2007, San Antonio, TX. *refereed abstract*
- Kuzma "Food Biotechnology in Ethical Perspective: A Book Review," American Philosophical Association. International Society for Environmental Ethics and by the Society for the Philosophy of Technology, , Chicago, April 15-16, 2007. *refereed abstract & paper*
- Kuzma, J. Romanchek, J. and KokotovichA. “Upstream Oversight Assessment for Agrifood Nanotechnology” American Association for the Advancement of Science (AAAS) meeting. , February 2007. *refereed abstract*
- Kuzma, J.** Report of the Lignin Modification Group. *Criteria for Field Testing Plants with Engineered Regulatory, Metabolic and Signaling Pathways*. Wolfenbarger, L. ed. Information Systems for Biotechnology. 2002. *paper, peer-reviewed*

**Kuzma, J.**, Chairperson. “Pathway Analysis to Assess the Farm-to-Table Risks of *E. coli* 0157:H7 in Hamburger.” Symposium for the Society for Risk Analysis Meeting, Phoenix, AZ. December 1998. *refereed abstract*.

Roberts, T., and **J. Kuzma**. “The Contribution of Probabilistic Risk Assessment to Economic Analysis: *E. coli* 0157:H7 in Ground Beef.” American Agricultural Economics Association Annual Meeting, Salt Lake City, UT, August, 1998. Abstract published in Journal of the American Agricultural Economics Association, Volume 5, p. 1210. *refereed abstract*

Ferenc, S., McElvaine, M., Miller, M. and **J. Kuzma**. “Risk Assessment and Cost-Benefit Issues Associated with Antimicrobial Use in Food Animal Production.” *Proceedings of the Symposium on The Role of Veterinary Therapeutics in Bacterial Resistance Development: Animal and Public Health Perspectives*, January 1998, pp. 89-93. *refereed paper*

Roberts, T., **Kuzma, J.**, and D. Hancock. “Fault-tree analysis and *E. coli* 0157:H7—US Human Illness, Food Sources, and Slaughter and Farm-Level Risk Factors.” Society for Risk Analysis Annual Meeting, December 7-10, 1997. *refereed abstract*

Kuzma, J., Marechal, E., Graeff, R., Lee, H.C., and N-H. Chua. “Identification of Cyclic ADP-Ribose in Plants and Its Role in ABA-Mediated Signal Transduction” ABA Signal Transduction in Plants Conference Proceedings, Madrid, Spain, October, 1996. *refereed abstract*

Kuzma, **J.**, and R. Fall. “Bacterial Production of Isoprene” Proceedings from the International Symposium on the Genetics of Industrial Microorganisms, Montreal, Quebec. June 1994. *refereed.abstract*

### **Scholarly Presentations (in addition to those listed under Referred Conference Proceedings, Papers and Abstracts)**

Kuzma, J. Invited plenary panelist. “Current State and Direction of Science in Guiding Decision Making on the Safe Use of Nanotechnology” EPA and the University of Massachusetts Amherst International Conference on the Environmental Implications and Applications of Nanotechnology, June 9-11, 2009, in Amherst, Massachusetts.

Kuzma, J. “Preparing for the Future of Emerging Technologies Oversight: Upstream and Integrated Oversight Assessment” Assoc. for the Advancement of Science (AAAS) Science Policy meeting, April 30-May 1, 2009. Washington, DC. (invited panel presentation).

Kuzma, J. Examining Emerging Technologies: What’s Next in Science Oversight? New Strategies & Accountability? *What’s Next in Law, Health & the Life Sciences? Debating Openness, Access & Accountability* 10th Anniversary of the Consortium on Law and Values in Health, Environment & the Life Sciences and Joint Degree Program in Law, Health & the Life Sciences, March 6, 2009, University of Minnesota (invited speaker)

Kuzma, J. Nanotechnology, Animal Production and the Future. *World Conference on Animal Production*, Capetown, South Africa. November 25-27, 2008 (invited speaker)

Kuzma, J. Oversight and Regulatory Challenges for Energy and Environmental Applications of Nanotechnology. Midwest E3 2008 conference. University of MN, November 18, 2008 (invited speaker)

Kuzma, J. “A Public Policy View on Risk Management for Nanomaterials,” Washington DC, Society for risk Analysis Workshop on “Risk Analysis: Advancing the Science for Nanomaterial Risk Management.” Sept 10-11, 2008 (invited panelist)

Kuzma, J. "Risk Communication Challenges for Nanomaterials: A Taxonomy (Typology) within the Framework of Risk Analysis," *Communicating Health and Safety Risks on Emerging Technologies in the 21<sup>st</sup> Century*. North Carolina State University, NSF workshop, August 28-29, 2008 (invited speaker).

Kuzma, J. "Agricultural Nanotechnology: From Science to Society" National Academy of Sciences, National Research Council, Board on Agriculture and Natural Resources Meeting, May 13, 2008. (invited speaker)

Kuzma, J. , "Agricultural Nanotechnology: Risk and Oversight Policy" USDA, Office of the Secretary, Office of the Chief Economist, ORACBA Risk Forum, Washington, DC, May 13, 2008. (invited speaker)

Wolf, S. Kokkoli, E. Kuzma, J., Paradise J., Ramachandran, G. Evaluating Oversight Mechanisms for Active Nanostructures and Nanosystems: Learning from Past Technologies in a Societal Context. 2007 NSF Nanoscale Science and Engineering Grantees Conference. December 3-6, 2007, NSF - Arlington, VA.

Kuzma, "Risk and Regulation for Emerging Technologies", Northeastern University Nanotechnology Regulation Workshop May 1-2, 2007, Boston, MA. (invited speaker)

Kuzma, Romanchek, Kokotovich "Agrifood Nanotechnology: Applications and Oversight," Michigan State University, What is agrifood nanotechnology? NSF Workshop, April 2-3, 2007. (invited speaker)

Kuzma "Future Research Needs for the ELSI-Nano community" National Science Foundation (NSF) PI meeting for ELSI nanotechnology investigators. March 15-16, 2007. (invited speaker)

Kuzma, Romanchek, Kokotovich "Oversight for Agrifood Nanotechnology: No Small Matter" Alberta Agricultural Research Institute, Nano-Agriculture workshop, March 1-2, 2007. (invited speaker)

Kuzma, "Emerging Technologies: Challenges for Institutions and Oversight" National Association of Schools of Public Administration and Affairs meeting. October 19, 2006. (invited panelist)

Kuzma and VerHage "Nanotechnology and Food" National Food Processors Association Meeting, Sept. 18, 2006. Washington DC (invited speaker)

Kuzma "Active Nano Governance" International Risk Governance Council, The Risk Governance of Nanotechnology: Recommendations for Managing a Global Issue. July 2006, Zurich, Switzerland. (invited speaker)

Kuzma, J. "Regulation and non-food GM crops and cross-overs between White, Green and Red Biotechnology" and on of 30 invited participant for EU-US Conference on *Emerging biotechnology applications: EU, US and global regulatory perspectives*. Hosted by the European Policy Center, December 4-6, 2005. Lille, France. (invited speaker and moderator)

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## OUTREACH PRESENTATIONS, PANELS, and PRESS INTERVIEWS

Kuzma, J." Nanotechnology: The Science of the Small" St. Francis Xavier Middle School, Buffalo, MN, April 20, 2009.

Kuzma, J. "Where Science Meets Policy: Oversight for Genetic Engineering" College of St. Catherine's, St. Paul, MN. April 7, 2009. (invited speaker)

Kuzma, J. Interview for The Bloomington Alternative, Nanotechnology risk. April 2009.

Kuzma J. Interview for Functional Ingredients magazine, Nanotechnology and food. March 2009.

Kuzma, J. Interview for Earth&Sky Radio, syndicate for over 1900 outlets. March 2009.

Kuzma, J. Facilitator for IREE Algae and Biofuels Summit, October 16, 2008, Minneapolis, MN.

Kuzma, J.” Emerging Technologies, S&T Policy, and the (Your) Future.” University of St. Thomas. October 3, 2008 (invited speaker)

Kuzma, J. “A Path to Renewal of America’s Global Role in Health Science Policy,” *Innovation 2008*, Sept. 2008. University of MN. (moderator)

Kuzma, J. Global Policy Forum, Does U.S. S&T Policy need a Paradigm Shift? Sept. 16, 2008.

Interview with *Finance and Commerce Magazine*, August 13<sup>th</sup>, 2008, story in print August 15, 2008.

Story in *NanoWerk News* on recent published papers, August 13, 2008.

Kuzma, J. Moderator, *Panel on Emerging Technology Enterprises*, Gordon Conference on S&T Policy, Big Sky, MT, August 2008.

Kuzma, J. “Innovation for Green Chemistry: Policy Options and Challenges,” *Green Chemistry in Minnesota: Opportunities and Challenges for Leadership*, May 28, 2008, University of Minnesota. (moderator and introductory panel speaker).

Kuzma, J. Interview with Minnesota Public Radio, Green Chemistry, 5-23-08, Aired 5-28-08 on MPR news.

Kuzma, J. Invited participant for USC workshop on forming a society for Nanotechnology and Society (one of 30 invitees from around nation and world). May 19, 2008.

Kuzma, J. “Nanotechnology, Oversight Policy”. Hennepin County Bar Association, April 2008. (invited speaker)

Kuzma J. with area faculty and staff. “STEP Vision 2020”, Humphrey Institute Vision 2020, April 2008.

Kuzma, J. Interview with Western Producer newspaper in Saskatchewan, Canada on agrifood nanotechnology. March 2008.

Kuzma, J., Monson, M., and Warner, E. “Introduction to System Dynamics,” HHH Graduate Faculty Meeting, March 2008.

Monson, M., Kelley, S. (Kuzma, J\*) State Legislative Testimony for Biosciences and Emerging Technology Committee, February 27, 2008. (\*Monson, Kuzma’s RA, presented their work)

Kuzma, J. “Nanotechnology and Society: no Small Matter” MN Society of Professional Engineers, Feb 19, 2008. (invited speaker)

Kuzma, J. “Nanotechnology: What’s new, what isn’t and why it matters?” Mindstretch keynote speaker. October 31, 2007. (invited speaker)

Great Lakes Radio Consortium (06/20/07) , Nanotech Nervousness, J. Kuzma discusses multiple nanoproducts being sold today. Environment Report.  
[http://www.glrc.org/story.php3?story\\_id=3481](http://www.glrc.org/story.php3?story_id=3481)

Kuzma, J. “Nano and health: an Ethical Perspective,” Exploratorium, San Francisco, Nanoforum keynote presentation. June 6, 2007. (invited speaker)

Kuzma, J. "Nano and health: an Ethical Perspective," Science Museum of Minnesota, Nanoforum keynote presentation. April, 26, 2007. (invited speaker)

Kuzma, J. MN Pollution Control Agency, "Grand Challenges for Nanotechnology Policy and the Environment," February 2007. (invited speaker)

Invited reviewer for Agricultural Funding Consortium of Canada, nanotechnology grants, January 2007.

Kuzma, J. 3M company's Technology Forum. "Nano-policy: No small matter" November 2006. (invited speaker)

Kuzma, J. Café Scientifique, Bell Museum of Natural History, "GEOs: An Intersection Between Science and Society." November 2006. (invited speaker)

Invited Guest. MPR Midmorning with Kerry Miller, "Genetically Engineered Foods," November 2006.

Interviewed for and quoted in New York Times "Engineering Food Additives at a Molecular Level" Page C1. October 10, 2008.

Rapporteur for "Standards for Nanotechnologies: A Workshop." MSU, Sept. 11-12, 2006.

Invited keynote speaker for Science Museum of Minnesota's Nanoforum. "The Brave New World of Nano Policy" August 2006.

Invited reviewer for Science Museum of Minnesota's Nanoscale Informal Science Education Network's Exhibits and Programs Workshop. July 2006.

Kuzma, J. MN Attorney General's CLE workshop, "Emerging Technologies, Policy, and Law: Getting It Right." June 2006. (invited speaker)

Invited Participant for National Nanotechnology Coordinating Office Workshop on Public Participation in Nanotechnology, May 2006. Washington, DC.

Invited Participant for Environmental Law Institute's workshop on Nanotechnology Governance, May 2006. Nashville, TN.

Article and interview. Chemical and Engineering News. "Nanotechnology in Food and Agriculture: Database finds diverse themes and predominantly basic research in federally funded R&D", April 17, 2006.

Key speaker at press conference on Analysis of Early Stage R&D for Agrifood Nanotechnology. March 2006, Washington DC, Project on Emerging Nanotechnologies.  
<http://www.nanotechproject.org/index.php?id=50>

MN Biofiber Consortium Meeting, *Initiative for Renewable Energy and the Environment: Bioenergy and Bioproducts*, October 2004.

Initiative for Renewable Energy and the Environment Advisory Committee meeting. *Policy, Economic and Ecosystem Issues*. May 2004.

Kuzma, J. The Genomic Future: A Town Hall Meeting. Gene(sis) Exhibit Weisman Art Museum. *Who Owns DNA?* Panel Discussion. February 2004. (invited panelist)

Kuzma, J. Freeman Center International Trade Consortium. "Genetic Engineering: Science, Uncertainty and International Trade". January 2004.

Kuzma, J. MN Seed Coalition and Bioindustrial Consortium. *Renewable Energy: A New Initiative at the University of Minnesota*. November and December 2003. (invited speaker)

Interviewed for Fox Cable TV News on agricultural bioterrorism. September 2002.

Presentation for Zambian delegation of government officials and scientists to discuss genetically engineered foods. Washington DC. September 2002.

Group leader and facilitator for the USDA Workshop on Criteria for Field Testing of Plants with Engineered Regulatory, Metabolic and Signaling Pathways. Washington DC June 2002.

Invited presentation for Pew Initiative on Food and Biotechnology's Stakeholder Forum. Crossroads of Science and Regulation for Genetically Engineered Organisms in Agriculture: The Role of the National Academies. March 2002.

Invited presentation on animal biotechnology issues for the Animal Biotechnology Stewardship Technical Committee of the Animal Commodity Organizations Group, November 2001.

Invited speaker for USDA's International Fellow Program for Yugoslavian scientists and regulators, Agricultural Biotechnology and Communication, July 2001.

Invited panelist for Meridian International Visitors' Program on Genetically Modified Organisms for UK scientists and regulators, May 2001.

Invited panelist for State Department's Visitors' Program on Risk Management for Belgian risk managers, March 2001.

Invited presentation for and participant in the Private and Public Scientific Academic and Consumer Food Policy Group (PAPSAC), Harvard Business School, November 2000.

Invited panelist for State Department and American Farm Bureau International Visitors' Program on Genetically Modified Organisms for UK regulators and stakeholders, July 2000.

Invited presentations for USDA's Advisory Committee on Agricultural Biotechnology meetings-- July and November 2000, and August 2001.

Invited presentation for Southeast Asian Journalists interested in Agricultural Biotechnology, National Academy of Sciences Office of News and Public Information, July 2000.

Invited panelist for Meridian International's Biotechnology and Food Safety Program, Greek Grocers and Journalists. May 2000.

Invited panelist for USDA Biotechnology Special Grants: April 2000. Reviewed and helped rank proposals submitted to the USDA for research related to agricultural biotechnology.

Invited panelist for Meridian International's Biotechnology and Food Safety Program. Italian Grocers and Journalists. March 2000.

Member of the AAAS Fellowship Selection Committee: March 1999, 2000, and 2001. Reviewed applications for the AAAS Risk Assessment Science Policy Fellowship; interviewed and help rank the nominees.

Invited speaker for National Press Foundation. *Agendas 2000: Biological Engineering of Food*. January 2000.

Keynote Speaker for National Academies Presidents' Circle Meeting, *Biotechnology, Food and Agriculture: Understanding the spectrum of opportunities, challenges, and perspectives*. September 1999.

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## RESEARCH SUPPORT

### CURRENT (Secured)

<b>Kuzma, J.</b> Institute on the Environment Resident Fellow. <i>(all research account)</i>	<b>IoE</b>	<b>2009-2012</b>	<b>\$60,000</b>
<b>Kuzma, J. CoInvestigator</b> , National Science Foundation, Risk Analysis for Introduced Species and Genotypes, Interdisciplinary Graduate Education and Research Training Grant (IGERT); Ray Newman, Susan Galatowitsch, Anne Kapuscinski, David Andow, David Tilman (co-PIs). <i>(one week of summer salary 2008, 2 weeks 2009, and support of potential IGERT Research Assistants to HHH)</i>	<b>NSF</b>	<b>2007-2012</b>	<b>\$3,086,497</b>
<b>Kuzma, J. Co-PI</b> , NSF NIRT Award SES-0608791. Assessing Oversight Mechanisms for Active Nanostructures and Nanosystems: Learning from Past Technologies in a Social Context. Susan Wolf (PI) , Jennifer Kuzma, Jordan Paradise, Effie Kokkoli, Gurumurthy Ramachandran (co-PIs). <i>(one graduate RA 25% time, 50% summer for 3 years, and 4 weeks summer salary for 4 years to HHH)</i>	<b>NSF</b>	<b>2006-2010</b>	<b>\$1,181,720</b>
<b>Kuzma, J. Co-PI</b> , NSF NIRT Award SES-0709056 Intuitive Toxicology and Public Engagement (2007-2011) David Berube, North Carolina State University (PI), Dietram Scheufele, U of WI, Kevin Elliott, Univ. of South Carolina, Patrick Gehrke University of South Carolina , and Jennifer Kuzma (coPIs) <i>(one graduate RA 25% time, 50% summer for 2 years, 2009-2011, and 4 weeks summer salary for 2 years)</i>	<b>NSF</b>	<b>2007-2011</b>	<b>\$1,399,258</b>
<b>Kuzma, J. co-I</b> , Minnesota Office of Education, Nanotechnology Education. Leslie Flynn (PI), Lee Penn, Frank Joseph, John Nelson, Baskar Dahal, Brandy Toner, Jeffrey Long, Chun Wang, Wei Zhang, Sashank Varma, Keisha Varma, Andreas Stein, Christy Haynes, Jennifer Kuzma (co-Is) <i>(1% salary for one year)</i>	<b>MOE</b>	<b>2009-2010</b>	<b>\$58,669</b>
<b>PENDING</b>			
<b>Kuzma, J. co-PI</b> , National Science Foundation TRPGR: Precise Engineering of Plant Genomes using Zinc Finger Nucleases. Societal implications (Kuzma lead) Daniel Voytas (PI), Jennifer Kuzma (co-PI) <i>(50% RA for 4 years, and 1 month summer salary, workshop and research expenses totaling around \$300K)</i>	<b>NSF</b>	<b>2009-2013</b>	<b>\$3,364,997</b>
<b>Kuzma, J. co-I</b> . Microscopy Camp! Nanotechnology for Secondary Science Students and Teachers Leslie Flynn (PI), Lee Penn, Frank Joseph, John Nelson, Baskar Dahal, Brandy Toner, Jeffrey Long, Chun Wang, Wei Zhang, Sashank Varma, Keisha Varma, Andreas Stein, Christy Haynes, Jennifer Kuzma (co-Is) <i>(3% salary for two years)</i>	<b>NIH</b>	<b>2009-2011</b>	<b>\$981, 146</b>

### *Recent Past Support*

**Kuzma, J., Co-PI**, Initiative on Renewable Energy and the Environment Full cost accounting of Renewable Energy Systems. Tilman, Polasky, Kulacki, Eidman, Tiffany (co-PIs) **IREE 2005-2008 \$673,998**.

Kuzma, VerHage, and Kapuscinski. *Survey and Assessment of Agrifood Nanotechnology*. **Consortium on Law and Values in Health, Environment, and the Life Sciences**. **\$11,611.74** (November 2005-October 2006).

Kuzma, Keller, Pui, and Talukder. *The Nanotechnology-Biotechnology Interface: Exploring Models for Oversight*. **Consortium on Law and Values in Health, Environment, and the Life Sciences**. **\$21,000** (February 2005-January 2006)

Kuzma and Rejeski (**Pew Initiative on Emerging Nanotechnologies**/Woodrow Wilson International Center for Scholars). *The Nano-Bio Interface: Applications in Food and Agriculture—An Exploration of Projects, Potential Risk and Benefit Issues, and Governance Models*. WWIC/Pew Emerging Nanotechnologies Grant. **\$7,864** (May 2005-December 2005).

**Kuzma, J., PI**, Biobusiness Alliance of MN **BBAM 2008-2009** Systems Modeling Initiative Steve Kelley (co-PI) **\$10,000**

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## **TEACHING and ADVISING:**

### *Teaching*

Fall 2009, ISG 8021

Fall 2009, PA 8790 Nanotechnology & Society (3 credits, no co-instructor)

Fall 2008 PA 8790 Nanotechnology ELSI and Policy Implications (co-instructor with J. Paradise)

Fall 2008, ISG 5010 Risk Analysis for Introduced Species and Genotypes (NSF-IGERT course, team taught-5 instructors)

Fall 2008 Independent Study PA 8991 (1 student)

Spring 2008 Independent Study PA 8991 (2 students)

Spring 2008, 2009 Technology Policy Research: Working Group PA 8082.

Spring 2007, 2008 Science and Technology Policy, PA 5711.

Fall 2006, Fall 2007 Risk Analysis for Science and Technology Policy, PA 8790

Spring 2006, Science, Technology, and International Affairs, PA 5711

Spring 2006, Independent Study PA 8991 (4 students)

Fall 2003 Topics in Science and Technology Policy: Genetic Engineering, PA 5790

Spring 2005 and 2006, 2008, 2009 Guest Lecturer for PA 8002 *Transforming Public Policy*-- "Science and Technology's Contributions to Public Policy."

Spring 2005, Panelist for *Biosafety*---Risk Policy and Genetically Engineered Organisms.

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## ***Graduated Students***

### ***Paper Advisor & Chair***

Dave Walter (MPP-STEP, 2008, paper advisor, plan B)  
Adam Kokotovich, (MS 2008, Plan A), Social frameworks for public participation in nanotechnology.  
Mahri Monson (MS 2008, Plan A). System dynamics and biofuels policy  
Bjorn Gangeness (MS 2008). Cellulosic bioenergy: Incentives for farmers for dedicated crops  
Daniel Enderson (MS-2008), Methylmercury exposure in the Hmong Community  
(Winner of the 2008 Lloyd B. Short Award for best professional or plan B paper)  
Ben Coler (MS-JD 2008), Intellectual property and DNA sequences (paper advisor)  
Lesli Rawles, (MS-JD 2006), Pre-implantation Genetic Diagnostics (Paper advisor)  
Darrell Gerber (MS 2006), Full cost accounting of renewable energy systems (paper advisor)  
Kerri Elizabeth Sawyer (MS 2006), Health Disparities Affecting Children's Environmental Health  
Margaret Jacot, (MS-JD 2006), Medical technology (paper and academic advisor)  
Peter Verhage (MS 2006), Framework for nanotechnology governance (paper advisor)  
Kana Talukder, (MS 2006), Biosafety in India versus the U. S. (paper advisor)  
Joshua Paul Schenck, (MS 2005, Plan A), Methyl mercury health costs  
Genya Dana, (MS 2005), Trade policy and GEOS (paper and academic advisor)  
Sara Bertelson and Katie Theisen (MS 2004), Waste Management Policy  
Anna Blitz (MS 2004), Water Resource Management Policy

### ***Academic Advisor or Committee Member***

Melanie Kleiss, (MS 2004), *Driving Into Oblivion: Are hybrid vehicles environmentally benign?*  
Lydia Dobrovolny, (MS 2005), *An Analysis of Minnesota's E85 Pilot Project.*  
Kathryn Jones, (MS 2005), *Municipal Water Conservation.*  
Tim Patronski, (MS 2005, Plan A), International regulatory frameworks for genetically engineered fish  
Rong Wu (MS 2006, Plan B), China and C-sequestration  
Nelson, C. (MS 2007, Plan B) Renewable Energy policies  
Silver, L. (MS 2007, Plan B), Chicago Climate Exchange  
Romanchek, J. (MS 2007, Plan B) Chicago Climate Exchange.  
Plummer, J. (MS 2007, Plan B), Demand-side Energy Management  
Rane Gunderson (MS 2007, plan B), climate change and LDCs  
Melissa Pollak (MS 2008, Plan B) Carbon capture and sequestration  
Brenda M. Diethelm-Okita (MPA 2008)  
Andrew Gibbons (JD-MS, 2008 plan B, academic advisor)

## ***Current Advisees***

Frazier Benya, (Ph.D., History of Science, committee member).  
Ron Millen, (Ph.D. Conservation Biology, committee member), International Liability Regimes for GEOs  
Adam Kokotovich, (Ph.D. Environmental Management and Natural Resources, committee member),  
Melissa Maurer-Jones (Ph.D. Chemistry, committee member)  
Hung-Chung Su (Ph.D. Carlson School of Management, committee member)  
Genya Dana (Ph.D., Conservation Biology, committee member)  
Todd Tanji (MS, paper advisor, plan A)  
Pouya Najmaie (MS, paper advisor, plan A)  
Ethan Warner (MS, paper advisor, plan A)  
Robert Yawson (MS, paper advisor, plan A)

Dane McFarlane (MS, paper advisor, plan A)  
Michael Rentz (MS, paper advisor, plan A)  
Karen Moe, (MPP-STEP, paper advisor, plan B)  
Samantha Bohrman (MS-JD, paper advisor, plan B)  
Daniel Craigie (MS, paper advisor, plan B)  
Dane McFarlane (MS, Plan A, academic advisor)  
Prateek Dungel, (MS, plan B, committee member)  
Laura Yerhot (MPP-STEP, academic advisor)  
Kelly Morgan-Wilder (MS, academic advisor)  
Aaron Cromwell (MS, academic advisor)  
Youngbok Ryu (MS, academic advisor)  
Roxanne Johnson (MS, academic advisor)  
Matthew Pham (MS, academic advisor)  
Luke Hollenkamp (MS, academic advisor)  
Theresa Woods (MPA, independent study paper)  
Christine Traczyk (MPP, academic advisor)  
Peter Nussbaum (MS, Plan A, academic advisor)  
Larson, J. (MPP-STEP, prof. paper, committee member)  
Evans, Paige (MS 2009, committee member, plan b)  
Haltwinger, Julia (MS 2009, committee member, plan b)

***Research Assistants Supervised & Supported\* with Grants***

Laura Yerhot MPP-STEP (2008 present)  
Kelly Morgan MS (2008-present)\*  
Aliya Kuzhabekova Ph.D. Ed Policy (2008-present)  
Mahri Monson MS (2006-2008)\*  
Joel Larson MPP-STEP (2007-2008)  
Pouya Najmaie MS (2007-2008)\*  
Adam Kokotovich MS(2005-2007)\*  
James Romanchek MS (2006-2007)\*  
Peter VerHage MS (2005-2006)\*  
Darrell Gerber MS (2004-2006)\*  
Kana Talukder MS(2004-2005)\*  
Lydia Dobrovolny MS (2004-2005)\*

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**SERVICE**

U of MN, Social and Ethical Implications Point Person for U of MN National Nanotechnology Infrastructure Network (2008-present)

Uof MN, Area Chair, Science, Technology, Environmental Policy, Humphrey Institute (2007-present)

MS degree program head, Humphrey Institute (2006-present)

U of MN, Search Committee, Associate Director of the Initiative for Renewable Energy and the Environment (2008)

U of MN Interdisciplinary Graduate Education and Training, Risk Analysis for Introduced Species and Genotypes, Curriculum Committee (2007-present)

U of MN Institute on the Environment's Discovery Grants for Biofuels Review Panel (2007)

Science Museum of Minnesota. Nanoforum Advisory Committee (March 2007-present)

U of MN Humphrey Curriculum Committee, Humphrey Institute (2004-present).

U of MN Humphrey Ph.D. exploratory committee (2007-2008)

U of MN Humphrey Institute Executive Council (2007-2008)

U of MN Humphrey Denny Search Committee (2006-2007, 2007-2008)

U of MN Initiative on Renewable Energy and the Environment (IREE) Working Group, University of MN (2003-2008)

U of MN Consortium on Law and Values in the Health, Life, and Environmental Sciences, University of MN (2005-2007).

BioBusiness Alliance of MN—Board of Directors, Secretary, and Chairperson of the Legislative Group (2005-2008)

U of MN Steering Committee of the Ecosystem Science and Sustainability Initiative—U of MN (2005-2006)

U of MN Faculty Steering Committee for the President's Initiative on the Environment and Renewable Energy (2005-2006)

U of MN Chicago Climate Change Membership Exploratory Committee (2004).

U of MN Humphrey Institute Search Committee for STEP faculty (2003-2004, 2004-2005).

U of MN Conservation Biology Forest Resource Policy Search Committee (2004-2005)

Governor's (MN) Biosciences Advisory Committee (2003-2005)

Upper Midwest Hydrogen Initiative Planning Group (2003-2005)

FBI Scientific Working Group on Microbial Genomics and Forensics (2002).

Private and Public Scientific Academic and Consumer Food Policy Group (PAPSAC), Harvard Business School (2000).

*Escherichia coli* 0157:H7 Risk Assessment Team (1998-2000)

Society for Risk Analysis Food and Water Specialty Group (1997-1999).

National Food Safety Research Conference, organizing committee (1998).

Interagency Food Risk Assessment Group, chairperson (1997-1998).

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## JOURNAL SERVICE

Editorial Board, *International Journal for Green Nanotechnology*(2008-present)  
Faculty Editorial Board *Minnesota Journal of Law, Science, and Technology*(2008-present)  
Reviewer for *Science Communication* (2009)  
Reviewer for *Risk Analysis* (2008, 2009)  
Reviewer for *Journal of Nanoparticle Research*(2007, 2008)  
Reviewer for *Environmental Biosafety Research*( 2007)  
Reviewer for *Review of Policy Research* (2008)  
Reviewer for *Science and Public Policy* (2008)  
Reviewer for *The Handbook of Technology Management* (2008)  
Reviewer for *Regulation and Governance* (2008)  
Reviewer for *Public Understanding of Science*(2008)  
Reviewer for *Nanoethics* (2008, 2009)

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## PROFESSIONAL SOCIETIES

Society for the Study of Nanoscience and Emerging Technologies (S-NET) (Executive Committee)  
American Association for the Advancement of Science (member)  
Society for Risk Analysis (member, member of Decision Analysis and Risk, Law and Policy, and Emerging Nanoscience subgroups)  
System Dynamics Society (member 2007-2008)  
American Political Science Association, Associate Member ([Science, Technology and Environmental Politics](#) Section)

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## PROFESSIONAL EXPERIENCE:

**1999-2003**      **--Study Director, Program Director, and Senior Program Officer,  
National Academy of Sciences, National Research Council, Washington, DC**

--served as study director for the NRC reports on *Genetically Modified Pest-Protected Plants: Science and Regulation* (2000), *Countering Agricultural Bioterrorism* (2002), and *Indicators for Waterborne Pathogens* (2004).

--served as Senior Program Officer on several NRC projects in biotechnology and bioterrorism, including *Making the Nation Safer: the Role of Science and Technology in Countering Terrorism* (2002) and *Ecological Monitoring for Genetically Modified Crops* (2001).

--served as 1) Program Director for the standing Committee on Agricultural Biotechnology, Health and the Environment, which oversees several projects focusing on scientific and science policy issues associated with transgenic organisms used in agriculture and in food and fiber production, 2) Study Director for Indicators for Waterborne Pathogens, and 3) Senior Program Officer for Research Standards to Prevent the Dangerous Misuse of Biotechnology; Acquisition of Medical Countermeasures for Bioterrorism; Process to Identify and Assess the Unintended Health Effects of Genetically Engineered Foods; and Bioconfinement of Genetically Engineered Organisms.

--Managed a portfolio of projects with over \$1 million budget. Responsible for all phases and aspects: outreach and communication with stakeholders from government, industry, academe and the NGO communities; proposal development; fund-raising; budgeting; keeping abreast of the latest technical developments; science-policy research; report writing and editing; study dissemination; workshop planning; guiding committee members through the consensus process; contact with project sponsors; and oversight of project staff.

- 10/99-12/99 --**Consultant for the Risk Science Institute of the International Life Sciences Institute, Washington, DC**  
--helped revise and redraft microbial risk assessment framework for waterborne pathogens
- 9/98-12/98 --**Program Specialist in Plant and Animal Systems at the Cooperative State Research, Education and Extension Service of the USDA, Washington, DC**  
--coordination & review of food safety and other special research grants  
--organization of national food safety conference  
--participation on drafting team for interagency report on food safety
- 9/97-9/98 --**AAAS Risk Assessment Science Policy Fellowship at the USDA, Washington, DC**  
--microbial risk assessment and the role of risk assessment in policy and decision-making  
--coordination of interagency risk assessment working group for *E. coli* 0157:H7 in beef and hamburger  
--coordination of USDA Bovine Spongiform Encephalopathy (BSE) activities  
--participation in several risk analysis training activities
- 10/95-8/97 -- **Research fellow: plant molecular biology. The Rockefeller University, New York City.**  
--Dr. Nam Hai-Chua, mentor  
--identification of signal transduction intermediates during plant responses to cold, drought and salinity
- 6/91-8/95 -- **Ph.D. thesis: environmental biochemistry. University of Colorado.**  
--Dr. Ray Fall, mentor  
--purification of novel plant enzyme  
--discovery of bacterial isoprene emission  
-- regulation of novel enzymes/genes
- 9/93-12/94 --**Teaching activities at University of Colorado, Boulder**  
--instructor for general chemistry lab and lecture  
--tutor and guest lecturer for biochemistry course
- 8/90-5/91 --**Research assistant projects at University of Colorado, Boulder**  
--microbial degradation of pentachlorophenol  
--enzymology of DNA polymerase/primase  
--regulation of bacterial ice nucleation proteins
- 6/89-1/90 --**Undergraduate research projects, St. Paul, MN**  
--role of *ras p21* during liver cell regeneration  
--NSF project: isolation of B<sub>12</sub> biosynthetic genes from bacteria
- 5/88-9/88 --**Field biology researcher for Metropolitan Mosquito Control, Mpls., MN**  
--correlation of mosquito stage of development to water and vegetation
- 5/87-9/87 --**Technical aide at 3M Company in St. Paul, MN**

## **PROFESSIONAL COURSEWORK**

System Dynamics Workshop: George Richardson, hosted by Center for Science, Technology, and Public Policy and Biobusiness Alliance of MN. April (2008).

System Dynamics Workshop Courses: Getting started with Ven Sim, Dynamic Experiments for a First Course, and Lessons for a First Course (2007)

Center for Teaching and Learning: Active Lectures, Powerpoint Reconsidered, and Course Design (2007)

Early Career Teaching Program, U of MN (Fall 2007)

Responsible Conduct of Research, U of MN (2007).

Supervisory Training, National Academies Staff Development, October 2002.

“Quantitative Risk Assessment Modeling”, USDA Graduate School, April 1998.

BSE Risk Communication Training, Focus Group, Inc., Washington DC, March 1998 and April 1998.

“Microbial Risks from Food: Quantification and Characterization”, Society for Risk Analysis, December 1997.

“Introduction to Risk Assessment”, USDA/FDA Graduate School Course, October 1997.