

**Jennifer Kuzma, Ph.D.**

Associate Professor  
Science, Technology, and Environmental Policy  
Humphrey School of Public Affairs  
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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 (2010 Tenured, 2007-2010 Tenure Track)**, Humphrey Institute, University of Minnesota; Science, Technology, and Environmental Policy
- 2009-present, **Senior Member/Graduate Faculty** of Masters of Science in Security Technologies
- 2007-present, **Senior Member/Graduate Faculty**, NSF-funded U of M Interdisciplinary Graduate Education and Research and Training (IGERT) program on Risk Analysis for Introduced Species and Genotypes
- 2006-present, **Senior Member/Graduate Faculty** of the Conservation Biology Ph.D. Program
- 2006-2007, **Interim Director**, Center for Science, Technology, and Public Policy, Humphrey Institute, University of MN
- 2006-2007, **Assistant Professor**, Humphrey Institute, University of Minnesota
- 2004-2005, **Associate Director**, Initiative for Renewable Energy and the Environment, University of MN
- 2003-2006, **Affiliate Graduate Faculty** and **Associate Director**, Center for Science, Technology, and Public Policy, Humphrey Institute, University of MN

**PROFESSIONAL EXPERIENCE:**

- 1999-2003, **Study Director, Program Director, and Senior Program Officer**, National Academy of Sciences, National Research Council, Washington, DC
- 1998, **Program Specialist**, United States Department of Agriculture, Washington, DC

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**HONORS, APPOINTMENTS, AND AWARDS:**

- Hennebach Visiting Professorship, Colorado School of Mines (Spring 2011)
- Expert Group. EU FP7 project 'SYNTH-ETHICS' (2011)
- U.S. Food and Drug Administration (FDA) Blood Products Advisory Committee (2011-present)
- Best Technical Article (Special Interest Under 60,000) - GOLD for the article "Nanotech: A History Lesson" Minnesota Magazine and Publishing Association (2010)
- Elected Vice Chair (2012) and Chair (2014) for Gordon Research Conference on Science and Technology Policy.
- Chair-elect (2011) of Risk Policy and Law Subgroup for Society for Risk Analysis.

- Nominated for Association of Policy, Planning and Management (APPAM) Best Comparative Policy Analysis Paper Award (2010)
- European Commission Expert Group for 2011 Science in Society Work Programme (2009)
- Selected to serve on the United Nations WHO/FAO Expert Committee on Food and Nanotechnology (2009)
- Institute on the Environment (IonE) Resident Fellow (2009-2012)
- Selected for Executive Committee of International Society for the Study of Nanoscience and Emerging Technologies (2008-2010)
- 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:

### Articles for Peer-reviewed or Edited Legal Journals

- 1) **Kuzma, J.** and Kuzhabekova, A. (2011) "Corporate Social Responsibility for Nanotechnology Oversight" *Medicine, Health Care, and Philosophy* DOI: 10.1007/s11019-011-9330-3.
- 2) **Kuzma, J.**, and Kokotovich, A. (2011). "Renegotiating GM Crop Regulation" *EMBO Reports* advance online publication 12 August 2011; doi:10.1038/embor.2011.160
- 3) Fatehi, L, Wolf, S., Ramachandran, G. and **J. Kuzma.** (2011). "Designing Nanobiotechnology Oversight". *Journal of Nanoparticle Research* 13(4): 1341-1343.
- 4) Ramachandran, G. Wolf, S. Paradise, J., **Kuzma, J.**, Hall, R., and L. Fatehi. (2011) "Dynamic Oversight for Nanobiotechnology" *Journal of Nanoparticle Research* 13(4): 1345-1371.
- 5) **Kuzma, J.** and Kuzhabekova, A. (2011) „Nanotech oversight, voluntary data submission, and corporate social performance: Does company size matter?" *Journal of Nanoparticle Research* 13(4): 1499-1512.
- 6) **Kuzma J.** (2011) "Fritz Allhoff, Patrick Lin, and Daniel Moore. What is Nanotechnology and Why Does it Matter?: From Science to Ethics". *Journal of Bioethical Inquiry* 8: 209-211.
- 7) Meghani, Z. and **J. Kuzma.** "Addressing the Regulatory Agency-Industry Revolving Door Problem for Emerging Technologies: Re-Conceptualizing Objectivity," *Journal of Agricultural and Environmental Ethics* 23(6): (2010)

- 8) **Kuzma, J.** and S. Priest. "Nanotechnology, Risk and Oversight: Learning Lessons from Related Emerging Technologies," *Risk Analysis* 30(11): 1688-1698 (2010).
- 9) Yawson, R. and **J. Kuzma.** "Systems mapping of consumer acceptance of agrifood nanotechnology" *Journal of Consumer Policy* 33 (4): 299- 322 (2010).
- 10) **Kuzma, J.** and T. Tanji, "Unpacking Synthetic Biology for Oversight Policy" *Regulation & Governance* 4: 92-112 (2010).
- 11) **Kuzma, J.** "Nanotechnology in Animal Production: Upstream Assessment of Applications". *Livestock Science* 130: 14-24 (2010).
- 12) **Kuzma, J.** "Nanotechnology: Piecing Together the Puzzle of Risk". *Current Controversies in Science and Technology*, Volume III; Eds. D. Kleinman et al (2010).
- 13) **Kuzma J.** and Z. Meghani . "A possible change in the U.S. risk -based decision making for emerging technological products: Compromised or enhanced objectivity?" *EMBO Reports* 10: 1-6 (2009).
- 14) **Kuzma, J.** and Kuzhabekova, A, Wilder, K. "Improving Oversight of Genetically Engineered Organisms" *Policy & Society* 28: 279-299 (2009).
- 15) Paradise, J., S.M.Wolf, **J. Kuzma,** G. Ramachandran, and E. Kokkoli. "Introduction: The Challenge of Developing Oversight Approaches to Nanobiotechnology," *Journal of Law Medicine and Ethics* 37(4): 543-545 (2009).
- 16) Paradise, J., Wolf, S., **Kuzma, J.,** Kuzhabekova, A., Wedekind, A., Kokkoli, E., and G. Ramachandran. "Developing Oversight Strategies for Nanobiotechnology: Learning from Past Oversight Experiences." *Journal of Law, Medicine, and Ethics* 37 (4): 688-705 (2009)
- 17) **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* 37 (4): 546-586 (2009).
- 18) **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).
- 19) **Kuzma, J.** and J.C. Besley. "Ethics of Risk Analysis and Regulatory Review: From Bio- to Nanotechnology," *Nanoethics* 2(2): 149-162 (2008).
- 20) **Kuzma, J.** Romanchek,J. and A. Kokotovich "Upstream Oversight Assessment for Agrifood Nanotechnology." *Risk Analysis* 28(4): 1081-1098 (2008).
- 21) 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).
- 22) 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).

- 23) **Kuzma, J.** “Moving Forward Responsibly: Oversight for the Nanotechnology-Biology Interface,” *Journal of Nanoparticle Research*, 9:165-182 (2007).
- 24) **Kuzma, J.** “Nanotechnology Oversight: Just do it” *Environmental Law Reporter* 36:10913-10920 (2006).
- 25) **Kuzma, J.** and A. Ahl. “Living with Bovine Spongiform Encephalopathy.” *Risk Analysis* 26:585-588 (2006).
- 26) 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).
- 27) Ahl, A. and **J. Kuzma.** “Microbes, Food Safety and the Environment: Issues in Risk Analysis.” *Technology* 6: 363-369 (1999).
- 28) 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).
- 29) **Kuzma, J.**, Nemecek-Marshall, M., Pollock, W., and R. Fall. “Bacteria Produce the Volatile Hydrocarbon Isoprene” *Current Microbiology* 30: 97 (1995).
- 30) 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).
- 31) **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:**

- 32) Brown, J., **Kuzma, J.**, Merril, A. “Public perceptions of food nanotechnology in dialogue settings” *Journal of Nanoparticle Research* (in preparation).
- 33) Kuzhabekova, A. and **J. Kuzma.** “Bibliometric analysis of collaboration in genetically modified organisms risk assessment” *Risk Analysis* (in preparation).
- 34) Showalter, S., **Kuzma, J.** and Gilna, B. Principle-based Governance for Genetic Biocontrol Technologies for Invasive Species. *Biological Invasions* (in preparation).
- 35) Dana, G., Kapuscinski, **Kuzma J.** and C. Russil. “Reflexive Risk Governance of Emerging Technologies” *Science, Technology, and Human Values* (submitted, under review).

**Peer-Reviewed and Edited Books/Journal Symposia**

- 36) “Governance of Nanobiotechnology” L. Fatehi, S.M.Wolf, G. Ramachandran, and J. Kuzma. *Special Symposium of Journal of Nanoparticle Research* 13(4) (2011).
- 37) “Developing Oversight Approaches to Nanobiotechnology: The Lessons of History.” S.M. Wolf, G. Ramachandran, **J. Kuzma**, and J. Paradise (eds.) *Special Symposium of Journal of Law, Medicine and Ethics*. 37 (4) (2009).
- 38) <sup>1</sup>National Research Council. **J. Kuzma**. Study Director. *Countering Agricultural Bioterrorism*. (2003).
- 39) <sup>2</sup>National Research Council. **J. Kuzma**, Study Director. *Genetically Modified Pest-Protected Plants: Science and Regulation*. (2000).

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

- 40) **Kuzma, J.** “Nanotechnology Governance and Publics: Making Connections in Policy” in *Nanotechnology and the Public Sphere*. Ed Susanna Priest. Taylor & Francis (2011).
- 41) **Kuzma, J.** “Multi-criteria decision making for studying nanotechnology & society,” *Encyclopedia of Nanoscience and Society* Ed. David Guston, SAGE Publications (2010) (edited volume)
- 42) **Kuzma, J.** and R. L. Johnson. “Nanotechnology: Environmental Benefits,” *Encyclopedia of Nanoscience and Society* Ed. David Guston, SAGE Publications (2010) (edited volume)
- 43) **Kuzma, J.,** Kuzhabekova, A., Priest, S., and L. Yerhot. “Expert Opinion of Emerging Technologies Oversight: Lessons for Nanotechnology from Biotechnology” p. 133-156 *Understanding Nanotechnology: Philosophy, Policy, and Publics*. Ed. Fieldeler, et al. IOS Press: Amsterdam (2010) (peer-reviewed, edited volume)
- 44) **Kuzma, J.** “Nanotechnology Regulation and Oversight” In *Encyclopedia of Science and Technology Communication*. Ed. Susanna Priest. SAGE Publications (2010) (edited volume)
- 45) **Kuzma, J.** “Biotechnology: Technology and Future, Prosperity and Risks”, pp. 523-531. in *A Companion to the Philosophy of Technology*, Ed. Berg, Oslen, Pedersen, and Hendricks. Wiley-Blackwell Publishing 2009 (peer-reviewed, edited volume)
- 46) **Kuzma, J.** “Global Challenges: Technology and Future, Prosperity and Risks”, pp. 538-545, in *A Companion to the Philosophy of Technology*, Ed. Berg, Oslen, Pedersen, and Hendricks. Wiley-Blackwell Publishing. 2009 (peer reviewed, edited volume).
- 47) **Kuzma, J.** “Nanotechnology, Ethics and the Environment” in *Encyclopedia of Environmental Ethics and Philosophy*. pp. 80-83. Eds. J. Baird Callicott and Robert Frodeman. Macmillian Publishers. (2008). (peer reviewed, edited volume)

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<sup>1</sup> Contribution as study director to this NRC study was equivalent to being an editor of a (peer review process for its books. Its sister organization IOM does list study directors as editors.

<sup>2</sup> Contribution as study director to this NRC report was 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 its books. . Its sister organization IOM does list study directors as editors.

- 48) **Kuzma, J.** “FDA, the Environment and Ethics” in *Encyclopedia of Environmental Ethics and Philosophy*. pp. 359-360. Eds. J. Baird Callicott and Robert Frodeman. Macmillian Publishers. (2008). (peer reviewed, edited volume)
- 49) **Kuzma, J.** “Moving Forward Responsibly: Oversight for the Nanotechnology-Biology Interface,” In *Nanotechnology and Occupational Health*, A. pp. 165-182. Maynard & D. Pui Eds. Dordrecht, Netherlands: Springer. 2007. (reprint of Journal of Nanoparticle article)
- 50) <sup>3</sup>National Research Council. **J. Kuzma.** Co-Study Director. *Indicators for Waterborne Pathogens*. 2004.
- 51) <sup>4</sup>National Research Council. **J. Kuzma.** Senior Program Officer. *Countering Bioterrorism: The Role of Science and Technology* 2002.
- 52) **Kuzma, J.** “Report of the Lignin Modification Group.” In *Criteria for Field Testing Plants with Engineered Regulatory, Metabolic and Signaling Pathways*. Pp. Wolfenbarger, L. ed. Information Systems for Biotechnology. 2002. (peer reviewed)
- 53) 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. (edited volume)

### Other Publications

- 54) Campbell, S., Haynes, C., **Kuzma J.**, Moody, C., Newberry D. and Ramachandran G., Minnesota Nanotechnology: A report to the state legislature. January 2011.
- 55) **Kuzma, J.** Sizing Up Nanotechnology Oversight. *MN Nano E-Newsletter*, #13, July 2010.
- 56) **Kuzma, J.** Nanotechnology: A History Lesson. *Momentum* magazine. Winter 2010.
- 57) United Nations FAO/WHO. (2009). FAO/WHO Expert Meeting on the Application of Nanotechnologies in the Food and Agriculture Sectors: Meeting Report. Experts: Abbot, L., Bartholomaeus, AR, Biesalski, HK, Bouwmeester, H., Chaudhry, Q, Cheesman, MA, Chen, H., Gatti, AM, Hirose, A., **Kuzma J.**, Martin, P, Morris, VJ, Oberdorster, G., Park HJ, Peltonen, KE, de Oliveira, CR. FAO/WHO Secretariat, de Lourdes Costarrica, M., Clarke, R., Takeuchi, M., Santini, N., Fukushima, K, Lutzow, M.
- 58) 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.

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<sup>3</sup> Contribution as co-study director to the following NRC publications was equivalent to being a co-author of chapters for a published, peer-reviewed, scholarly book.

<sup>4</sup> Contribution as program officer to the following NRC publications was equivalent to being a co-author of chapters for a published, peer-reviewed, scholarly book.

- 59) **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.
- 60) **Kuzma, J.** “Global Challenges and Biotechnology” *Economic Perspectives*: October, 2005.
- 61) **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.
- 62) **Kuzma, J.** and L. Dobrovolny. Editors. *The Global Climate and Economic Development*. Center for Science, Technology, and Public Policy. Humphrey Institute. 2005
- 63) 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)
- 64) 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)
- 65) **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
- 66) 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)
- 67) Gould F., and **J. Kuzma**. “The Academy Responds (Biotech regulation).” *The Scientist*. October 14, 2002.

The following publications are ones to which I contributed, but had a relatively minor authorship role: (they are not included in the tables in section 2)

- 68) National Research Council. **J. Kuzma**. Senior Program Officer. *Marine Biotechnology in the 21<sup>st</sup> Century*. 2002.
- 69) National Research Council. **J. Kuzma**. Program Director. *Animal Biotechnology: Science-Based Concerns*. 2002.
- 70) National Research Council. **J. Kuzma**. Senior Program Officer. *Environmental Issues Associated with Transgenic Plants*. 2002.
- 71) National Research Council. **J. Kuzma**. Program Director. *Ecological Monitoring of Genetically Modified Crops*. 2001.
- 72) National Research Council. **J. Kuzma**, Program Officer. *Bioinformatics: Converting Data to Knowledge*. 2000.

- 73) National Research Council. **J. Kuzma**, Program Officer. *Finding the Path: Issues of Access to Research Resources*. 1999.
- 74) USDA Food Safety and Inspection Service, E. coli 0157:H7 Risk Assessment Team. **Kuzma, J.** drafted early parts of slaughter module. Part of resource team. “*Risk Assessment of the Public Health Impact of Escherichia coli 0157:H7 in Ground Beef*” (2001).
- 75) *Salmonella I* Enteritidis Risk Assessment Team, Kuzma (resource member) “*Salmonella Enteritidis Risk Assessment: Shell Eggs and Egg Products. Final report.*” Prepared for the USDA Food Safety and Inspection Service. June (1998).

### **Patent**

- 76) 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 2008.**

### **Refereed Published Conference Abstracts:**

- 1) Hollenkamp, L. and **J. Kuzma**. Risk Governance of Nano-geoengineering. Society for Risk Analysis Annual Meeting. Charleston, SC. Dec 4-6, 2011. (abstract accepted)
- 2) Kokotovich, A. and **J. Kuzma**. Examining the potential futures of plant targeted genetic modification, Society for Risk Analysis Annual Meeting. Charleston, SC. Dec 4-6, 2011. (abstract accepted).
- 3) **Kuzma, J** and A. Kuzhabekova. Room for Good Will? Examining Voluntary Programs for Nano-Oversight in the Context of Corporate Social Responsibility. Society for the Study of Nanoscience in Society (S.NET) Annual Conference. Tempe, AZ November 4-6, 2011. (abstract accepted)
- 4) Brown, J., **Kuzma, J.**, and A. Merrill. Hungry for Information: Exploring the Public’s Perception of Nanotechnology in Food using Conversational Settings. Society for the Study of Nanoscience in Society (S.NET) Annual Conference. Tempe, AZ November 4-6, 2011. (abstract accepted)
- 5) **Kuzma, J.** and A. Kuzhabekova. A Window into the Field of Biotechnology Risk Analysis: A Bibliometric Approach. The Atlanta Conference on Science and Innovation Policy. Atlanta, GA Sept 15-17, 2011. (abstract accepted)
- 6) Meghani, Z. and **J. Kuzma**. Reconfiguring the Regulatory System to Meet the Nanofood Regulation Challenge. Society for Philosophy of Science in Practice bi-annual meeting in Exeter, UK. June 22-24, 2011 (accepted)
- 7) **Kuzma, J.** “Dynamic Risk Governance for Converging Technologies”  
Symposium chair “Emerging Technologies: Dealing with Uncertainty in Risk Policy” Society for Risk Analysis Annual Meeting, December 2010. (accepted)

- 8) Yawson, R. and **J. Kuzma**. Evidence review and experts' opinion on consumer acceptance of agrifood nanotechnology International Conference on Food and Agricultural Applications of Nanotechnologies, Sao Carlos, Brazil, in June 20-25, 2010 (accepted)
- 9) Meghani, Z and **J. Kuzma**. The significance of the acknowledgement of the normativity of Risk assessment of food biotechnologies" 10<sup>th</sup> World Congress of Bioethics, Singapore, 28 – 31 July 2010 (abstract accepted).
- 10) Wolf, K. and **J. Kuzma**. Rulemaking, Public Comments and Participation: A Case Study of Genetically Engineered Organisms . Graduate Student Conference sponsored by The American Association for the Advancement of Science (AAAS) and The National Academies (NAS). April 9-11, 2010 (abstract accepted)
- 11) Kokotovich, A., **Kuzma, J.** and D. Voytas. Novel technologies, recurring challenges: Engaging the next generation of plant genetic modification. Graduate Student Conference sponsored by The American Association for the Advancement of Science (AAAS) and The National Academies (NAS). April 9-11, 2010. (abstract accepted)
- 12) **Kuzma, J.** and R. Johnson. "Emerging nanomaterials and environmental risk: What can systems modeling approaches offer risk analysis?" Submitted Society for Risk Analysis Annual Meeting, Baltimore, MD, Dec. 2009. Symposium chair, "System Dynamics Meets Risk Analysis – Integrating Approaches to Improve Health and Environmental Decisions" Refereed (accepted), abstract.
- 13) **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. Refereed (accepted), paper. **Invited to submit for Comparative Policy Analysis Best Paper Award.**
- 14) **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. Refereed (accepted).
- 15) **Kuzma, J.** and T. Tanji, "Unpackaging Synthetic Biology: Identification of Policy Problems and Options" (2009). APSA 2009 Toronto Meeting Paper. Abstract available at SSRN: <http://ssrn.com/abstract=1451425> (paper reviewed at conference).
- 16) 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. Paper.
- 17) **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.
- 18) 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

- 19) **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
- 20) 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
- 21) 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
- 22) **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
- 23) 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
- 24) Kuzma, J. Romanchek, J. and KokotovichA. "Upstream Oversight Assessment for Agrifood Nanotechnology" American Association for the Advancement of Science (AAAS) meeting. , February 2007. refereed
- 25) **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
- 26) 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
- 27) 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
- 28) 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
- 29) **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
- 30) **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

**Scholarly Presentations (in addition to those listed under Conference Proceedings)**

- Kuzma, J. Nanotechnology and the Environment: Policy from local to national. Invited pre-presentation for Dr. Paul Bertsch's Ninth Annual William E. Larson and Raymond R. Allmaras Lecture on Emerging Issues in Soil and Water, Program, Wednesday 13 April 2011, University of Minnesota.
- Kuzma, J. Emerging Technologies: Progress or Poor Paradigms? Hennebach Visiting Professor Lecture, March 23, 2011, Colorado School of Mines.
- Kuzma, J. Emerging Technologies: Oversight under uncertainty. Policy@Tech Seminar Series. Georgia Tech. February 23, 2011.
- Kuzma, J. "Emerging Technologies and the Environment: The Right Pushmi-Pullyu?" Frontiers on the Environment lecture series. University of Minnesota. November 10, 2010.
- Kuzma, J. "Teenage Identity or Midlife Crisis: The Tangled Web of Science and Technology Policy Education" Gordon Conference on Science and Technology Policy. August 2010. (invited plenary speaker)
- Kuzma, J. International Symposium on Genetic Biocontrol Of Invasive Fish, USDA/FWS/SeaGrant, Minneapolis, MN June 21-24, 2010. (invited speaker)
- Kuzma, J. "Governance of Agrifood Nanotechnology: Research and Policy Implications" International Conference on Food and Agricultural Applications of Nanotechnologies, Sao Carlos, Brazil, in June 20-25, 2010 (invited speaker)
- Kuzma, J. IGERT symposium, "Right Risks: Ethics and Ecological Risk Analysis", University of MN, April 30, 2010 (invited plenary speaker)
- Kuzma J. "Dynamic Oversight for Emerging Technologies" Governing Nanobiotechnology: Reinventing Oversight in the 21<sup>st</sup> Century. Mpls, MN April 15, 2010 (plenary speaker, moderator, and conference co-organizer)
- Kuzma, J. National Nanotechnology Initiative (NNI) workshop, "Capstone Meeting: Risk Management Methods and Ethical, Legal and Societal Implications of Nanotechnology." March 30-31, 2010, Washington DC. (invited expert roundtable participant).
- Kuzma, J. "Systems Approaches to Environmental Risk of Nanomaterials" Midwestern States Risk Assessment Symposium on Nov 3, 2009 at the Hyatt Regency Hotel in Indianapolis. (invited speaker)
- Kuzma, J. Invited participant in National Academy of Sciences-National Research Council workshop on Agrifood Nanotechnology, August 22, 2009, in Washington DC.
- 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 & Accountabilit. 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. Global Policy Forum, University of MN, “Does U.S. S&T Policy need a Paradigm Shift?” Sept. 16, 2008.
- 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 Naonmaterial 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. “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. “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 May1-2, 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, J. MN Pollution Control Agency, “Grand Challenges for Nanotechnology Policy and the Environment,” February 2007. (invited speaker)
- Kuzma, J. 3M company’s Technology Forum. “Nano-policy: No small matter” November 2006. (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 “ one 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)
- Kuzma, J. Freeman Center International Trade Consortium. University of MN. “Genetic Engineering: Science, Uncertainty and International Trade”. January 2004.
- Kuzma, J. “Genetically Modified Organisms in Food” Invited presentation for and participant in the Private and Public Scientific Academic and Consumer Food Policy Group (PAPSAC), Harvard Business School, November 2000.
- Kuzma, J. “Biotechnology, Food and Agriculture: Understanding the spectrum of opportunities, challenges, and perspectives,” Keynote Speaker for National Academies Presidents’ Circle Meeting, September 1999.

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**OUTREACH PRESENTATIONS, PANELS, and PRESS INTERVIEWS**

- U of MN Graduate Program in Neuroscience Career Forum. Speaker. April 11, 2011.
- Panelist. Science Museum of Minnesota Science Café for NanoNight 2011. National Nanodays. Black Dog Café St. Paul, MN. March 29, 2011.
- Quoted and featured in 14 December 2010. *Newhaven Independent* A Biotech Road Map?
- Quoted in Technology Leadership Institute Fall 2010/2011 newsletter. November 16, 2010.
- Quoted in *Winona Daily News* “Nanotechnology Takes Hold in SE Minnesota” April 25, 2010.
- Kuzma, J. “Bio and Nanotechnology: Policy and potential social and environmental implications”. North American Hazardous Materials Management Association. Mpls, MN Invited plenary speaker. May 24, 2010.
- Work featured in March 2010, All About Feed magazine.
- Briefed Senator Al Franken’s staff on nanotechnology Senate bills going through Congress. March 31, 2010.
- Quoted in AOL News. A. Schneider. “Why Nanotech Hasn't (Yet) Triggered 'the Yuck Factor'?”. March 24, 2010..
- Kuzma J. Interview used for “Take a Nanooze Break,” a long-term exhibit at the Walt Disney World Resort in Lake Buena Vista, FL, at Epcot Center. Premiered Feb 2010.
- Kuzma, J. “GMOs and Environmental Risk Policy” for Conservation Biology Seminar Series, U of M, November 30, 2009.
- Kuzma, J. Guest lecture on emerging technologies and FDA policy “Food and Drug Safety: Whom Can You Trust?” Undergraduate Honors Program course, U of M, November 10, 2009.
- Kuzma, J. “No Small Matter: Nanotechnology and Social Issues”, Microscopy Camp! For grades 7-12 Metro High School Science Teachers. July 28, 2009.
- Interviewed and quoted in The Bloomington Alternative, S Higgs, June 28, 2009. “Nanotechnology : Revolution and Pollution”
- Interviewed for and quoted in MinnPost Article, “As nanotechnology hits the marketplace, safety is a growing issue,” May 14, 2009. Dawson, J. Also posted on Inside Science News Service.
- Quoted multiple times in AAAS news release reporting on research “Experts Explore the Dilemma of Regulating Nanotech and Other New Technologies” Lane, E. May 18, 2009.
- 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 Earth&Sky Radio, syndicate for over 1900 outlets. March 16, 2009. Aired April 2009.
- Kuzma J. Interviewed and quoted for Functional Ingredients magazine, Nanotechnology and food. March 2009.
- Kuzma, J. Interviewed for “The Perils of Nanotechnology”, by Steven Higgs, *Counterpunch* May 1-15, 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)
- Quoted in Chemistry Times “Patent for renewable alternative to petroleum-derived isoprene granted to researcher” (10/18/2008)
- Interview with Finance and Commerce Magazine, August 13<sup>th</sup>, 2008, story in print August 15, 2008.
- Story in AzoNanotechnology news on recent published paper “Nanotechnology Providing Great Benefit Along with Potential Risk” , August 13, 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. 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 Country 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 Saskatoon, 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.gsrc.org/story.php3?story\\_id=3481](http://www.gsrc.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. 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.
- ISB News Report on published work. Jones, P.C. “A nanotechnology revolution in the food and agricultural industry,” Food HAACP Newsletter, Issue 214, 2006.
- Rapporteur for “Standards for Nanotechnologies: A Workshop.” MSU, Sept. 11-12, 2006.
- Article on research in Nanowerk News, “New report on nanotechnology in agriculture and food looks at potential applications, benefits, and risks,” September 7, 2006
- Quoted/Interviewed in LiveScience article and FoxNews.com story, “Scientists Worry About Potential Risks of Nanotechnology in Food” Choi, C.Q, September 7, 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>
- Story on recently published work "Report Urges Coordinated And Integrated Oversight Of Nanotechnology" ScienceDaily (Feb. 17, 2006)
- 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. 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 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 Meridian International's Biotechnology and Food Safety Program. Italian Grocers and Journalists. March 2000.
- Invited speaker for National Press Foundation. Agendas 2000: Biological Engineering of Food. January 2000.

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## RESEARCH SUPPORT

### CURRENT (Secured)

- I. **Kuzma, J. PI. Quick K. co-PI** Consortium 2011-2012 **\$27,500**  
**Public/Expert Boundary Work in Environmental Risk Management: The Emerald Ash Borer Consortium on Law and Values in the Health, Environmental, and Life Sciences.**
- II. **Kuzma, J.** **GIA** 2011-2013 **\$35,357**  
**What Constitutes Risk Assessment for Emerging Technologies?**  
**A Science of Science Policy Approach.** Kuzma (PI) Grant-in-Aid, University of Minnesota. 50% Research Assistant, Travel to meet with GA Tech collaborators, and software. All to HHH.
- III. **Kuzma, J.** Institute on the Environment **IonE** 2009-2012 **\$60,000**  
**Resident Fellow: Collaborative Systems Modeling.**  
(all to Kuzma research account)
- IV. **Kuzma, J. Co-PI** **NSF** 2007-2012 **\$3,086,497**  
**Risk Analysis for Introduced Species and Genotypes, Interdisciplinary Graduate Education and Research Training Grant (IGERT);**  
Ray Newman, Susan Galatowitsch, Anne Kapuscinski (co-PI until 2009), Jennifer Kuzma (co-PI since May 2009, co-Investigator from 2007-2009)), David Andow, and Ruth Shaw.

(one week of summer salary 2008, 2 weeks 2009, and support of potential IGERT Research Assistants)

- V. **Kuzma, J. Co-PI**, NSF NIRT Award SES-0709056 NSF 2007-2011 **\$1,399,258**  
**Intuitive Toxicology and Public Engagement**  
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)  
(one graduate RA 25% time, 50% summer for 2 years, 2009-2011, and 4 weeks summer salary for 2 years)
- VI. **Kuzma, J. co-PI**, National Science Foundation NSF 2009-2013 **\$3,364,997**  
**TRPGR: Precise Engineering of Plant Genomes using Zinc Finger Nucleases.**  
**Societal implications** (Kuzma lead)  
Daniel Voytas (PI), Jennifer Kuzma (co-PI)  
(50% RA for 4 years, and 1 month summer salary, workshop and research expenses totaling around \$300K)

#### RECENT PAST SUPPORT

- VII. **Kuzma, J. Co-PI**, NSF NIRT Award SES-0608791. NSF 2006-2010 **\$1,181,720**  
**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). (one graduate RA 25% time, 50% summer for 4 years, and 4 weeks summer salary for 4 years to HHH)
- VIII. **Kuzma, J. Co-I**, Minnesota Office of Education, MOE 2009-2010, **\$58,669**  
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-Investigators) (1% salary for one year)
- IX. **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) Large Grant. **IREE 2005-2008, \$673,998.**
- X. Kuzma, VerHage, and Kapuscinski. Survey and Assessment of Agrifood Nanotechnology. **Consortium on Law and Values in Health, Environment, and the Life Sciences. \$11,612** (November 2005-October 2006).
- XI. 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)
- XII. 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).

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

**XIV. Polasky, S., Kuzma, J., Tilman, D., and N. Zetouni.** Full Cost Accounting of Renewable Energy Systems. **IREE Seed Grant.** (SG-P3-2004) (June 2004-May 2005) **\$38,506.**

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## **TEACHIN, Training, and ADVISING:**

### **Training**

Developed Social and Ethical Implications (SEI) training course for graduate students working with nanomaterials at the U of MN National Nanotechnology Infrastructure Network (NNIN) (2010)

### **Teaching grants**

Kuzma, J. European Studies Consortium. \$3000 Award to add European content to science and technology policy courses. Summer 2010.

### **Courses**

Fall 2010, 2011 ST 8511 (Master of Security Technologies Program) Public Policy, 1 credit (lead instructor, 1 other)

Fall 2010 PA 8790/Law 6037/BHTX 8000 Nanotechnology Law, & Society, 3 credits

Summer 2010 & 2011. ST 8330, Critical Infrastructure Protection (co-instructor with 4 others) Management of Security Technologies program (MoSST)

Fall 2010 and Spring 2010, Fall 2011 PA 5711, Science and Technology Policy, 3 credits

Fall and Spring 2010, PA 8991, Independent Study, 3 credits (1 student)

Spring 2009 and 2010; PA 8082, Technology Policy Research: Working Group, 3 credits.

Fall 2009, ISG 8021, Problem Solving Practicum in Risk Analysis, 3 credits.

Fall 2009, PA 8790, Adv. Topics in S&T Policy: Nanotechnology & Society, 3 credits.

Summer 2009, MRSEC-REU, Materials Research Science & Engineering Center, National Science Foundation, Research Experience for Undergraduates, Instructor for Ethics Session, June 22<sup>nd</sup>. Social Responsibility in Nanotechnology: Issues Raised by Advances in Nanotechnology

Fall 2008, PA 8790, Adv. Topics in S&T Policy: Nanotechnology & Society, 2 credits. (co-instructor with J. Paradise)

Fall 2008, ISG 5010, Risk Analysis for Introduced Species and Genotypes, 3 credits (NSF-IGERT course, team taught-5 core instructors)

August 2011

Fall 2008, PA 8991, Independent Study, 3 credits (1 student)

Spring 2008 PA 8991, Independent Study, 3 credits (2 students)

Spring 2008, PA 8082, Technology Policy Research: Working Group, 3 credits.

Spring 2008, PA 5711, Science and Technology Policy, 3 credits.

Fall 2007, PA 8790, Risk Analysis for Science and Technology Policy, 3 credits.

Spring 2007, PA 5711, Science and Technology Policy, 3 credits

Spring 2007, PA 8991, Independent Study, 3 credits (1 student)

Fall 2006, PA 8991, Independent Study, 3 credits (2 students)

Fall 2006, PA 8790, Risk Analysis for Science and Technology Policy, 1.5 credits

Spring 2006, PA 5711, Science, Technology, and International Affairs, 3 credits.

Spring 2006, PA 8991, Independent Study, 3 credits (4 students).

Fall 2005, PA 8991, Independent Study, 3 credits (2 students).

Spring 2004, PA 8991, Independent Study, 3 credits (3 students).

Fall 2003, PA 5790, Topics in Science and Technology Policy: Genetic Engineering , 2 credits.

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

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## Graduated Students

### Paper Advisor & Chair

1. Katie Wolf (MS 2011 Plan A, academic advisor), Comment and rulemaking for GM Crops
2. Maryam Valapour (MPP, 2011, academic and paper advisor), Organ allocation policy
3. Luke Hollenkamp (MS 2010, paper & academic advisor), Nanogeoeengineering(**Winner of the 2010 Lloyd B. Short Award for best professional or plan B paper**)
4. Aaron Cromwell (MS 2010, paper & academic advisor), Climate Action Planning
5. Youngbok Ryu (MS 2010, paper & academic advisor), State technological competitiveness
6. Roxanne Johnson (MS 2010, paper & academic advisor), Systems mapping nanoremediation
7. Todd Tanji (MS,2009 paper advisor, Plan A) Synthetic biology: policy problems
8. Robert Yawson (MS, 2009 paper advisor, Plan A) Nanotechnology and food: consumer issues
9. Dane McFarlane (MS 2009, paper advisor, Plan A) System dynamics for cap and trade programs.
10. Ethan Warner (MS 2009, paper advisor, Plan A) Life cycle analysis in a low carbon fuel standard.
11. Theresa Woods (MPA, 2009, independent study paper advisor) Conservation & decision making.
12. Joseph Goldman (MPA, 2009, independent study paper advisor) City waste policy and law.
13. Dave Walter (MPP-STEP, 2008, paper advisor, Plan B), Conservation, economics, and biology.

14. Adam Kokotovich, (MS 2008, paper advisor, Plan A), Public participation in nanotechnology.
15. Mahri Monson (MS 2008, paper advisor, Plan A). System dynamics and biofuels policy.
16. Bjorn Gangeness (MS 2008, paper advisor, Plan B). Cellulosic bioenergy.
17. Daniel Enderson (MS-2008, paper advisor, Plan B), Methylmercury exposure in the Hmong community. (**Winner of the 2008 Lloyd B. Short Award for best professional or plan B paper**)
18. Ben Coler (MS-JD 2008, paper advisor, Plan B), Intellectual property and DNA sequences.
19. Lesli Rawles, (MS-JD 2006, paper advisor, Plan B), Pre-implantation genetic diagnostics.
20. Darrell Gerber (MS 2006, paper advisor, Plan B), Full cost accounting of renewable energy systems.
21. Kerri Elizabeth Sawyer (MS 2006, paper advisor, Plan B), Health disparities affecting children's environmental health.
22. Margaret Jacot, (MS-JD 2006, paper advisor, Plan B), Medical technology and gender.
23. Peter Verhage (MS 2006, paper advisor, Plan B), Framework for nanotechnology governance.
24. Kana Talukder, (MS 2006, paper advisor, Plan B), Biosafety in India versus the U. S.
25. Joshua Paul Schenck, (MS 2005, paper advisor, Plan A), Methyl mercury health costs.
26. Genya Dana, (MS 2005, paper advisor, Plan B), Trade policy and GEOS.
27. Sara Bertelson (MS 2004, paper advisor, Plan B), Waste management policy.
28. Katie Theisen (MS 2004, paper advisor, Plan B), Waste management policy.
29. Anna Blitz (MS 2004, paper advisor, Plan B), Water resource management policy.

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

22. Kelly Morgan-Wilder (MS 2011, academic advisor)
23. Melissa Books (MPA 2011, academic advisor)
24. Steven Schultz (MPA 2011, academic advisor)
25. William Bushey (MS 2011, academic advisor)
26. Daniel Lynch (MS 2011 academic advisor)
27. Laura Yerhot (MPP-STEP, 2010 academic advisor), 2010women in STEP.
28. Matthew Pham (MS, academic advisor & committee member 2010), biofuel economics
29. Melissa Constantine, (MS 2010 plan B), health policy
30. Prateek Dungal, (MS, committee member, Plan B) Hydro power in Nepal
31. Stacey Miller (MS 2009, Plan B) , Solar energy potential and spot market pricing.
32. Sara Johnson Phillips (MS-JD 2009, Plan B), Carbon dioxide and the Clean Air Act.
33. Joel Larson (MPP-STEP, 2009, Prof. Paper), State climate policy.
34. Andrew Gibbons (JD-MS, 2008 Plan B), Energy policy.
35. Melissa Pollak (MS 2008, Plan B) Carbon capture and sequestration.
36. Brenda M. Diethelm-Okita (MPA 2008).
37. Craig Nelson (MS 2007, Plan B) Renewable energy policies.
38. James Romancheck (MS 2007, Plan B) Chicago Climate Exchange.
39. Joe Plummer (MS 2007, Plan B), Demand-side energy management.
40. Laura Silver (MS 2007, Plan B), Chicago Climate Exchange.
41. Rane Gunderson (MS 2007, Plan B), Climate change and LDCs.
42. Rong Wu (MS 2006, Plan B), China and C-sequestration.
43. Tim Patronski, (MS 2005, Plan A), International regulatory frameworks for GE fish.
44. Lydia Dobrovolny, (MS 2005, Plan B), An analysis of Minnesota's E85 pilot project.
45. Michael Michaud (MS 2005, Plan A). Wind energy and its potential.

46. Kathryn Jones, (MS 2005, Plan B), Municipal water conservation.
47. Melanie Kleiss, (MS-JD 2004, Plan B) Environmental aspects of hybrid vehicles.
48. Todd Reubold (MS 2004, Plan B) MN Energy policy.

**Ph.D. Advisees**

1. Bernado Craemer (Ph.D., Applied Economics, committee member).
2. Ron Millen, (Ph.D. Conservation Biology, committee member), graduated 2011.
3. Adam Kokotovich, (Ph.D. Environmental Management and Nat Res, committee member).
4. Melissa Maurer-Jones (Ph.D. Chemistry, committee member).
5. Hung-Chung Su (Ph.D. Carlson School of Management, committee member).
6. Genya Dana (Ph.D., Conservation Biology, committee member), graduated 2010.
7. Ester McGinnis (Ph.D., Plant Biology, committee member).
8. Aliya Kuzhabekova (Ph.D. Education Policy, committee member)

**Current MS, MPP, MPA Advisees**

9. Pouya Najmaie (MS, paper advisor, Plan A)
10. Michael Rentz (MS, paper advisor, Plan A)
11. Karen Moe, (MPP-STEP, academic advisor, Plan B)
12. Daniel Craigie (MS, academic advisor, Plan B)
13. Peter Nussbaum (MS, academic advisor, Plan A)
14. Paige Evans (MS, committee member, Plan B)
15. Christine Traczyk (MPP, academic advisor)
16. Kelsi Anderson (MS, academic advisor)
17. Jonathan Brown (MS, academic advisor)
18. Amanda Kabage (MS, academic advisor)
19. Clayton Parker (MPA, academic advisor)
20. Rachel Haase (MS-STEP, academic advisor)
21. Joseph Dammel (MS-STEP, academic advisor)
22. Sarah Goodspeed (MS-STEP, academic advisor)
23. Mary Kemp (MS-STEP, academic advisor)
24. Dan Sagisser (MPP-STEP, academic advisor)
25. Clark Koenigs (MPP-STEP, academic advisor)
26. Megan Roberts (MS-STEP, academic advisor)

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

1. Rachel Haase (2010-present)\*
2. Adam Kokotovich (2010-present)\*
3. Katie Wolf (2009-2011)\*
4. Daniel Lynch MS (2009-2010)
5. Jonathan Brown MS (2009-2011)\*
6. Roxanne Johnson MS (2009-2010)\*
7. Robert Yawson MS (2009-2010)\*
8. Laura Yerhot MPP-STEP (2008-2009)
9. Kelly Morgan MS (2008-2009)\*
10. Aliya Kuzhabekova, Ph.D. Education Policy (2008-2009, 2009-present)\*

11. Mahri Monson MS (2006-2008)\*
  12. Joel Larson MPP-STEP (2007-2008)
  13. Pouya Najmaie MS (2007-2008)\*
  14. Adam Kokotovich MS(2005-2007)\*
  15. James Romanchek MS (2006-2007)\*
  16. Peter VerHage MS (2005-2006)\*
  17. Darrell Gerber MS (2004-2006)\*
  18. Kana Talukder MS(2004-2005)\*
  19. Lydia Dobrovolny MS (2004-2005)\*
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## SERVICE

- Reviewer of National Academies/National Research Council report on Research for Environmental Implications of Nanomaterials (2011)
- U of MN Review Committee for reviews Grant-in-Aid of Research, Artistry and Scholarship (GIA) (2011-present)
- Reviewer IFPRI Policy Brief (2011)
- Advisor to the Nanoscale Informal Science Education Network (NISE Net), Science Museum of Minnesota (2011-present)
- International Society for the Study of Nanoscience and Emerging Technologies Annual Meeting Program Committee (2011)
- ASU-NSF Project “Pacing Law & Ethics with Science & Technology” Workshop Planning Team (2011)
- Minnesota Department of Health’s (MDH) Communication, Outreach, and Education Task Group for the Drinking Water Contaminants of Emerging Concern (CEC) (2010-present)
- Center for Nanotechnology in Society at Arizona State University, Board of Visitors (2010-present)
- U of M, Committee for Preparation of Nanotechnology Report for State Legislature (2010-2011)
- U of M, Humphrey Institute, Senior Fellows Merit Review Committee (2009-2010)
- Reviewer for National Science Foundation (NSF) Science and Society Grants (Spring 2010, Fall 2010, Spring 2011)
- Advisory Board of USDA "Sustainable Pathways to Achieving Biofuel Policy Goals" Project (S. Suh, PI; award number: 2009-10001-05108) (2010-present)
- Elected Secretary and Treasurer, Risk Policy and Law Subgroup, Society for Risk Analysis, (2009-present)

- Member Expert Group for European Commission Science, Economy and Society Directorate, 2011 Work Programme (2009)
- Board Member, Social and Ethical Issues (SEI) Advisory Board of the National Nanotechnology Infrastructure Network (NNIN) (2009 to present)
- U of M, Affiliate Faculty and Advisory Board, NorthStar Initiative for Sustainable Enterprise at the Institute on the Environment (2009-present)
- U of M, Humphrey Institute, Lloyd B. Short Award Committee (2009)
- U of M, Social and Ethical Implications Point Person for U of M National Nanotechnology Infrastructure Network (2008-present)
- Uof MN, Area Chair, Science, Technology, Environmental Policy, Humphrey Institute (2007-2009)
- MS degree program head, Humphrey Institute (2006-2009)
- U of M, Search Committee, Associate Director of the Initiative for Renewable Energy and the Environment (2008)
- U of M Interdisciplinary Graduate Education and Training (NSF-IGERT), Risk Analysis for Introduced Species and Genotypes, Curriculum Committee (2007-2009), Admissions Committee (2009-2010), Chair of Travel Committee (2010-2011), and Executive Council (2009-present)
- U of M Institute on the Environment's Discovery Grants for Biofuels Review Panel (2007)
- Science Museum of Minnesota. Nanoforum Advisory Committee (March 2007-2008)
- U of M Humphrey Curriculum Committee, Humphrey Institute (2004-2009).
- U of M Humphrey Ph.D. exploratory committee (2007-2008)
- U of M Humphrey Institute Executive Council (2007-2008)
- U of M Humphrey Denny Search Committee (2006-2007, 2007-2008)
- U of M Initiative on Renewable Energy and the Environment (IREE) Working Group, University of MN (2003-2008)
- U of M Consortium on Law and Values in the Health, Life, and Environmental Sciences, University of MN (2005-2007), Member and Executive Committee (2005-2006)
- BioBusiness Alliance of MN—Board of Directors, Secretary, and Chairperson of the Legislative Group (2005-2008)
- U of M Steering Committee of the Ecosystem Science and Sustainability Initiative—U of M (2005-2006)

- Agricultural Funding Consortium of Canada, nanotechnology grants review panel, January 2007
- U of M Faculty Steering Committee for the President's Initiative on the Environment and Renewable Energy (2005-2006)
- U of M Chicago Climate Change Membership Exploratory Committee (2004)
- U of M Humphrey Institute Search Committee for STEP faculty (2003-2004, 2004-2005)
- U of M 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)
- 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 panelist for USDA Biotechnology Special Grants: April 2000. Reviewed research grants related to agricultural biotechnology.
- 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 *Environmental Science & Technology* (2011)
- Reviewer for *Journal of Innovation and Regional Development* (2010)
- Reviewer for *Emerging Health Threats Journal* (2010)
- Reviewer for *Trends in Biotechnology* (2010)
- Reviewer for *Science* (2010)
- Reviewer for *Studies in Ethics, Law, and Technology* (2010)
- Reviewer for *Science Communication* (2009, 2010)

- Reviewer for *Risk Analysis* (2008, 2009, 2010)
  - Reviewer for *Journal of Nanoparticle Research* (2007, 2008, 2010)
  - Reviewer for *Environmental Biosafety Research* (2007)
  - Reviewer for *Review of Policy Research* (2008)
  - Reviewer for *Science and Public Policy* (2008, 2010)
  - 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, 2010)
  - Reviewer for *CABI Reviews* (2009)
  - Reviewer for *World Patent Information* (2010)
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### PROFESSIONAL MEMBERSHIP & SERVICE

- Gordon Research Conference on Science and Technology Policy (Vice-Chair 2010-2012, chair 2012-2014)
  - Society for the Study of Nanoscience and Emerging Technologies (S-NET) (Executive Committee 2008-2010)
  - 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; Secretary-Treasurer of Risk Law and Policy subgroup 2009-2010, chair elect 2010-2011, chair 2011-2012.
  - American Political Science Association, Associate Member (Science, Technology and Environmental Politics Section)
  - Association for Public Policy Analysis and Management
  - System Dynamics Society (member 2007-2008)
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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 oversaw 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

August 2011

- 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**  
                    --chemical analysis of magnetic media
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### **PROFESSIONAL COURSEWORK & TRAINING**

- Advanced Vantage Point Training, Atlanta, GA, Sept. 2011.
- Adolf Leopold Leadership Training, Institute on the Environment, August 2010.
- 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 M (Fall 2007)
- Responsible Conduct of Research, U of M (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/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.