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Career Summary

My career as an educator is grounded in the discovery, integration, application and transfer of knowledge. My research centers on the discovery of the mechanisms by which ozone and other oxidants react with contaminants of interest and determining the identity and toxicity of products formed by these reactions. Discovery has led me to the application of ozone to drinking water treatment, odor control in animal production operations, and *in situ* soil remediation. My current research interests focus on the develop drinking water treatment technologies that are more effective and suitable for use in decentralized water treatment systems. Discovery and application are fruitless unless knowledge transfer occurs. I continue to strengthen undergraduate engineering education by investigating novel ways to better engage students and improve their learning. I have also taken my knowledge to the general community through efforts in hazardous waste education. Through several grants and the development of a teaching certification program for MSU engineering doctoral students, I have helped to better integrate students into the educational process, both inside and outside the classroom.

Education

Ph.D. Harvard University, Environmental Engineering, Nov. 1986
M.S.E. West Virginia University, Environmental Engineering, Aug. 1981
B.S. Fairleigh Dickinson University, Biochemistry, Feb. 1979

Experience

Associate Chair, Undergraduate Studies (2014-present) Department of Civil and Environmental Engineering, Michigan State University, East Lansing, MI
Professor, (2001-present) Department of Civil and Environmental Engineering, Michigan State University, East Lansing, MI.
Professor, (July 2005-Aug. 2008) Dept. of Civil Engineering, McMaster University, Hamilton, ON.
Director, Level 1 Engineering (July 2005-Aug. 2008) Faculty of Engineering, McMaster University, Hamilton, ON.
Associate Chair and Graduate Coordinator, (May 2003-May 2005) Department of Civil and Environmental Engineering, Michigan State University, East Lansing, MI.
Adjunct Associate/Full Professor, (1997-2005) Department of Chemical Engineering, Michigan State University, East Lansing, MI.
Associate Professor, (1995-2001) Department of Civil and Environmental Engineering, Michigan State University, East Lansing, MI.
Adjunct Associate/Full Professor, (1995-) Department of Agricultural Engineering, Michigan State University, East Lansing, MI.
Assistant Professor, (1989-1995) Department of Civil and Environmental Engineering, Michigan State University, East Lansing, MI.
Research Scientist, (1988-1989) NSI Technology Services, R.S. Kerr Environmental Laboratory, Ada, OK.
Visiting Assistant Professor, (1987-1988) Department of Civil Engineering, SUNY at Buffalo, Buffalo, NY.

Postdoctoral Research Associate, (1986-1987) Department of Inorganic Chemistry, University of Melbourne, Parkville, Australia.

Graduate Research Assistant (1983-1986) Harvard University, Cambridge, MA.

Teaching Fellow (Spring 1982, Fall 1983, 1984) Harvard University, Cambridge, MA.

Teaching Philosophy

Teaching is not just transferring knowledge from the source (instructor) to the recipient (student). Instead it is encouraging, exciting, and mentoring students to become learners. Throughout the years my goal has been not to just to “teach” but to explore how to be best teacher and mentor that I can be. I have explored ways to engage students using collaborative learning techniques; I have explored different testing techniques and learning styles; and I have attempted to integrate new discoveries and applications into the classroom.

In addition to teaching in the regular classroom, I have worked extensively with the Technical Outreach Services for Communities (TOSC) program, the outreach section of the Great Lakes/ Mid Atlantic Hazardous Substance Research Center. TOSC is a program funded by the U.S. Environmental Protection Agency, with the purpose to educate the general public in communities with hazardous waste sites (transferring knowledge) so that they can contribute more effectively in the decision-making process. I have provided technical assistance and education (including writing numerous technical documents and giving presentations) pertaining to site remediation and hazardous waste contamination. My activities with TOSC have also benefited students in my classroom, as I have been able to transfer the knowledge learned by working with these communities to my students. I can bring real-world problems to the classroom, which can assist them in working within the constraints of incomplete information, economics and public perception. I have become a better listener, attempting to understand the underlying issues with which the communities deal.

In many of these projects I took a lead role, teaching, mentoring, supervising students and writing papers. For clarification, I have marked the lead faculty author on all papers with the following symbol: ^ψ. As senior faculty author, this person had the major responsibility for supervising graduate students and post-doctoral associates and for writing the paper.

Education-Oriented Publications (Teaching/Hazardous Waste Education)

Books

Davis, M. L and S.J. Masten. c. 2014. Fundamentals of Environmental Engineering and Science, 3rd ed. McGraw-Hill Publ., New York. (I wrote seven chapters, Mackenzie Davis wrote eight).

Davis, M. L and S.J. Masten. 2007. Fundamentals of Environmental Engineering and Science, 2nd ed. McGraw-Hill Publ., New York. (I wrote seven chapters, Mackenzie Davis wrote eight).

Davis, M. L and S.J. Masten. 2003. Fundamentals of Environmental Engineering and Science, McGraw-Hill Publ., New York. (I wrote six chapters, Mackenzie Davis wrote eight).

Reviewed, Archival Journal Papers

Masten, S.J.^ψ, K-C. Chen, J. Graulau, S.L. Kari, and K-H Lee. A Web-based and Group Learning Environment for Introductory Environmental Engineering. J. Engineering Education. 91(1): 69-80.

Reviewed, Archival Proceedings Papers

- Jayamani, I. and S.J. Masten*. 2014. Work In Progress: Development and Evaluation of a Material Balance Concept Inventory. International Conference of Engineering Education and Research. August 24-26, 2014. McMaster University, Hamilton, ON.
- Masten, S.J.* and S.W. Haider. 2014. Experiences Teaching a Capstone Design Course. International Conference of Engineering Education and Research. August 24-26, 2014. McMaster University, Hamilton, ON.
- D. Borrelli* and S. Masten*. 2008. Empowering Engineering Students in the Educational Process. 2008 Annual ASEE Conference and Exposition, Pittsburgh, PA, June 2008.
- R. Fleisig* and S. Masten. 2008. Engaging First Year Students in Engineering Design Through Engineers Without Borders. 2008 Annual ASEE Conference & Exposition, Pittsburgh, PA. June 2008.
- Masten, S.J., and R. Fleisig. 2007. Engaging First Year Students in Engineering Design through Engineers Without Borders Projects. Presented at the ASEE 2007 St. Lawrence Section Conference, October 19, 2007. Toronto, Ont., Canada
- Graulau-Santiago and S.J. Masten*^ψ. 2000. Teaching Environmental Engineering to Non-environmental Engineers. Proc. of the 30th ASEE/IEEE Frontiers in Education Conference, Oct. 18-21, 2000. Kansas City, MO.

Other Conference Proceedings Papers

- Masten, S.J.^ψ, KC Chen, HY Lee and M. Najera. 2002. Use of Instructional Technology and the Dark E-Arts. Proc. of the 32th ASEE/IEEE Frontiers in Education Conference, Nov. 6-9, 2002. Boston, MA.
- Graulau-Santiago and S.J. Masten*^ψ. 2000. Teaching Environmental Engineering to Non-environmental Engineers. Proc. of the 30th ASEE/IEEE Frontiers in Education Conference, Oct. 18-21, 2000. Kansas City, MO.
- Fairweather, J.S., P.D. Fisher*, L. Haston*, S.J. Masten* and D.T. Rover*^ψ. 2000. Workshop: Linking Service Courses with Design. 2000 ASEE Annual Conference, St. Louis, Missouri. Sunday, June 18, 2000.
- Graulau, J.*, S.L. Kari and S.J. Masten^ψ. 2000. Use of Web-based Technology and Cooperative Learning in Introductory Environmental Engineering. Presented at the American Society of Engineering Education Midwest Central Regional Conference. East Lansing, MI. April 1, 2000.
- Herner, H.A.* and S.J. Masten^ψ. 1997. Waste-Management Education and Research Consortium (WERC) Environmental Design Competition. Proc. Conference on Chemistry, Energy and the Environment, Estoril, Portugal, May 25-28, 1997.
- Davis, M.L. and S.J. Masten^ψ. 1996. Design Competitions: Does “Multidisciplinary” Contribute to the Team Building Experience. In: Proc. ASEE Frontiers in Engineering Conference, Nov. 1996.
- Masten, S.J. and M.L. Davis^ψ. 1996. Preventative Maintenance: Avoiding Dysfunctional Project Teams. In: Engineering and Technology Education for the Future, Proc. North-Central Section of the American Society of Engineering Education. Big Rapids, MI. April 11-13, 1996.
- Davis, M.L. and S.J. Masten^ψ. 1996. 2,4,8: Cooperative Learning in Engineering Classes. In: Engineering and Technology Education for the Future, Proc. North-Central Section of the American Society of Engineering Education. Big Rapids, MI. April 11-13, 1996. (3rd place award for presentation).
- Davis, M.L. and S.J. Masten^ψ. 1995. Spartan Environmental Technology’s Proposal for Site Remediation and Reclamation presented to WERC Corporation. Proc. of Waste Management ‘95. Feb. 26-March 2, 1995.

Other Scholarly Works

- Fisher, P.D. ^Ψ, J.S. Fairweather, S.J. Masten and J. Sticklen. 2002. GE Fund Progress Report, submitted to Higher Education Programs, GE Fund, July 2002.
- Fisher, P.D. ^Ψ, J.S. Fairweather, S.J. Masten and J. Sticklen. 2002. GE Fund Progress Report, submitted to Higher Education Programs, GE Fund, Jan 2002.
- Syed, Atiq, Shawn McElmurry, Susan Masten^Ψ and Kirk Riley. "Conclusions and Recommendations Concerning the Sam Winer Motors Site, Springfield Township, Ohio." November 29, 2001.
- Fisher, P.D. ^Ψ, J.S. Fairweather, S.J. Masten and J. Sticklen. 2001. GE Fund Progress Report, submitted to Higher Education Programs, GE Fund, July 2001.
- Fisher, P.D. ^Ψ, J.S. Fairweather, S.J. Masten and J. Sticklen. 2001. GE Fund Progress Report, submitted to Higher Education Programs, GE Fund, Jan. 12, 2001.
- Fisher, P.D. ^Ψ, J.S. Fairweather, S.J. Masten and J. Sticklen. 2000. GE Fund Progress Report, submitted to Higher Education Programs, GE Fund, Jan. 12, 2001.
- Syed, Atiq, Shawn McElmurry, Susan Masten^Ψ and Kirk Riley. "Understanding BTEX Compounds: A TOSC Fact Sheet." November 2000.
- Masten, Susan, Diane Lickfelt, Shawn McElmurry and Kirk Riley^Ψ. "Report on National Gypsum CKD Pile." Report written June 2000.
- Masten, Susan^Ψ, Shawn McElmurry, Diane Lickfelt and Kirk Riley. "Understanding Groundwater: A TOSC Fact Sheet." June 2000.
- Fisher, P.D. ^Ψ, J.S. Fairweather, S.J. Masten and J. Sticklen. 2000. GE Fund Progress Report, submitted to Higher Education Programs, GE Fund, July 20, 2000.
- Fisher, P.D. ^Ψ, J.S. Fairweather, S.J. Masten and J. Sticklen. 1999. GE Fund Progress Report, submitted to Higher Education Programs, GE Fund, July 31, 1999.
- Fisher, P.D. ^Ψ, J.S. Fairweather, S.J. Masten and J. Sticklen. 1999. GE Fund Progress Report, submitted to Higher Education Programs, GE Fund, January 20, 1999.
- Fisher, P.D. ^Ψ, J.S. Fairweather, S.J. Masten and J. Sticklen. 1998. GE Fund Progress Report, submitted to Higher Education Programs, GE Fund, August 18, 1998.

Education-Oriented Presentations (Teaching/Hazardous Waste Education)

- Jayamani, I. and S.J. Masten*. 2014. Work In Progress: Development and Evaluation of a Material Balance Concept Inventory. International Conference of Engineering Education and Research. August 24-26, 2014. McMaster University, Hamilton, ON.
- Masten, S.J.* and S.W. Haider. 2014. Experiences Teaching a Capstone Design Course. International Conference of Engineering Education and Research. August 24-26, 2014. McMaster University, Hamilton, ON.
- Jayamani, I.* and S.J. Masten. 2014. Development and Evaluation of a Concept Inventory for Assessing Student Learning of Material Balance Concepts in an Undergraduate Environmental Engineering Classroom. 2014 ASEE North-central Section Conference. April 4-6, 2014. Oakland University, MI
- Jayamani, I. and S.J. Masten*. 2013. Common Difficulties In Learning Material Balances And How Certain Teaching Methods Promote Negative Transfer (As Assessed In An Undergraduate Environmental Engineering Classroom). AEESP Annual Conference. July 2013.
- Masten, S.J.* 2012. Engaging students: E-resources and E-communities. AEESP/ AAEE Department and Program Chairs Conference, July 29-31, Ohio State University
- Borrelli*, D. and S. Masten*. 2008. Empowering Engineering Students in the Educational Process. 2008 Annual ASEE Conference and Exposition, Pittsburgh, PA, June 2008.

- Fleisig*, R. and S. Masten. 2008. Engaging First Year Students in Engineering Design Through Engineers Without Borders. 2008 Annual ASEE Conference & Exposition, Pittsburgh, PA. June 2008.
- Masten, S.J. ^ψ, and R. Fleisig. 2007. Engaging First Year Students in Engineering Design through Engineers Without Borders Projects. Presented at the ASEE 2007 St. Lawrence Section Conference, October 19, 2007. Toronto, Ont., Canada
- Masten, S.J. ^ψ, KC Chen, HY Lee and M. Najera. 2002. Use of Instructional Technology in Introductory Environmental Engineering. Poster Presented at the AEESP Conference, Aug. 10-13, 2002. Toronto, Ont., Canada.
- Masten, S.J. 2002. Defense Against the Dark E-Arts and the Use of Instructional Technology. Presentation made at an Instructional Technology Workshop, Presented at the AEESP Conference, Aug. 10-13, 2002. Toronto, Ont., Canada.
- Masten, S.J. ^ψ, KC Chen, HY Lee and M. Najera. 2002. Use of Instructional Technology and the Dark E-Arts. Proc. of the 32th ASEE/IEEE Frontiers in Education Conference, Nov. 6-9, 2002. Boston, MA.
- Masten, S.J. ^ψ, S. McElmurry,. 2001. "Groundwater and Soil Contamination at Sam Winer Motors Site." Presentation at meeting of Citizens Concerned About Illegal Contamination, Akron, Ohio. November 29, 2001.
- Masten, Susan*^ψ, Kirk Riley* and Shawn McElmurry*. Overview of Technical Outreach Services for Communities Program. Presentation at Sam Winer Motors Site TOSC Meeting, Springfield Township, Ohio, December 7, 2000.
- Graulau, J. and S.J. Masten^ψ. 2000. Teaching Environmental Engineering to Non-environmental Engineers. Frontiers in Education. Nov, 2000, Kansas City, MO.
- Fairweather, J.S., P.D. Fisher*, L. Haston*, S.J. Masten* and D.T. Rover*^ψ. 2000. Workshop: Linking Service Courses with Design. 2000 ASEE Annual Conference, St. Louis, Missouri. Sunday, June 18, 2000.
- Graulau, J.*, S.L. Kari and S.J. Masten^ψ. 2000. Use of Web-based Technology and Cooperative Learning in Introductory Environmental Engineering. Presented at the American Society of Engineering Education Midwest Central Regional Conference. East Lansing, MI. April 1, 2000
- Kari, S.L., J. Graulau*, J. Sticklen and S.J. Masten^ψ. 1999. A Web-based & Group Learning Environment for Introductory Environmental Engineering Course. Presented at Frontiers in Education. San Juan, Puerto Rico. Nov, 1999.
- Masten, S.J.*^ψ and L. Szymeko. 1999. How to Evaluate a Remedial Action Plan, presented to the Marquette, MI, Citizen's for a Community Lakeshore, June 24, 1999.
- Masten, S.J. 1998. Site Assessment at the Lakeshore, Inc. Property, presented to the Marquette, MI, Citizen's for a Community Lakeshore, Nov. 5, 1998.
- Masten, S.J. 1998. Outreach: A University Professor's Perspective, presented at Meet Michigan Conference, Detroit, MI, Sept. 24, 1998.
- Masten, S.J.*, K. Riley, T.C. Voice and L. Szymeko. ^ψ 1998. Proposal for the TOSC Toolkit, U.S. EPA Hazardous Substances Centers, Annual Meeting of TOSC Personnel, Vienna, Virginia, June 16- June 18, 1998.
- Masten, S.J.*. 1998. Site Remediation at Rocky Flats, Colorado, presented to Geology Department, MSU. April 21, 1998.
- Masten, S.J.*. 1998. Experiences working with TOSC: A Professor's Perspective, presented to the Science Advisory Committee of the Great Lakes and Mid-Atlantic Hazardous Substance Research Center, April 15, 1998.
- Herner, H.A.* and S.J. Masten^ψ. 1997. Waste-Management Education and Research Consortium (WERC) Environmental Design Competition. Proc. Conference on Chemistry, Energy and the Environment, Estoril, Portugal, May 25-28, 1997.

- Masten, S.J.* and M.L. Davis^ψ. 1996. Evaluating Performance in a Capstone Design Course. In: Engineering and Technology Education for the Future, Proc. North-Central Section of the American Society of Engineering Education. Big Rapids, MI. April 11-13, 1996.
- Davis, M.L.* and S.J. Masten^ψ. 1996. 2,4,8: Cooperative Learning in Engineering Classes. In: Engineering and Technology Education for the Future, Proc. North-Central Section of the American Society of Engineering Education. Big Rapids, MI. April 11-13, 1996. (3rd Place Award for Presentation).

Research Philosophy

Environmental systems are by their very nature complex and thus environmental research requires expertise in many areas to be successful. I believe that environmental research must be integrated across disciplines, innovative, and responsive to the needs of society. In my research I have built collaborations across many disciplines to tackle complex environmental problems. For example, for the last ten years, I have collaborated with Prof. James Trosko of the Department of Pediatrics and Human Development in the College of Human Medicine on a project to engineer oxidative treatment systems based upon toxicity (as determined by an inhibition to intercellular gap junction communication in mammalian cell cultures) rather than on the identification of by-products. Numerous graduate students of mine (including Brad Upham, Holly Herner, Brad Boddy, Ming Tian and others) have worked in Dr. Trosko's lab performing GJIC analyses.

The National Academy of Engineering recently identified "providing access to clean water" as one of the fourteen Grand Challenges for Engineering in the 21st Century. I see drinking water research to be important area of research in the coming years, and the combined effects of ageing infrastructure, increasing population and climate change place increasing strains upon drinking water supplies in the US and elsewhere. I have been working extensively in the past ten years to develop water treatment technologies that are more effective and suitable for use in decentralized water treatment systems.

For clarification, I have marked the lead faculty author on all papers with the following symbol: ^ψ. As senior faculty author, this person had the major responsibility for supervising graduate students and post-doctoral associates and for writing the paper.

Research-Oriented Publications

Book Sections/ Chapters

- Masten, S.J. 1997. Chapter 6. Environmental Engineering. In: FE Review Handbook, 2nd ed., M. Potter, Great Lakes Publishers pp. 91-104, 110-120.
- Masten, S.J. ^ψ and S.H.R. Davies 1996. Section 7.4: Chemical Oxidation and Reduction In: Standard Handbook of Hazardous Waste Treatment and Disposal, 2nd. ed. H.M. Freeman, ed. McGraw-Hill, Inc. pp. 7.47- 7.59
- Masten, S.J. 1996. Environmental Engineering. In: FE Review Handbook, M. Potter, Great Lakes Publishers. pp. 91-102.
- Masten, S.J. ^ψ and S.H.R. Davies. 1994. Use of Ozone and Other Strong Oxidants for Hazardous Waste Management. In: Advances in Environmental Sciences and Technology: Environmental Oxidants. John Wiley & Sons, Inc., New York. pp. 517-547.

Reviewed, Archival Journal Papers*Ozone/Drinking Water*

- Masten, S.J.; Davies, S.H.; McElmurry, S.P. 2016. Flint Water Crisis: What happened and why? American Water Works Association – Michigan Chapter News, Spring, 47-49.
- Masten, S.J., Davies, S.H., McElmurray, S.P. 2016. Flint Water Crisis: What happened and why? J. AWWA. 108(12): 22-34.
- McGuire, M.J., Beecher, J.A., Hanna-Attisha, M., Masten, S.J., Rose, J.B. 2016. The Flint Water Crisis. J. AWWA. 108(7): 26-34.
- Moslemi, M., S.H. Davies, S.J. Masten. 2014. Hybrid ozonation-ultrafiltration: the formation of bromated in waters containing natural organic matter. Sep. Purif. Technol. 125:202-207.
- Alpatova, A.L., M.J. Baumann, S.H. Davies, S.J. Masten. 2014. Evidence for covalently bonded chlorine-fullerene formed by ozonation and chlorination at room temperature. Environmental Chemistry Letters. 11(3):309-313.
- Alpatova, A.L., S.H. Davies, S.J. Masten. 2013. Hybrid ozonation-ceramic membrane filtration of surface waters: The effect of water characteristics on permeate flux and the removal of DBP precursors, dicloxacillin and ceftazidime. Separation And Purification Technology. 107: 179-186.
- Moslemi, M., S.H. Davies, S.J. Masten. 2012. Rejection of Bromide and Bromate Ions by a Ceramic Membrane. Environ. Eng. Sci. 29(12) 1092-1096.
- Moslemi, M., S.H. Davies, S.J. Masten. 2012. Empirical modeling of bromate formation during drinking water treatment using hybrid ozonation membrane filtration. Desalination. 292: 113-118.
- Moslemi, M., S.H. Davies, S.J. Masten. 2011 Bromate formation in a hybrid ozonation ceramic membrane filtration system. Water Research. 45: 5529-5534.
- Byun, S; S.H. Davies, M.J. Baumann, A.L. Alpatova, L.M. Corneal, V.V. Tarabara; S.J. Masten. 2011. Mn Oxide Coated Catalytic Membranes For A Hybrid Ozonation - Membrane Filtration: Comparison Of Ti, Fe And Mn Oxide Coated Membranes For Water Quality. Water Research 45(1); 163-170.
- Corneal, L.M. M.J. Baumann S.J. Masten, S.H. Davies, V.V. Tarabara, S.J. Byun. M.J. Baumann. 2011. Mn oxide coated catalytic membranes for hybrid ozonation-membrane filtration: Membrane microstructural characterization. J. Membrane Science. 369(1-2): 182-187.
- Davies, S.H., M.J. Baumann, S. Byun, L. M. Corneal, V.V. Tarabara, S.J. Masten. 2010. Fabrication of Catalytic Ceramic Membranes for Water Filtration. Water Science and Technol: Water Supply. 10: 81–86.
- Corneal, L.M., S.J. Masten, S.H. Davies, V.V. Tarabara, S.J. Byun. M.J. Baumann, 2010. AFM, SEM and EDS characterization of manganese oxide coated ceramic water filtration membranes, J. Membrane Sci.360: 292-302.
- Moslemi, M., S.H. Davies, S.J. Masten. 2010. Ozone Mass Transfer in a Recirculating Loop Semibatch Reactor Operated at High Pressure. J. Adv. Oxid. Technol. 13: 79-88.
- Karnik, B.S., M.J. Baumann, L.M. Corneal, S.J. Masten and S.H. Davies. 2009. TEM characterization of iron oxide coated ceramic membranes, J. Mater. Sci. 44: 4148-4154.
- Kim, J., S.H. Davies, M.J. Baumann, V.V. Tarabara, and S.J. Masten^ψ. 2008. Effect of Ozone Dosage and Hydrodynamic Conditions on the Permeate Flux in a Hybrid Ozonation-Ceramic Ultrafiltration System Treating Natural Waters. J. Mem. Sci., 311:165-172.
- Chen, K.C., S.H. Davies, S.J. Masten. ^ψ 2007. Mass Transfer of Ozone in a Hybrid Ozonation-Membrane System, J. Adv. Oxid. Technol., 10(2): 287-296.
- Karnik, B.S., S.H. Davies, M.J. Baumann, and S.J. Masten^ψ. 2007. Removal of *Escherichia coli* after Treatment Using Ozonation-Ultrafiltration with Iron Oxide-Coated Membranes, Ozone: Science & Engineering, 29(2): 75 – 84.

- Karnik, B.S., S.H. Davies, M.J. Baumann, and S.J. Masten^ψ. 2007. Use of Salicylic Acid as a Model Compound to Investigate Hydroxyl Radical Reaction in an Ozonation–Membrane Filtration Hybrid Process, *Environmental Engineering Science*. 24(6):852-860.
- Karnik, B.S., M.J. Baumann^ψ, S.J. Masten and S.H. Davies. 2006. AFM and SEM Characterization of Iron Oxide Coated Ceramic Membranes, *Journal of Materials Science* 41(20): 6861-6870.
- Karnik, B.S., S.H. Davies, M.J. Baumann, and S.J. Masten^ψ. 2005. Fabrication of Catalytic Membranes for the Treatment of Drinking Water using Combined Ozonation Nanofiltration. *Environ. Sci. & Technol.* 39: 7656-7661.
- Karnik, B.S., S.H. Davies, M.J. Baumann, and S.J. Masten^ψ. 2005. The effects of combined ozonation and ultrafiltration on disinfection by-product formation, *Water Res.* 39: 2839-2850.
- Karnik, B.S., S.H. Davies, K.C. Chen, D.R. Jaglowski, M.J. Baumann, and S.J. Masten^ψ. 2005. Effects of ozonation and pH on the permeate flux of nanocrystalline ceramic membranes, *Water Res.* 39: 728-734.
- Yavich, A.A., Lee, K-H., Chen, K-C., Pape, L., and S.J. Masten^ψ. 2004. Evaluation of Biodegradability of NOM after Ozonation. *Water Research* 38: 2839-2846.
- Yavich, A.A. and S.J. Masten^ψ. 2003. The Use of Ozonation and FBT to Control THM Precursors. *J. AWWA.* 95(4):159-171.
- Yavich, A.A. and S. J. Masten^ψ. 2001. Modeling the Kinetics of Ozone Reactions with NOM in Huron River Water. *Ozone: Science and Engineering.* 23(2): 105-119.

Toxicology

- Alpatova, A.A., W. Shan, P. Babica, B.L. Upham, A.R. Rogensues, S.J. Masten, E. Drown, A.K. Mohanty, E.C. Alocilja, V.V. Tarabara, 2010. Single-walled carbon nanotubes dispersed in aqueous media via non-covalent functionalization: Effect of dispersant on the stability, cytotoxicity, and epigenetic toxicity of nanotube suspensions. *Water Res.* 44: 505-520.
- Luster-Teasley S.L., P.E. Ganey, M. DiOrio, J.S. Ward III, R.E. Maleczka, Jr., J.E. Trosko, and S.J. Masten. ^ψ 2005. A toxicological evaluation of pyrene ozonation byproducts: biphenyl-2,2',6,6'-tetracarbaldehyde and biphenyl-2,2',6,6'-tetracarboxylic acid. *Journal of Environmental Toxicology and Chemistry*, 24(3): 733-740.
- Satoh, A.Y., J.E. Trosko, and S.J. Masten^ψ. 2003. Epigenetic Toxicity of Hydroxylated Biphenyls and Hydroxylated Polychlorinated Biphenols on Normal Rat Liver Epithelial Cells. *Environmental Science and Technology.* 37(12):2727-2733.
- Luster-Teasley, S. L.; J.J. Yao, H.H. Herner, J.E. Trosko, and S.J. Masten. ^ψ 2002. Ozonation of Chrysene: Evaluation of Byproduct Mixtures and Identification of Toxic Constituents. *Environmental Science and Technology.* 36(5); 869-876.
- Herner, H.A., J. Trosko and S.J. Masten^ψ. 2001. The Epigenetic Toxicity of Pyrene and Related Ozonation Byproducts Containing an Aldehyde Functional Group. *Environmental Science and Technology.* 35(17):3576-3583.
- Masten S.J. ^ψ, H. Kim-Yang, E. Walker, M.T. Yokoyama. 2001. Effect of Ozonation of the Formation of Toxic By-products in Animal Manure. *J. Environmental Quality.* 30(5): 1624-1630.
- Masten, S.J. ^ψ, Tian, M., B.L. Upham, and J.E. Trosko. 2001. Effect of Selected Pesticides and Their Ozonation By-Products on Gap Junction Intercellular Communication Using Rat Liver Epithelial Cell Lines. *Chemosphere.* 44(3): 457-465.
- Weis, L.M., M. Rummel, S.J. Masten, J.E. Trosko and B.L. Upham^ψ, 1998. Bay or Bay-like Regions of Polycyclic Aromatic Hydrocarbons Were Potent Inhibitors of Gap Junction Intercellular Communication. *Environmental Health Perspectives.* 106(1):17-22).
- Upham, B.L., B. Boddy, X-S Xing, J.E. Trosko and S.J. Masten^ψ. 1997. Non-genotoxic Effects of Selected Pesticides and Their Disinfection By-products on Gap Junctional Intercellular

- Communication. *Ozone: Science and Engineering* 19(4): 351-369.
- Upham, B., L.M. Weis, A.M. Rummel, S.J. Masten and J. Trosko^ψ. 1996. The Biological Effects of Methylated Anthracenes on Gap Junction Intercellular Communication Depends on the Ring Position of the Methyl Group. *Fund. Appl. Toxicology*. 34: 260-264.
- Upham, B., J-J. Yao, J. Trosko and S.J. Masten^ψ. 1995. Determination of the Efficacy of Ozone Treatment Systems using a Gap Junction Intercellular Communication Bioassay. *Environ. Sci. Technol.* 29 (10): 2923-2928.
- Upham, B.L., J-J. Yao, J. Trosko and S.J. Masten^ψ. 1995. Determination of the Efficacy of Ozone Treatment Systems using a Gap Junction Intercellular Communication Bioassay. The Toxicologist: Abstract issue of *Fund. Appl. Toxicology*. Abstract No. 1465. 15(1):273-274.
- Upham, B.L., S.J. Masten^ψ, B.R. Lockwood and J.E. Trosko. 1994. The Effect of Ozonation on the Non-genotoxicity of Polycyclic Aromatic Hydrocarbons using Intercellular Communication in Rat Liver Epithelial Cells. *Fund. and Appl. Toxicology*. 23:470-475.

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- Masten, S.J. Flint Water Crisis. Environmental Engineering Society Michigan State University, Oct. 10, 2016. (Invited presentation)
- Masten, S.J. Flint Water Crisis. MDEQ, Lansing, MI, June 22, 2016. (Invited presentation)
- Masten, S.J. The Ethics of the Flint Water Crisis. Michigan Dept. of Transportation, May 4, 2016. (Invited presentation)
- Masten, S.J. Corrosion control: Flint, a lesson in the critical importance of corrosion control! AWWA Michigan Regional Meeting, Livonia, MI. 12 April 2016. (Invited presentation)
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- Kim, J.H.* , A.L. Alpatova, L.M.Wright, M.J.Baumann, S.H.R.Davies^ψ , V.V.Tarabara and S.J.Masten. 2007. Combined Effect of Ozonation and Hydrodynamic Conditions on the Permeate Flux in the Hybrid Ozonation-Ultrafiltration Process. 2007 American Chemical Society Meeting, March 25-29, 2007, Chicago, IL, USA.
- Kim, J.H., A.L.Alpatova, L.M.Wright, M.J.Baumann, S.H.R.Davies*, V.V.Tarabara and S.J.Masten^ψ . 2006. Self-Cleaning Ceramic Membranes for the Removal of Natural and Synthetic Nanomaterials from Drinking Water Using Hybrid Ozonation-Nanofiltration. NSF Nanoscale Science and Engineering Grantees Conference, Arlington, VA, December 4-6, 2006.
- Karnik, B.S.* , S.H. Davies, M.J. Baumann, S.J. Masten^ψ , Application of Iron Oxide-Coated Ceramic Membranes Combined with Ozone for the Control of Disinfection By-Products in Drinking Water. Proceedings, 232nd National Meeting and Exposition of the American Chemical Society (ACS), San Francisco CA, September 10-14, 2006.
- Karnik, B.S.* , S.H. Davies, M.J. Baumann and S.J. Masten^ψ , Use of iron oxide coated ceramic membranes in ozonation-membrane filtration hybrid process for the control of disinfection by-products, Presented at the 41st Central Canadian Symposium on Water Quality Research, Burlington, Canada, February 13-14 2006.
- Masten, S.J.* 2000. The Application of Ozonation and Fluidized Bed Treatment for Drinking Water

- Purification. MI Section, AWWA: Research and Technical Practices Committee Seminar. Lansing, MI. May 24, 2000 (**invited speaker**).
- Chang, Y.D., J.A. Mellema, A.A. Yavich, R.C. Rajan and S.J. Masten*^ψ. 1999. Combined Ozonation and Biological Fluidized bed Treatment for Drinking Water Systems, 14th IOA World Congress, Dearborn, MI, August 22-26th, 1999.
- Yavich, A.A.* and S.J. Masten^ψ. 1999. Use of Humic Substances to Model the Kinetics of Ozone Reactions with NOM in Huron River Water, 14th IOA World Congress, Dearborn, MI, August 22-26th, 1999.
- Lee, K-D*, B. Y-F. Yeh, R.C. Rajan and S.J. Masten^ψ. 1999. Evaluation of a recirculating Ozonation/Biological Fluidized Bed Treatment System for the Removal of Disinfection By-products. Proc. of the 14th IOA World Congress, Dearborn, MI, August 22-26th, 1999.
- Masten, S.J.*^ψ, Y.D. Chang, J.A. Mellema, A.A. Yavich and R.V. Rajan. 1999. The Use of Ozonation and FBT for the Control of THM Precursors in Drinking Water, Proceedings of the American Water Works Assoc. Chicago, ILL, June 20-23, 1999.
- Rajan, R.V., A.A. Yavich*, J.L. Cook, R.F. Hickey and S.J. Masten^ψ. 1997. Combination of Ozonation with Fluidized Bed Treatment for Drinking Water Purification. Proceedings of 13th Ozone World Congress, Kyoto, Japan, Oct. 20-23, 1997.
- Yavich, A.A.*^ψ, R.V. Rajan, R.F. Hickey, J.L. Cook, A.N. Kasarabada and S.J. Masten^ψ. 1997. Control of Disinfection By-Products in Drinking Water Using the Ozonation/FBR Process, Proc. 1997 AWWA Annual Conference, Atlanta, Georgia, June 15-19, 1997.

Toxicology

- Masten, S.J. 2000. Effect of Ozonation of Environmental Contaminants on Gap Junction Intercellular Communication. Oxidative Processes: Stress to Remediation", NIEHS Superfund Centers, Chapel Hill, NC. December 12 – 14, 2001 (**invited talk**).
- H. Kim-Yang*, H. Raman, M.T. Yokoyama, S.J. Masten^ψ. 1999. The Effect of Ozonation on the Formation of Toxic By-products in Swine Manure. Proc. of the 14th IOA World Congress, Dearborn, MI, August 22-26th, 1999.
- Yao, J-J* and S.J. Masten^ψ. 1997. The Identification of the Products and Reaction Pathways for the Ozonolysis of Pyrene and Benz[a]anthracene in Aqueous Solutions. Proceedings of 13th Ozone World Congress, Kyoto, Japan, Oct. 20-23, 1997.
- Upham, B.L.*^ψ, J-J. Yao, J. Trosko and S.J. Masten^ψ. 1995. Determination of the Efficacy of Ozone Treatment Systems using a Gap Junction Intercellular Communication Bioassay. International Congress on Hazardous Waste: Impact on Human and Ecological Health, June 4-8, 1995. Atlanta, GA.
- Upham, B.L.*^ψ, J.J. Yao, J.E. Trosko and S.J. Masten^ψ. 1994. Determination of the Efficacy of Ozone Treatment using a Gap Junction Intercellular Communication Bioassay. 17th Annual Mid-West Environmental Chemistry Symposium, Oct. 8-9, 1994. East Lansing, MI.
- Xing, X.*^ψ, B. Boddy, S.J. Masten^ψ, J.E. Trosko and B.L. Upham. 1994. Assessment of the Toxicity of Ozonation Products of Atrazine, 2,4-D, Carbofuran, Lindane and Alachlor by Monitoring Intercellular Communication in Mammalian Cell Cultures. 17th Annual Mid-West Environmental Chemistry Symposium, Oct. 8-9, 1994. East Lansing, MI.
- Upham, B.L.*^ψ, J.J. Yao, S.J. Masten^ψ and J.E. Trosko^ψ. 1994. Environmental Implications of Non-Genotoxic Effects of Polycyclic Aromatic Hydrocarbons and Their Ozonation By-products on the Intercellular Communication of Rat Liver Epithelial Cells. Poster presented at the 48th Annual Purdue Industrial Waste Conference. May 9-11, 1994. West Lafayette, IN. (Received the 2nd Place Award for student poster presentations).
- Upham, B.L., X.X. Shi, B.M. Boddy*, S.J. Masten^ψ and J.E. Trosko^ψ. 1994. Assessment of the Toxicity

of Oxidation Products of Atrazine and Alachlor by Monitoring Intercellular Communication in Mammalian Cell Cultures. Poster presented at the 48th Annual Purdue Industrial Waste Conference. May 9-11, 1994. West Lafayette, IN.

Upham, B.L.* , S.J. Masten^ψ and J. Trosko. 1993. Assessment of the Toxicity of PAHs by Monitoring Intercellular Communication in Mammalian Cell Cultures. 48th Annual Industrial Waste Conference, May 10-12, 1993. Purdue University, West Lafayette, Indiana.

Ozone in Soils

Meyer, J.P., S.J. Masten*^ψ and S.H.R. Davies. 1997. In-situ Ozone Sparging for the Remediation of Aquifer Materials Contaminated with Trichloroethylene (TCE). Proc. Emerging Technologies in Hazardous Waste Management IX. Special Symposium, I&EC Division, American Chemical Society, Pittsburgh, PA, Sept. 15-17, 1997.

Masten, S.J. 1995. The Use of Ozone for the Remediation of Unsaturated Soils. 18th Annual Mid-West Environmental Chemistry Symposium, Oct. 7-8, 1995. Columbus, OH (**invited talk**).

McCormack, C.E.* , S.H. Davies and S.J. Masten^ψ. 1994. Modeling the Oxidation Kinetics of VOCs by Ozone for the Potential Application to Enhanced Soil Vapor Extraction. 17th Annual Mid-West Environmental Chemistry Symposium, Oct. 8-9, 1994. East Lansing, MI.

Hsu, M. I-Y* , S.H.R. Davies and S.J. Masten^ψ. 1994. The Use of Ozone for the Removal of Residual Trichloroethylene from Unsaturated Soils. 17th Annual Mid-West Environmental Chemistry Symposium, Oct. 8-9, 1994. East Lansing, MI.

Hsu, M.I.* , S.H.R. Davies and S.J. Masten^ψ. 1994. Use of Gaseous Ozone to Treat Polycyclic Aromatic Hydrocarbons in Unsaturated Soils. Poster presented at the 48th Annual Purdue Industrial Waste Conference. May 9-11, 1994. West Lafayette, IN.

Hsu, M. I-Y, J-J. Yao, S.H.R. Davies and S.J. Masten*^ψ. 1994. The Use of Ozone for the Removal of Contaminants from Unsaturated Soils. Proc. of the 4th Annual WERC Technology Development Conference. Las Cruces, NM. April 13-15, 1994.

Masten, S*. 1994. Experiences in Remediating Contaminated Soils. Seminar Series in Geological Sciences. April 5, 1994. **Invited speaker**.

Hsu, M. I-Y., S.H.R. Davies and S.J. Masten*^ψ. 1993. The Use of Ozone for the Removal of Residual NAPL from Unsaturated Soils. 16th Annual Mid-West Environmental Chemistry Symposium, Oct. 17-18, 1993. Notre Dame, IN.

Day, J.E., S.H.R. Davies and S.J. Masten*^ψ. 1993. The Effect of Moisture Content on the Use of Ozone in Unsaturated Soils. Center for Microbial Ecology Forum, Sept. 15-16, 1993.

Day, J.E., M. I-Y. Hsu, S.H.R. Davies and S.J. Masten*. 1993. The Use of Ozone for the Removal of Residual NAPL from Unsaturated Soils. The Civil Engineering Department, University of Waterloo, Waterloo, Ontario, Sept. 10, 1993.

Hsu, M. I-Y., S.H.R. Davies* and S.J. Masten^ψ. 1993. The Use of Ozone for the Removal of Residual Trichloroethylene from Unsaturated Soils. 11th Annual International Ozone Association World Congress, Aug. 30-Sept. 2, 1993.

Day, J.E.* , S.H.R. Davies and S.J. Masten^ψ. 1993. The Use of Ozone for the Degradation of PAHs in the Presence of Soil Moisture. 48th Annual Industrial Waste Conference, May 10-12, 1993. Purdue University, West Lafayette, Indiana.

Hsu, M. I-Y. * , S.H.R. Davies and S.J. Masten^ψ. 1993. The Use of Ozone for the Removal of Residual Trichloroethylene from Unsaturated Soils. 48th Annual Industrial Waste Conference, May 10-12, 1993. Purdue University, West Lafayette, Indiana.

Masten, S.J.* 1993. Use of Soil Venting Technologies for the Remediation of Contaminated Soils. Seminar Series in Geological Sciences. March 9, 1993. **Invited speaker**.

Day, J.* , S.H.R. Davies and S.J. Masten^ψ. 1992. Effect of Moisture and Soil Organic Matter on the Transport of Ozone in Soils. MSU Center for Microbial Ecology Forum. Oct. 9, 1992. East

Lansing, MI

- Day, J.*, S.H.R. Davies and S.J. Masten^ψ. 1992. Effect of Moisture and Soil Organic Matter on the Transport of Ozone in Soils. 24th Mid-Atlantic Industrial and Hazardous Waste Conference. July 14-17, 1992. Morgantown, WV.
- Yao, J-J. and S.J. Masten^ψ. 1991. Use of Ozone for the Oxidation of VOCs and PAHs in the Presence of Naturally Occurring Organic Matter. 46th Annual Purdue Industrial Waste Conference. May 14-16, 1991. West Lafayette, IN.
- Masten, S.J.* April 1991. Use of In-Situ Ozonation for the Removal of VOCs and PAHs from Soils. EPA Symposium on Soil Venting. Houston, TX. (**Invited speaker**)
- Masten, S.J.* June 1990. Use of Ozone for the Treatment of Soils Contaminated with PAHs and VOCs. Poster Presentation. Gordon Research Conference: Environmental Sciences - Water. New Hampton, NH.
- Masten, S.J.* June 1989. Use of Ozone for In-situ Treatment of VOC's in the Subsurface. Poster presentation. International Symposium on Processes Governing the Movement and Fate of Contaminants in the Subsurface Environment. Stanford, CA.
- Masten, S.J.* April 1989. Use of Ozone for the Treatment of Soils Contaminated with Volatile Organic Compounds. **Invited speaker**. Workshop on the Use of Vacuum Extraction Systems for the Remediation of Contaminated Subsurface Environments. Ada, OK.

Ozone Mechanisms

- Yavich, A.A.*, A.N. Kasarabada, R.V. Rajan and S.J. Masten^ψ. 1997. The Use of Surrogate Parameters to Model the Kinetics of Ozone Reactions in Water. Proceedings of 13th Ozone World Congress, Kyoto, Japan, Oct. 20-23, 1997.
- Davies, S.H.R., M. Galbraith, M-M Shu and S.J. Masten^{*ψ}. 1995. Use of Advanced Oxidation Processes for the Oxidation of Chlorinated Benzenes in Aqueous Systems. Preprints of Papers Presented at the 210th ACS National Meeting, Aug. 20-24, 1995, Chicago, IL, p. 418 (**invited talk**).
- Yao, J-J, S.J. Masten^{*ψ}. 1994. A Study of Pyrene Ozonation in Aqueous Systems. Poster presentation at 17th Annual Mid-West Environmental Chemistry Symposium, Oct. 8-9, 1994. East Lansing, MI.
- Davies, S.H.R., M. Galbraith, M-M Shu and S.J. Masten^{*ψ}. 1994. Use of Ozone, Ozone/peroxide, and Ozone/UV for the Oxidation of Chlorinated Benzenes in Aqueous Systems. Oral presentation at DOW Chemical Co., Midland, MI., Sept. 20, 1994.
- Davies, S. H.R., M. Galbraith, M-M Shu and S.J. Masten^{*ψ}. 1994. Use of Ozone, Ozone/peroxide, and Ozone/UV for the Oxidation of Chlorinated Benzenes in Aqueous Systems. Abstracts of Oral Presentations of the First International Conference on Advanced Oxidation Technologies for Water and Air Remediation. London, Ontario, June 25-30, 1994. pp 41-43.
- McCormack, C.E.*, S.H.R. Davies and S.J. Masten^ψ. 1994. Modelling the Oxidation Kinetics of VOCs by Ozone for the Potential Application in Ozone Vapor Stripping. Poster presented at the 48th Annual Purdue Industrial Waste Conference. May 9-11, 1994. West Lafayette, IN.
- Masten, S.J.^ψ, M. Galbraith and S.H.R. Davies*. 1994. Oxidation of Trichlorobenzene using Advanced Oxidation Processes. Proc. of the 4th Annual WERC Technology Development Conference. Las Cruces, NM. April 13-15, 1994.
- Masten, S.J.^ψ, M. Galbraith and S.H.R. Davies*. 1993. Oxidation of Trichlorobenzene using Advanced Oxidation Processes. 11th Annual International Ozone Association World Congress, Aug. 30-Sept. 2, 1993.
- Bandemehr, A., C.E. McCormack*, S.H.R. Davies and S.J. Masten^ψ. 1993. The Reaction of Ozone with VOCs in the Presence of Naturally Occurring Organic Matter. 48th Annual Industrial Waste Conference, May 10-12, 1993. Purdue University, West Lafayette, Indiana.
- Shu, M-M.*, M-K Chiang*, S.H.R. Davies and S.J. Masten^ψ. 1993. Advanced Oxidation Processes for the Treatment of Chlorinated Benzenes in Aqueous Solutions. 48th Annual Industrial Waste

- Conference, May 10-12, 1993. Purdue University, West Lafayette, Indiana.
- Yao, J-J.* and S.J. Masten^ψ. 1993. Kinetic Study of the Reaction of Ozone with Aromatic Compounds. 48th Annual Industrial Waste Conference, May 10-12, 1993. Purdue University, West Lafayette, Indiana.
- Masten, S.J.* and J.N. Butler^ψ. June 1986. Mechanisms and Kinetics of Ozone and Hydroxyl Radical Reactions with Model Aliphatics and Olefins. Gordon Research Conference - Environmental Sciences. New Hampton, NH. Poster presentation.
- Masten, S.J.* and J.N. Butler^ψ. Sept. 1984. Comparison between Ozone and Ultra-violet Enhanced Ozonation for the Oxidation of Dichloroethane and Trichlorethylene in Aqueous Systems. International Ozone Association- Pan American Meeting. Montreal, Canada.
- Masten, S.J.* and J.N. Butler^ψ. June 1984. Oxidative Destruction of Organic Groundwater Contaminants by Ozone/UV. Fifth Conference on Water Chlorination: Environmental Impact and Health Effects. Williamsburg, VA.
- Masten, S.J.* May 1984. Implications of Ozone and Ozone/UV Treatment for the Oxidation of Organic Micropollutants in Groundwater. University of Massachusetts- Department of Civil Engineering Seminar Series. Amherst, MA.

Ozone/Swine Manure

- Gerrish, J.B., H.L. Person and S.J. Masten*^ψ. 1999. Construction of a Full-Scale Ozonation System for the Amelioration of Odors from Swine Manure, 14th IOA World Congress, Dearborn, MI, August 22-26th, 1999.
- Masten, S.J. and M.T. Yokoyama*^ψ. 1999. An Update on the Ozonation of Livestock Waste Reduction at MSU, Manure Management '99, Saskatoon, Saskatchewan, Canada, June 22-25, 1999.
- Kim-Yang, H.*; M.T. Yokoyama and S.J. Masten^ψ. 1999. Ozonation of Poultry, Dairy Cattle, Beef Cattle and Swine Manure, Manure Management '99, Saskatoon, Saskatchewan, Canada, June 22-25, 1999.
- Roman, H., F. Roggenbuck, H. Marek, S. Hengemuehle, D. Penner, S. Masten and M. Yokoyama.^ψ 1998. Phytotoxic Effects of Ozonated Swine Manure Slurry on Corn, Soybean, and Wheat, Animal Production Systems and the Environment: International Conference on Odor, Water Quality, Nutrient Management, and Socioeconomic Issues. Des Moines, IA. July 24-27, 1998.
- Kim-Yang, H.*; N. Muju, K. Balaji and S.J. Masten^ψ. 1998. The Use of Ozone for the Control of Odors and Bacteria in Swine, Poultry, Dairy Cattle and Beef Cattle Manure Slurry, Poster presentation: Ag Expo, East Lansing, MI, July 7-9, 1998.
- Masten, S.J.*. 1998. Use of Ozonation for the Control of Odors from Swine Manure, Annual Great Lakes State Conference, March 28, 1998.
- Masten, S.J.*. 1998. Use of Ozonation for the Control of Odors from Swine Manure, presented to RISE program, MSU, March 19, 1998.
- Watkins, B.D., S.M. Hengemuehle, H.L. Person, M.T. Yokoyama* and S.J. Masten^ψ. 1996. Ozonation of Stored Swine Manure Slurry to Control Odors and Reduce the Concentrations of Pathogens and Toxic Fermentation Metabolites. Proc. of the 1st International Conference on Air Pollution from Agricultural Operations. Kansas City, MO. Feb. 1996.
- Watkins, B.D., S.M. Hengemuehle, H.L. Person, S.J. Masten* and M.T. Yokoyama*^ψ. 1994. Ozonation of Stored Swine Manure Slurry to Reduce Odors. Proc. of the Michigan Pork Congress 1994 Professional Swine Producers Symposium, Feb. 3, 1994. Lansing, MI.
- Watkins, B.* and S.J. Masten^ψ. 1993. Chemical Oxidation by Ozonation to Reduce Odors Generated from Swine Waste Slurry. 48th Annual Industrial Waste Conference, May 10-12, 1993. Purdue University, West Lafayette, Indiana.
- Masten, S.J.*^ψ, M. Yokoyama and H. Person. 1993. Use of Ozonation for the Controlling Odor from Swine Manure. Michigan Manure Management Conference. March 3, 1993. **Invited speaker.**

Other

- Park, S.H., S.J. Masten and M.T. Yokoyama*[‡]. 1999. Bacterial Community Fingerprinting of Amplified 16S Ribosomal DNA Sequences and Restriction Endonuclease Analyses (ARDRA) of Stored Swine Waste Slurry. Amer. Soc. Microbiol. General Meeting, Chicago, IL, May 30-June 3, 1999.
- Masten, S.J. 1993. Use of Ozonation for the Treatment of Hazardous Wastes. General Motors Bio-Medical and Environmental Engineering Divisions, Warren, Ohio. Jan. 14., 1993.
- Masten, S.J.* Nov. 1987. Use of Ozone and Related Processes for the Treatment of Hazardous Wastes. **Invited speaker.** Western NY Section of the Environmental Chemistry Division of the American Chemical Society, Buffalo, NY.

* Presenter

Honors

- West Virginia University Academy of Civil Engineers, May 2014.
- Air and Waste Management Association Lyman A. Ripperton Environmental Educator Award, June 2013.
- Chi Epsilon Great Lakes Region Excellence in Teaching Award, May 2013.
- MSU Curricular Service-Learning and Civic Engagement Award, April 2012.
- Withrow Teaching Award, College of Engineering, March 2012.
- AEESP/Wiley Interscience Environmental Engineering Teaching Award, October 2001.
- Leadership Fellows Program, Michigan State University, 1996-1997.
- Faculty Writing Project, Michigan State University, May 1996.
- Teacher-Scholar Award, Michigan State University, February 1996 (\$2,000).
- Withrow Distinguished Scholar Award, College of Engineering, MSU, March 1995 (\$250).
- Lilly Teaching Fellowship, Michigan State University, 1994-1995.
- Harvey Rosen Award for best paper in *Ozone: Science and Engineering*, 1991-1992.
- Bunting Institute of Radcliffe College Scholarship. 1985. To help defray the costs of traveling to EAWAG in Switzerland to conduct doctoral research (\$500).
- American Association of University Women Pre-doctoral Fellowship. 1985 -1986. Stipend to conduct research in Switzerland (\$7,840).
- Harvard University Fellowship (Sept. 1981 - Sept. 1982).
- Honor's List (seven semesters), Fairleigh Dickinson University.
- Phi Omega Epsilon Honor Society, Fairleigh Dickinson University .
- Phi Zeta Kappa Honor Society, Fairleigh Dickinson University.

Scientific and Professional Organizations

- International Ozone Association
- Association of Environmental Engineering and Science Professors
- American Water Works Association
- Air and Waste Management Association
- Professional Engineer, with the State of Michigan Board of Professional Engineers (passed April 19, 2002, Issue Date: July 22, 2002, No. 6201049198)
- Coordinator for the Chemical Oxidation Group of the Great Lakes/ Mid-Atlantic Hazardous Substance Research Group (1991-1993)

Courses Taught

Introduction to Environmental Engineering/ Principles of Environmental Engineering (taught approximately 14 times at Michigan State, twice at McMaster University)
Physical-Chemical Processes in Environmental Engineering (taught approximately 10 times at Michigan State, once at McMaster University)
Water and Wastewater Treatment Plant Design (taught 6 times at Michigan State, once at SUNY-Buffalo)
Air Pollution: Science and Engineering (taught 5 times at Michigan State)
Environmental Chemistry (taught approximately 7 times at Michigan State)
Capstone Environmental Design Project (taught approximately 8 times at Michigan State)
Industrial and Hazardous Waste (taught once at Michigan State)
Water Pollution Microbiology (taught once at SUNY-Buffalo)
Atmospheric Chemistry (taught once at SUNY-Buffalo)

University Service

Member: Water Science Network Advisory Committee (Sept. 2016-present).
Advisor: MSU College of Engineering Team participating in the Air and Waste Management Association Environmental Competition International (ECi) June 20-23, 2016, New Orleans, LA. (Advised team from March-June 2016). Team placed 1st.
Advisor: MSU College of Engineering Team participating in the Air and Waste Management Association Environmental Competition International (ECi) June 22-25, 2015, Raleigh NC. (Advised team from March-June 2015). Team placed 1st.
Member: CEE Chairperson Search Committee (September 2015-July 2016)
Chair: Engineering Undergraduate Studies Committee (September 2015-present)
Advisor: MSU College of Engineering Team participating in the Air and Waste Management Association Environmental Competition International (ECi) June 24-27, 2014, Long Beach, CA. (Advised team from March-June 2014). Team placed 2nd.
Member: CEE Hydrology Curriculum Committee (September 2013-present)
Chair: CEE Undergraduate Curriculum Committee (May 2011-Sept. 2014)
Member: CEE Structures Search Committee (May 2011-present)
Member: Engineering Undergraduate Studies Committee (April 2011-present)
Member: CEE Advisory Committee (Aug. 2010-May 2011)
Member: CEE Undergraduate Curriculum Committee (June 2010-May 2011, Sept. 2014-present)
Member: Outreach Scholarship Community Partnership Award Selection Committee (Sept. 2010-present)
Advisor: Environmental Engineering Student Society (Aug. 2008-)
Advisor: Engineers Without Borders (Aug. 2008-)
Chair: Presentation to Newalta Corp., Directions in Environmental Engineering, Feb. 2008, Request for donation of \$500,000.
Chair: Admissions and Recruiting Committee (September 2005-present)
Chair: Eng1 Operating Committee (September 2005-present)
Member: Dean's Council (September 2005-present)
Member: Civil Engineering Promotion and Tenure Committee (September 2006-Aug. 2008)
Member: Civil Engineering Graduate Studies Committee (September 2006-Aug. 2008)
Member: Graduate Studies Committee (Sept. 2002-June 2005)
Member: Promotion/Tenure Review Committee, College of Engineering (2002)
Member: Search Committee for CEE Faculty in Environmental Engineering (Sept. 2001-)

- Member: University Committee for Research Involving Human Subjects (Jan. 2001-May 2002)
- Member: Mass Spectroscopy Facility Advisory Committee (Jan. 2000-June 2005)
- Member: Review Committee for Case Center, June 1999- Jan. 2002
Search Committee, TOSC Project Engineer, June – July, 1999.

- Advisor: Two Design Teams for the Annual Waste Management Education and Research Consortium (WERC) Design Competition, Las Cruces, NM. Best Poster Presentation. (January 1999 - May 1999)
- Co-coordinated Women Student Reception, October, 29, 1998.
- Advisor: Girl Scout Water Wonders Badge Workshop, Environmental Engineering Student Society, Oct. 14, 1998.
- Search Committee, Environmental Engineering Faculty Position, August – present, 1998.
- Search Committee, TAB Outreach Coordinator, August – October, 1998.
- Advisory Committee, CEE Department, Fall 1998
- ECTCDC (Committee to Develop a Certificate Program in Engineering Teaching), Fall 1998
- Member: Advisory Committee to the Child and Family Care Resources Program (Sept. 1996-Sept. 2003)
- Co-advisor: Design Team for the Fifth Annual Waste Management Education and Research Consortium (WERC) Design Competition, Las Cruces, NM. Third place. (September 1996 - April 1997)
- Leadership Fellowship (Sept. 1996-Aug. 1997).
- Member: Search Committee for Chair of Agricultural Engineering (Sept. 1996-Feb. 1997).
- Advisor: Civil Engineering. Honors College (Aug. 1995-June 2005)
- Chair: CEE Graduate Studies Committee (Aug. 1995 – June 200)
- Member: CEE Graduate Studies Committee (Aug. 1995 – June 2005)
- Member: Search Committee for Associate Professor of Agricultural Engineering (Feb. 1995-Feb, 1996).
- Member: Advisory Committee to College of Engineering Manufacturing Research Consortium (Feb. 1995-)
- Member: Search Committee for Assistant Professor of Civil Engineering (Sept. 1994-Sept. 1995).
- Member: Women’s Advisory Committee to the Dean of Engineering (Sept. 1994 -)
- Co-advisor: Design Team for the Fifth Annual Waste Management Education and Research Consortium (WERC) Design Competition, Las Cruces, NM. First place overall, best oral presentation, best written report (September 1994 -)
- Co-advisor: Design Team for the Fourth Annual Waste Management Education and Research Consortium (WERC) Design Competition, Las Cruces, NM. First place overall, best oral presentation. (October 1993 - May 1994)
- Secretary: University Library Committee (1993-1994)
- Member: Advisory Committee for Department of Civil Engineering (May 1993-Sept. 1995)
- Co-advisor: Design Team for the Third Annual Waste Management Education and Research Consortium (WERC) Design Competition, Las Cruces, NM. Fourth place overall. (January - May 1993)
- Member: Search Committee for Assistant Professor of Civil Engineering (December 1992- August 1993).
- Chair: Engineering Library Committee (September 1992- June 1994)
- Member: University Library Committee (September 1992-August 1996)
- Member: Search Committee for Environmental Laboratory Manager (June-September 1992).
- Member: Reappointment Review Committee for the Director of the Division of Engineering Research
- Member: Search Committee for Hannah Professor of Microbial Ecology (June 1990-June 1991).
- Graduate Admissions Coordinator: Environmental Engineering Group (January 1990-August 1991).

Member: Search Committee CEE Department Undergraduate Academic Advisor (January-April 1990).

Professional Service

Reviewer for numerous journals (e.g., *Ozone: Science and Engineering*, *Environmental Science and Technology*, *Water Research*, and *Groundwater Monitoring and Remediation*, *Catalysis Communications*, *Environmental Engineering Science*, *Desalination*, *Industrial and Engineering Chemistry*) and publishing companies (e.g., Wiley and Sons and McGraw-Hill).
Executive Committee, MSU Chapter of the American Chemical Society (1995-2003)
Coordinating committee, American Society of Engineering Education, Northcentral Regional Conference, Spring 2000.
Proposal Review Boards, USDA SBIR, NIEHS, EPA, National Science Foundation, American Water Works Association Research Foundation
Session Chair, Session 18: Food and Agriculture/ Pulp, 14th IOA World Congress, Dearborn, MI, August 22-26th, 1999.
Co-coordinating the Mid-West Regional ASEE Conference, to be held at MSU, March 31- April 1, 1999.

Graduate Student Advisees

M.S. Thesis Students

Jehng Jyun Yao, M.S. 1991	Use of Gaseous Ozone for the Remediation of Unsaturated Soils Contaminated by PAHs
Michael Galbraith, M.S. 1992	Evaluation of AOPs for the Oxidation of Trichlorobenzene
Ming-Kuei Chang, M.S. 1994	Development of a Model to Describe the Decomposition of Ozone and Chlorinated Benzenes by AOPs in Waters Containing Humic Material and Iron
James Day, M.S. 1994	The Effect of Soil Moisture on the Ozonation of PAHs in Unsaturated Soils
Clayton McCormack, M.S. 1995	Kinetics of the Reaction of Ozone with Chloropropenes in Waters Containing Naturally Occurring Organic Matter
Min-Min Shu, M.S. 1995	Effect of Bicarbonate and Humic Acid on the Formation of Hydroxyl Radicals in AOPs
Lili Weis, M.S. Aug. 1996	Effect of PAHs and Methylated PAHs on Gap Junction Intercellular Communication in Rat Liver Epithelial Cells
Ajay Kasarabada, M.S. May 1997	Evaluation of Ozonation/ Fluidized Bed Treatment for the Reduction of Trihalomethanes
Julie Mellema, M.S. Aug. 1998	The Use of Apparent Molecular Weight Distribution to Evaluate the Transformation of NOM during Ozonation and Biological Treatment
Freesia Waxman, M.Sc. Dec. 2009 McMaster University	Titanium Dioxide Catalyzed Oxidation of Salicylic Acid.
Paramjeet Pati., M.S. May 2010	Detoxification of Jatropha Seeds
Nathan Arnett, Dec. 2010	Audit of Water Supply and Use on the MSU Campus
Matt Morris, MS, Aug. 2011	Consumption of Water on the MSU Campus

M.S. Project Students

Robert Conway, M.S. 1991	Response to Hazardous Materials Spills/ Accidents in the Great
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Lakes

- David Filipiak, M.S. 1991 Evaluation of Headspace for the Analysis of Complex Organic Mixtures in Soils
- Angela Bandemehr, M.S. 1992 The Reaction of Ozone with VOCs in the Presence of Naturally Occurring Organic Matter
- Brian Wieggers, M.S. 1993 A Critical Evaluation of Field-scale Soil Vapor Extraction Systems
- Brad Upham, M.S. 1993 Biological and Environmental Engineering Implications of Non-genotoxic Effects of Polycyclic Aromatic Hydrocarbons and their Ozonation By-Products on the Intercellular Communication of Rat Liver Epithelial Cells.
- Bruce Watkins, M.S. 1993 Use of Ozone for Odor Control in Stored Swine Manure Slurries
- Xiaoshi Xing, M.S., 1994 Assessment of the Toxicity of Ozonation Products of Atrazine, 2,4-D, Carbofuran and Lindane by Monitoring Intercellular Communication in Mammalian Cell Cultures
- Michael Contrera, M.S. 1994 Control of Formaldehyde in Indoor Air
- Mark Ruppel, M.S. May 1995 Use of SFE for the Extraction of PAHs from Soils
- Brad Boddy, M.S. May 1995 Assessment of the Toxicity of Chlorination Products of Atrazine, 2,4-D, Carbofuran and Lindane by Monitoring Intercellular Communication in Mammalian Cell Cultures
- Galecka, Craig, M.S. May 1995 Efficacy of Ozonation for the Inactivation of *Cryptosporidium parvum* oocysts
- Shi-Jer Sun, M.S., Aug. 1995 Evaluation of the Use of Oxidants to treat Unsaturated Soils
- Jack Shanholtz, M.S. Aug. 1996 Evaluation of UV and TOC as Surrogate Parameters for Humic Acid
- Diane Cole, M.S. Aug. 1996 Use of In-situ Ozonation for the Remediation of Contaminated Wurtsmith Soils
- Jon Meyer, M.S. Dec. 1997 Use of Ozone Sparging for the Removal of Trichloroethylene from Contaminated Soils
- Ming Tian, Dec. 1997 Evaluation of the Ozone for the Reduction of Toxicity of Selected Pesticides
- Amy Garner, M.S. May 1998 Analysis of Trihalomethanes formed from the Reaction of Chlorine and Natural Organic Matter in Huron River Water
- Yvonne Chang, M.S. Aug. 1998 The Reaction of Humic Substances and Non-Humic Substances during Ozonation and Subsequent Biological Treatment
- Natasha Muju, M.S. May 1998 Use of Ozone for the Reduction of Malodors in Dairy Cattle Manure
- Balaji Krishna, M.S. Aug. 1998 Use of Ozone for the Reduction of Malodors in Beef Cattle Manure
- Beth Ya Fen, M.S. Jan. 1999 Use of THMFP. Humic Substance and Non-humic Substance as Control Parameters for Evaluating the Performance of Recirculating Ozonation/ Biological Fluidized Bed Treatment for the removal of Disinfection By-products
- Subhash Kari, M.S. May 1999 Enhancing Student Outcomes in Introduction to Environmental Engineering
- Hye Soon Kim-Yang, M.S. May 1999 Ozonation of Synthetic Swine Manure
- Diane Lickfelt, M.S. May 2000 Mobility of Lead in Soils
- Ashish Chavan, M.S. May 2000 Effect of Ozonation and Chlorination on Glyphosate
- Carrie Hankinson, M.S. May 2000 Marketability of Ozonation/FBT for Drinking Water Treatment
- Ya-Yun Wu, M.S. Dec 2001 Effect of Low Dosage Ozonation of Swine Manure Slurries on

- Atiq Syed, M.S. May 2002
 Angeles Velez, M.S. May 2002
 Rajnish Sharma, MS, May 2002
 Erik Sunday, MS, Aug 2002
 Koren Carpenter, MS, 2003
- Bethany Canamore, May 2003
- Sheba Goklany, MS, June 2004
 Bhavana Karnik, MS, Aug. 2004
 Namisha Patel, MS, Aug. 2005
 Elaheh Esfahanian, MS, Aug. 2012
- Ma Xiangmeng, MS, May 2013
 Zhu Shu, MS, May 2013
 Xu Fan, M.S. August 2014.
 Xiaoyu Wang, M.S. Aug. 2014
 Han Wang, M.S., 2014.
 Renee Lynde, M.S., Dec. 2014
- Yuanji, Li, M.S. Dec 1015
- Minal Jaisinghani, M.S.,
- Ph.D. Students**
- Michael (I-Yuang) Hsu, Ph.D.
 Dec. 1995
 Jehng-Jyun Yao, Ph.D.
 May 1997
 Jiunn-Jer Wu, Ph.D. May 1998
 Alexander Yavich, Ph.D.
 Aug, 1998
 Holly Herner, Ph.D. May 1999
- Kyung-Hyuk, Lee, Ph.D.
 May 2001
 Kim-Yang, Hyesoon, Ph.D. 2002
- Stephanie Laverne-Luster, Ph.D. 2003
 K.C. Chen, Ph.D. 2003
- Bhavana Karnik, Ph.D. 2006
- Andrea Satoh, Ph.D., 2008
- Carlos Sanlley, Ph.D., 2008
 Alla Alpatova MSU, 2011
- VFAs and Phenolic Compounds
 Full-scale Low Dosage Ozonation of Swine Manure Slurries
 Estrogenic Compounds from Livestock Production Facilities
 Toxicity of Several Ozonation By-Products to *Musca Domestica*
 Evaluation of Water Quality in the Grand River, Jackson Reaches,
 Use of Membrane Processes for Drinking Water Treatment in
 Michigan
 The Effects of Coastal Brownfields on Threatened or Endangered
 Birds in Michigan
 Fenton's Oxidation of MTBE
 Ozone/Membrane Filtration for Drinking Water Treatment
 Quantification of Hydroxyl Radicals During Fenton's Oxidation
 Modification of Zeolites as a Pretreatment Step for Membrane
 Filtration.
 Metal Oxide catalysts for the oxidation of oxalic acid in water
 Comparison of dead-end and cross-flow filtration.
 Control of cyanuric acid in swimming pool water
 Comparison of dead-end and cross-flow filtration for NOM control
 Metal Oxide catalysts for the hydrogen production in water
 Capacitive deionization (CDI) for removal of water hardness from
 boiler water
 Overview of domestic gray water reuse: Sustainable water
 management
- Evaluation of Ozone Venting for the Removal of Volatile
 and Semi-volatile Contaminants from Unsaturated Soil
 Kinetics and Mechanisms of the Reaction of Ozone and
 PAHs in Acetonitrile Water Mixtures
 The Use of Ozone for the Removal of Odor from Swine Manure
 The Use of Ozonation and Biological Fluidized Bed
 Treatment for the Control of NOM in Drinking Water
 The Reaction of Ozone with Pyrene: the Byproducts and their
 Toxicological Implications
 The Effects of Ozonation Pathways on the Formation of
 Ketoacids and assimilable organic carbon (AOC) in Drinking Water
 Characterization of odorous and hazardous gaseous compounds in
 livestock building air.
 The Use of Gaseous Ozone to Remediate Contaminated Soils
 Ozonation, Ultrafiltration, and Biofiltration for the Control of NOM
 and DBPs in Drinking Water
 The Use of Ozonation and Catalytic Ozonation combined with
 Ultrafiltration for the Control of Natural Organic Matter (NOM) and
 Disinfection by-products (DBPs) in Drinking Water
 Use of Fenton's Oxidation for the Detoxification of PCB
 Contamination
 Fenton's Oxidation of PAH Contaminated Soils
 Ozonation/membrane filtration for the removal of pharmaceuticals

M. Reza Moslemi, Ph.D., 2011 from drinking water
Formation of Bromate and Other Brominated Disinfection
Byproducts during the Treatment of Waters Using a Hybrid
Ozonation-Membrane Filtration System

Undergraduate Students in MSU and McMaster Research Groups:

Freesia Waxman (2006-2007)	Later M.App. Sci. student at McMaster
Avery Gottfried (2006-2007)	Presently in Ph.D. Program. University of Auckland, Commonwealth Scholarship recipient
Sonia Hsiung (2006-2007)	B.Eng. Electrical Engineering, McMaster University
Chenyang Li (Summers 2006, 2007)	B.Eng. Chemical Engineering, McMaster University
Lorna McTaggart (Summer 2007)	B.Eng. Civil Engineering, McMaster University
Michael FitzPatrick (Summer 2007)	B.Eng. Materials Engineering, McMaster University (Starting Ph.D. at Queens University in Fall 2008) NSERC Fellowship Recipient
James Francis (2007-2008)	B.Eng. Civil Engineering & Society, McMaster University
Hugh Macdowell (2008-2010)	B.S. Civil Engineering, Michigan State University
R. Jamie Kubiak (2010-2011)	B.S. Civil Engineering, Michigan State University
Sydney Salit (2014-2016)	B.S. Environmental Engineering, Michigan State University
Taylor Ruelle (2015-present)	B.S. Mechanical Engineering, Michigan State University

Grants Awarded

National Institute of Health, McElmurry, S.P.; Miller, C.J.; Pitts, D.K.; Sackey, D.J.; Seeger, M.; Masten, S.J.; Hanna-Attisha, M. Rapid Response to Contaminants in Flint Drinking Water. National Institute of Health; National Institute of Environmental Health Sciences. Award # 1R21ES027199-01, 2016-2018 (\$422,110 total)

National Science Foundation, McElmurry, S.P.; Masten, S.J. RAPID: Chemical treatment efficiency of point-of-use filters deployed in Flint, Michigan, Award #1633013, 2016-2017 (\$49,992 total).

MSU S3, Masten, S.J., Gasteyer, S.P., Ogundimu, F., \$10,000 Assessment of Water Quality and the Impact of Human Activities on Drinking Water Contamination in Dar-es-Salaam, Tanzania (2015-2016).

MSU College of Engineering/Provost/CEE, \$50,000 Photochemical production of hydrogen from wastewater (2015-2016).

MSU Office of Sustainability, funded, \$78,000, Capacitive deionization (*CDI*) for removal of water hardness from boiler water (2014-2014).

MSU Center for Water Science, funded, Use of X-ray Absorption Spectroscopy to Study the Reduction of U(VI) by Zero Valent Iron, funded, \$18,944 (2011-2013)

MSU Office of Sustainability, funded, \$25,000, "Consumption of Water on the MSU Campus". (2011-2012)

MSU Office of the Vice President for Research, \$600,000, Advanced membrane technologies for a sustainable future (MSU Strategic Partnership Grants program), with V.V. Tarabara, S. Hashsham, M. Bruening. (2010-2013)

US AID, \$90,000, "Fate of phorbol esters in jatropha biodiesel (2009-2011) with M. Yokoyama, B. Simpson.

NSF, funded, \$35,000, "Supplemental: NIRT: Self-Cleaning Ceramic Membranes For The Removal Of Natural And Synthetic Nanomaterials From Drinking Water" with Simon Davies, Volodymyr Tarabara and Melissa Baumann, (2005-2010)

- Human Resources and Social Development Canada: International Academic Mobility Special Initiatives Program, funded, \$150,000, (2008-2009) With Konstantin Kreyman.
- McMaster University, funded, over \$300,000 per year, “Quality Initiative Fund: Inspire through Inquiry, Innovation and Integration; Funds two faculty lines and a course coordinator (2007-present).
- PACE – GM of Canada, funded, as part of this project, more than \$60 million of off-lease high-end workstations (107) and new workstations (12) and associated software. With Robert Fleisig and Tom Doyle. (2006-present).
- McMaster University, funded, \$125,000 per year for two years, “Refining Directions: Innovative Approaches for Engineering Mathematics Education” (2005-2007), with Deidre Haskell
- NSERC, funded, \$27,000 (direct) per year for five years, “Use of Ozonation and Ceramic Membranes for the Removal of EDCs from Drinking Water”.
- NSF, funded, \$1,439,999, “NIRT: Self-Cleaning Ceramic Membranes For The Removal Of Natural And Synthetic Nanomaterials From Drinking Water” with Simon Davies, Volodymyr Tarabara and Melissa Baumann, (2005-2010)
- Technical Outreach/Midwest Hazardous Substance Research Center, funded, \$105,000, “Technical Outreach and Support for Communities”, with Thomas Voice and Kirk Riley, 2 years.
- Technical Outreach/Midwest Hazardous Substance Research Center Voice, Thomas ; Riley, Kirk S ; Masten, Susan ; Szymecko, Lisa A. U.S. Environmental Protection Agency through Purdue University (\$105,000 for 9/1/03-8/31/04).
- Self Cleaning Membranes For Water Treatment, American Association for the Advancement of Science (\$3,100 for 7/16/03-8/10/03).
- Use Of Ozonation In Combination With Nanocrystalline Catalytic Ceramic Membranes For Controlling Disinfection By Product, U.S. Environmental Protection Agency, With Baumann, Melissa J. (\$353,959 for 5/1/03-4/30/06).
- Technical Outreach/Midwest Hazardous Substance Research Center Voice, Thomas ; Riley, Kirk S ; Masten, Susan ; Szymecko, Lisa A. U.S. Environmental Protection Agency through Purdue University (\$67,000 for 9/1/02-8/31/03).
- U.S. Environmental Protection Agency, Technical Outreach Services for Communities (TOSC) Program with Kirk Riley (\$250,000 for current funding period; \$250,000 for funding period October 1, 2001 to September 30, 2002.) Funds 6 Graduate Assistants.
- GE Fund: “Reforming the Early Undergraduate Engineering Learning Experience: Phase II”. With P.David Fisher and Jim Fairweather. (\$491,400 for 1/1/01 to 12/31/02).
- Great Lakes National Program Office of the U.S. Environmental Protection Agency (U.S. EPA): “Chequamegon Bay Contaminated Sediment Outreach Project.” With Kirk Riley, Thomas C. Voice and R. Jan Stevenson. (\$67,000 over September 1, 2000; September 1, 2002)
- NIEHS Superfund Outreach Core: “Co-Investigator, “Involving Citizens and Communities in the Development of Information and Educational Materials and Programming at Hazardous Waste Sites” With Kirk Riley, Michael A. Kamrin, and Thomas Voice (\$350,000, start date July 1, 2000; end date: July 2005).
- NIEHS: “Health Hazards from Groundwater Contamination” (Approx. \$14 million from 4/01/2000 to 3/31/2005) Lawrence J. Fisher, P.I. Ca. \$220,000 (direct) for product identification and production)
- NSF: Phase I STTR, Contract with Michigan Biotechnology Institute: “Full-Scale Ozonation of Swine Lagoons” (\$21,000 for 1/1/00 to 12/31/00).
- Department of Education, Graduate Assistantships in Areas of National Need (\$450,912 from 8/98 – 8/01) With T.C. Voice and D. Wiggert.
- U.S. EPA: “Pilot Studies of the Ozonation/FBT Process for the Control of Disinfection By-Products in Drinking Water”, (\$424,734 for 8/16/98-8/15/01)
- GE Fund. “New Engineering Curriculum for the Twenty-first Century”, (\$450,000 from 6/98-12/00)

- With P.D. Fisher and J.S. Meriweather (Co-P.I., Masten – co-P.I.).
- National Pork Producers Council: “Characterization of the Bacterial Community in Stored Swine Waste Slurry Using 16S rDNA and PCR, with Emphasis on Odor Producing and Odor Destroying Bacteria”, (\$28,000) With M. Yokoyama (P.I.).
- Multi-State Consortium on Waste Management: “ A New Method for Evaluating and Validating Odor Remediation Techniques”, (\$20,000 for 8/1/97-7/31/98). With M. Yokoyama.
- Multi-State Consortium on Waste Management: “Full-Scale Ozonation Of Urine-Rich Swine Slurry”, (\$39,000 for 7/1/97-6/30-99) With M.T. Yokoyama, J. Gerrish (P.I.), H.L. Person.
- EPA Great Lakes and Mid-Atlantic Hazardous Substance Research Center: "TOSC Program" (20% salary release to assist with the community educational programs, 5/15/97-5/14/98) (Masten and Voice – Co-P.I.)
- National Science Foundation: “Evaluation of a Recirculating Ozonation/ Biodegradation Treatment System for the Removal of Trihalomethane Precursors from Drinking Water”, (\$351,563 for 8/15/96 - 8/14/99)
- Corn Marketing Program of Michigan, Michigan Corn Growers Association, Michigan Agricultural Experiment Station: “Ozonation of Stored Manure from Dairy Cattle, Beef Cattle and Poultry: Odor Reduction and Microbiological Changes in Composition”, (\$30,000 for 5/1/96-12/31/97) With M.T. Yokoyama (Masten – P.I.).
- EPA Great Lakes and Mid-Atlantic Hazardous Substance Research Center: “Remediation of PAH-contaminated Wurtsmith Soils using Ozone”. (\$40,000 for Aug. 15, 1995-Aug. 14, 1996).
- Michigan Agricultural Experiment Station: Evaluation of Ozone for the Treatment of Swine Manure Wastes to Enhance Water recycling, Control Odors and Reduce the Concentration of Pathogens and Toxic Fermentation Metabolites, (approx. \$80,000 per year for 3 years ending 8/15/98), With M.T. Yokoyama and H. L. Person (Masten – P.I.).
- National Institute for Environmental Health Sciences: "Health Hazards from Groundwater Contamination", (\$18,955,461 over 5 years), With Lawrence J. Fischer (P.I.) and others (my portion is \$100,000 per year, ending 3/15/99).
- All-University Research Initiation Grant: "Use of Ozone for the Inactivation of Cryptosporidium parvum oocysts in Drinking Waters". (\$15,000 for 6/1/94-5/31/95). With R. Holland and P.C. Bartlett (Masten – P.I.).
- Center for Microbial Ecology: "Use of a Combined Ozonation/ Fluidized Bed Biological Reactor System to Remove Ozonation By-products and Assimilable Organic Carbon Formed During the Disinfection of Natural Waters". (\$10,000 for 1/1/94-12/31/94). With Raj Rajan and Robert Hickey (Masten - P.I.).
- National Food Safety and Toxicology Center: "An Assessment of the Toxicity of Chemical Oxidation Products of Aqueous Contaminants by Monitoring Intercellular Communication in Mammalian Cell Cultures". (\$19,950 for 10/1/93-9/30/94). With B.L. Upham, J.E. Trosko, J.P. Giesy (Masten – P.I.).
- EPA Great Lakes and Mid-Atlantic Hazardous Substance Research Center: "Biodegradation Kinetics, Oxygen Transfer and Bioavailability in Bioventing and Related Technologies". (\$300,000 for 9/1/93-8/31/94). With T.C. Voice (P.I.), R. Wallace, S. Batterman, P. Adriaens, S. Wright.
- Center for Microbial Ecology: "Assessment of the Toxicity of Degradation Products of Polyaromatic Hydrocarbons By Monitoring Intercellular Communication in Mammalian Cell Cultures". (\$9,000 for 9/1/93-12/31/93). With B.L. Upham and J.E. Trosko (P.I.).
- Dow Chemical Co. Environmental Enhancement Grants: "Use of Ozone and Advanced Oxidation Processes for the Oxidation of Chlorinated Benzenes" (\$12,000 for 6/1/93 - 5/31/94).
- National Pork Producers Association: "Chemical Oxidation by Ozonation to Reduce Odors Generated from Stored Swine Waste Slurries" (\$18,238 for 11/1/91-4/30/93). With M. Yokoyama and H. Person (Masten – P.I.).

- NSF: "In-Situ Use of Ozone - A Study of the Feasibility of Using Ozone in Place of Air in Subsurface Venting Operations" (\$120,698 for 3/1/91-8/31/94).
- Michigan Great Lakes Protection Fund: "Response to Oil and Hazardous Material Spills/ Accidents in the Great Lakes" (\$45,000 for 10/1/90-9/30/91). With S.H.R. Davies and R. Lyles.
- The EPA Great Lakes and Mid-Atlantic Hazardous Substance Research Center: "The Use of Ozone and Ozone/UV for the Oxidation of TCBs and PCBs" (\$84,642 for 10/1/90-3/31/92, \$45,000 for 4/1/92-5/31/93). With S.H.R. Davies (Masten – P.I.)
- U.S. EPA/ OER: "The Use of Ozone in In-situ Vapor Stripping for the Removal of Chlorinated Organics from the Vadose Zone" (\$223,372 for 10/1/90-9/30-94).
- Research Excellence Fund, MSU: "Use of Ozonation for the Remediation of Soils Contaminated with Polycyclic Aromatic Hydrocarbons" (\$74,000 for 2/1/90-5/31/93).
- Research Excellence Fund, Michigan State University: (\$50,000 for 9/1/89-1/31/92). Funding was used to purchase research equipment and to fund several graduate students.
- Occidental Chemical Co., Grand Island, NY: "The Oxidation of Chlorendic Acid Using Ozone and Ozone/UV" (\$3,000 for 11/1/87-6/1/88).