HONGBO MA

Assistant Professor of Environmental Health Sciences
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EDUCATION

Ph.D. Environmental Toxicology, University of Georgia, 2009

M.S. Environmental Health Sciences, University of South Carolina, 2004

M.S. Marine Chemistry, Institute of Oceanology, Chinese Academy of Sciences, China, 2001

B.S. Applied Chemistry, Liaoning University of Petroleum & Chemical Technology, China, 1998

PROFESSIONAL EXPERIENCE

2013 -	Assistant Professor, Joseph J. Zilber School of Public Health, University of Wisconsin-Milwaukee, Milwaukee, WI
2010 - 2013	National Research Council (NRC) Postdoctoral Research Associate, U.S. EPA/Mid-Continent Ecology Division, Duluth, MN
2009 - 2010	Postdoctoral Associate, Department of Environmental Health Science, University of Georgia, Athens, GA
2005 - 2009	Graduate Research Assistant, Department of Environmental Health Sciences, University of Georgia, Athens, GA
2002 - 2004	Graduate Research Assistant, Department of Environmental Health Sciences, University of South Carolina, Columbia, SC
1998 - 2001	Graduate Research Assistant, Institute of Oceanography, Chinese Academy of Sciences, Qingdao, China

PUBLICATIONS

Peer-reviewed Journal Articles

(* = first author)

(† = corresponding author)

22. Lu, C., Svoboda, K.R., Lenz, K.A., & **Ma, H †.** (2018). Toxicity interactions between manganese (Mn) and lead (Pb) or cadmium (Cd) in a model organism the nematode *C. elegans*. *Environmental Science and Pollution Research*. doi: 10.1007/s11356-018-1752-5.

21. Sreevidya, V.S., Lenz, K.A., Svoboda, & **Ma, H †.** (2018). Benzalkonium chloride, benzethonium chloride, and chloroxylenol – Three replacement antimicrobials are more toxic than triclosan and triclocarban in two model organisms. *Environmental Pollution.* 235: 814-824.
20. Lenz, K.A., Pattison, & **Ma, H †.** (2017). Triclosan (TCS) and triclocarban (TCC) induce systemic toxic effects in a model organism the nematode *Caenorhabditis elegans*. *Environmental Pollution.* 231: 462-470.
19. Al-Abed, S.R., Virkutyte, J., Ortenzio, J.N.R., McCarrick, R.M., Degn, L.L., Zucker, R., Coates, N.H., Childs, K., **Ma**, **H.**, Diamond, S.A., Dreher, K., & Boyes, W.K. (2016). Environmental aging alters $Al(OH)_3$ coating of TiO_2 nanoparticles enhancing their photocatalytic and phototoxic activities. *Environmental Science: Nano.* 3: 593-601.
18. Li, S., **Ma, H.**, Wallis, L.K., Etterson, M., Riley, B., Hoff, D., & Diamond, S.A. (2016). Impact of natural organic matter on particle behavior and phototoxicity of titanium dioxide nanoparticles. *Science of the Total Environment.* 542: 324-333.
17. Wallis, L.K., Li, S., Diamond, S.A., **Ma, H.**, Hoff, D.J., & Al-Abed, S.R. (2014). Chronic TiO_2 nanoparticle exposure to a benthic organism, Hyalella azteca: impact of solar UV radiation and material surface coatings on toxicity. *Science of the Total Environment*. 499: 356-362.
16. **Ma, H.** *†, Wallis, L.K., Diamond, S.A., Li, S., Canas-Carrell, J., & Amanda, P. (2014). Impact of solar UV radiation on toxicity of ZnO nanoparticles through photocatalytic reactive oxygen species (ROS) generation and photo-induced dissolution. *Environmental Pollution.* 193: 165-172.
15. Li, S., Wallis, L.K., Diamond, S.A., **Ma, H.**, & Hoff, D.J. (2014). Species sensitivity and dependence on exposure conditions impacting the phototoxicity of TiO_2 nanoparticles to benthic organisms. *Environmental Toxicology and Chemistry*. 33(7): 1563-1569.
14. Li, S., Wallis, L.K., **Ma, H.**, & Diamond, S.A. (2014). Phototoxicity of TiO_2 nanoparticles to a freshwater benthic amphipod: Are benthic systems at risk? *Science of The Total Environment.* 466-467: 800-808.
13. **Ma, H.** * & Diamond, S. A. (2013). Phototoxicity of TiO_2 nanoparticles to zebrafish (Danio rerio) is dependent on life stage. *Environmental Toxicology and Chemistry.* 32(9): 2139-2143.
12. **Ma, H.** *, Williams, P.L., & Diamond, S.A. (2013). Ecotoxicity of manufactured ZnO nanoparticles - A review. *Environmental Pollution.* 172: 76-85.
11. **Ma, H.** *, Brennan, A., & Diamond S.A. (2012). Photocatalytic reactive oxygen species production and phototoxicity of titanium dioxide nanoparticles are dependent on the solar ultraviolet radiation spectrum. *Environmental Toxicology & Chemistry.* 31(9): 2099-2107.
10. **Ma, H.** *, Brennan, A., & Diamond, S.A. (2012). Phototoxicity of TiO_2 nanoparticles under solar radiation to two aquatic species: *Daphnia magna* and Japanese medaka. *Environmental Toxicology & Chemistry.* 31(7): 1621-1629.

9. **Ma, H.** *, Kabengi, N.J., Bertsch, P.M., Unrine, J., Glenn, T.C., & Williams P.L. (2011). Comparative phototoxicity of nanoparticulate ZnO and bulk ZnO to a free living nematode *Caenorhabditis elegans*: the importance of illumination mode and primary particle size. *Environmental Pollution.* 159(6): 1473-1480.

8. Aelion, C.M., Engle, M.R., & **Ma, H.** (2010). Use of ^{15}N Natural Abundance and N Species Concentrations to Assess N-Cycling in Constructed and Natural Coastal Wetlands. *Applied and Environmental Soil Science.* Article ID 371259, 9 pages. doi:10.1155/2010/371259.

7. **Ma, H.** *, Bertsch, P.M., Glenn, T.C., Kabengi, N.J., & Williams, P.L. (2009). Toxicity of manufactured zinc oxide nanoparticles in the nematode *Caenorhabditis elegans*. *Environmental Toxicology & Chemistry.* 28(6): 1324-1330.

6. **Ma, H.** *, Glenn, T.C., Jagoe, C., Jones, K., & Williams, P.L. (2009). A transgenic strain of the nematode *Caenorhabditis elegans* as a biomonitor for heavy metal contamination. *Environmental Toxicology & Chemistry.* 28(6): 1311-1318.

5. **Ma, H** *. & Aelion, C.M. (2005). Ammonium production during microbial nitrate removal in soil microcosms from a developing marsh estuary. *Soil Biology & Biochemistry.* 37(10):1869-1878.

4. **Ma, H.** *, Song. J., Lü, X., & Yuan, H. (2003). Nitrogen forms and their functions in recycling of the Bohai Sea sediments. *Geochimica* 32(1): 48-54 (in Chinese with English abstract).

3. Song, J., **Ma, H.,** Lü, X., & Yuan, H. (2003). Biogeochemical functions of nitrogen in Bohai sediments. *Studia Marina Sinica.* 45: 84-98 (in Chinese with English abstract).

2. **Ma, H.** *, Song, J., & Lü, X. (2002). Nitrogen forms and decomposition of organic carbon in the southern Bohai Sea core sediments. *Acta Oceanologica Sinica*. 24(5): 64-70 (in Chinese with English abstract).

1. **Ma, H.** * & Song, J. (2001). Nitrogen recycling in marine sediments (a review). *Studia Marina Sinica* 43: 96-107 (in Chinese).

Book Chapter

Ma, H., Roberts, S.M., & Diamond, S.A. (2015). Nanotoxicology. In Williams, P.L., James, R.C., & Roberts, S.M. (Eds), *Principles of Toxicology: Environmental and Industrial Applications*, 3rd Edition (pp. 359-373). John Wiley & Sons, Inc.

Conference Proceedings

Unrine, J., Bertsch, P., Hunyadi, S., **Ma, H.**, Newman, L., & Williams, P. (2008). Spatial distribution and speciation of Au and Zn in terrestrial organisms exposed to Au and ZnO nanoparticles. *ACS, Division of Environmental Chemistry - Preprints of Extended Abstracts*, *48*(1), 274-280.

Under Review

Lenz KA, Miller TR & **Ma H.** Anabaenopeptins and cyanopeptolins induce systemic toxicity effects in a model organism the nematode *C. elegans*. Under review at *Chemosphere*.

In Preparation

Ma H., Wallis L, Li S, Yuan, Y. Comparative toxicity of a food additive TiO_2, nano-sized TiO_2, and bulk TiO_2 in the model organism *C. elegans*: does the size matter? To be submitted to *Environmental Toxicology & Chemistry.*

Sreevidya, V.S., Lenz, K.A., & **Ma, H.** Toxicity of carbazole compounds to a model organism the nematode *C. elegans*. To be submitted to *Environmental Toxicology & Chemistry.*

Lenz, K.A., Miller, T.R., & **Ma, H.** Cyanobacterial toxins and bioactive peptides induce systemic effects in a model organism the nematode *C. elegans*. To be submitted to *Science of the Total Environment.*

GRANT APPLICATIONS

Submitted, not funded

2016. Screening and mechanistic understanding of neurodevelopmental toxicity of metals using transgenic animal models
Funding Agency: Greater Milwaukee Foundation
Mechanism: Shaw Scientist Program
Amount: $200,000
Role: Principal Investigator

2016. *Identification and mechanistic investigation of neurodevelopmental toxicity of metals and metal mixtures using transgenic C. elegans and zebrafish*
Funding Agency: NIEHS
Mechanism: R21
Amount: $405,304
Role: Principal Investigator

2015. *Development of a C. elegans model for bio-nano interaction between engineered nanoparticles and living system and its potential human health implications*
Funding Agency: Greater Milwaukee Foundation
Mechanism: Shaw Scientist Program
Amount: $200,000
Role: Principal Investigator

2015. *Integrative hazard analysis of food additive TiO_2 nanoparticles using a model organism the nematode C. elegans*
Funding Agency: UWM Research Growth Initiative
Amount: $181,200
Role: Principal Investigator
Proposal Score: 2.3

2014. *Toxicological effects of titanium dioxide (TiO_2) nanoparticles in food additives and their environmental and human health implications*
Funding Agency: UWM Research Growth Initiative
Amount: $233,836
Role: Principal Investigator

2013. *National Center for Innovation in Small Drinking Water STAR Systems.*
Funding Agency: USEPA
Mechanism: USEPA-G2013- G1
Amount: $4.1M (Proportion under Ma: $100,000)
Role: Co-Investigator (Principal Investigator: David Garman)

Completed
2010-2013. *Phototoxicity of manufactured metal oxide nanoparticles: occurrence, mechanism, and implications in environmental risk assessment*
Funding Agency: NRC and USEPA
Mechanism: NRC Research Associateship Program
Amount: $197,980
Role: Co-Investigator (proposal author), PI - Steve Diamond

CONFERENCES PRESENTATIONS

2018 **Ma, H.**, Miller, T.R., and Lenz, K.A. Toxicological effects of anabanenopeptins and cyanopeptolins in a model organism the nematode *C. elegans*. The Society of Toxicology (SOT) 57th Annual Meeting, Mar. 11-15, 2018, San Antonio, TX. (Poster)

2017 **Ma, H.**, Sreevidya, V.S., Lenz, K.A., & Svoboda, K. Comparative toxicological effects of triclosan and triclocarban to their three replacement compounds: are the replacements safer? The 3rd International Conference on Environmental Pollution and Human Health, May 12-14, 2017, Guangzhou, China.

Ma, H. Environmental implications of engineered nanomaterials: What we have learned from TiO_2 and ZnO nanoparticles? The 3rd International Conference on Environmental Pollution and Human Health, May 12-14, 2017, Guangzhou, China.

Ma, H., Sreevidya, V.S., Lenz, K.A., & Svoboda, K. Toxicological effects of three replacement antimicrobials of triclosan and triclocarban to two model organisms the nematode *C. elegans* and zebrafish. The Society of Environmental Toxicology & Chemistry (SETAC) North America 38th Annual Meeting, Nov. 12-16, 2017, Minneapolis, MN.

Lenz, K.A. & **Ma, H.** Toxicological effects of triclosan, triclocarban and their degradation products in *C. elegans.* The Society of Environmental Toxicology & Chemistry (SETAC) North America 38th Annual Meeting, Nov. 12-16, 2017, Minneapolis, MN. (Poster).

2016 **Ma, H.,** Lu, C., Pattison, C., & Lenz, K. A. Toxicity of manganese to the nematode *C. elegans* in the presence of cadmium or lead. The Society of Environmental Toxicology & Chemistry (SETAC) North America 37th Annual Meeting, Nov. 6-10, 2016, Orlando, FL. (Poster)

Lenz, K. A., Pattison, C., & **Ma, H.** Toxicological effects of triclosan and triclocarban to a model organism the nematode *C. elegans*. SETAC North America 37th Annual Meeting, Nov. 6-10, 2016, Orlando, FL. (Poster)

Ma H, Yuan CY, Gao X, Li S, Wallis LK. Toxicity of a food additive TiO_2 as compared to nanosized and bulk TiO_2 in the nematode *C. elegans*. The Society of Toxicology (SOT) 55th Annual Meeting, Mar. 13-17, 2016, New Orleans, LA. (Poster)

2015 Li S, **Ma H**, Wallis LK, Etterson MA, Riley B, Hoff DJ, Diamond SA. Role of dissolved organic matter in particle behavior and phototoxicity of titanium dioxide nanoparticles. SETAC North America 36th Annual Meeting, Nov. 1-5, 2015, Salt Lake City, UT. (Poster)

2014 **Ma H,** Yuan CY, Gao X, Li S, and Wallis LK. Environmental Health Implications of TiO2 nanoparticles in food additives - a preliminary study. SETAC North America 35th Annual Meeting, Nov. 9-13, 2014, Vancouver, Canada.

2013 **Ma H** and Diamond S. Nanomaterials and public health: What we have learned from nano-TiO_2/ZnO sunscreens and other TiO_2-based products? SETAC North America 34th Annual Meeting, Nov. 17-21, 2013, Nashville, TN.

Ma H, Wallis L, Li S, Canas-Carrell J and Diamond S. Impact of solar UV radiation on toxicity of zinc oxide nanoparticles: Through generation of photocatalytic reactive oxygen species (ROS) and enhanced dissolution. SETAC North America 34th Annual Meeting, Nov. 17-21, 2013, Nashville, TN.

2012 **Ma H** and Diamond S. Phototoxicity of TiO_2 to zebrafish (*Danio rerio*): Dependence on life stage and impact of natural organic matter. SETAC North America 33th Annual Meeting, Nov. 11-15, 2012, Long Beach, CA.

Ma H, Brennan A, and Diamond S. Phototoxicity of titanium dioxide nanoparticles to *Daphnia magna* and its dependence on solar UV spectrum. SOT 51st Annual Meeting, Mar. 11-15, 2012, San Francisco, CA. (Poster)

Ma H, Brennan A, and Diamond S. Phototoxicity of TiO_2 nanoparticles to two aquatic species: Daphnia magna and zebrafish (*Danio rerio*) embryo. 2012 Environmental Pollution and Public Health (EPPH) Special Track within iCBBE. May 17-20, 2012, Shanghai, China.

2011 **Ma H,** Brennan A, and Diamond S. Phototoxicity of titanium dioxide nanoparticles is dependent on solar UV spectrum. SETAC North America 32th Annual Meeting, Boston, MA.

2010 **Ma H**, Tang L, Williams PL, and Wang JS. Toxic effects of aflatoxin B1 to the development, reproduction, and behavior of the nematode Caenorhabditis elegans. SOT 49st Annual Meeting. Salt Lake City, UT. (Poster)

2007 **Ma H,** Bertsch PM, Glenn TC, Unrine JM, and Williams PL. Bioavailability and toxicity of nanosized ZnO particles in the nematode *Caenorhabditis elegans*, SETAC North America 28th Annual Meeting, Milwaukee, WI.

2006 **Ma H**, Glenn TC, Jagoe C, and Williams PL. Use of *metallethionein-2::GFP* transgenic Caenorhabditis elegans to evaluate metal bioavailability and toxicity. SETAC Asia/Pacific 2006, Beijing, China.

Ma H, Bertsch PM, Unrine JM, Glenn TC, and Williams PL. Bioavailability and toxicity of nanosized ZnO particles in the nematode *Caenorhabditis elegans.* SETAC Asia/Pacific 2006, Beijing, China.

2004 **Ma H.** and Aelion CM. Denitrification and ammonium production during nitrate removal in salt marsh sediments of the S.C. coast. American Society of Limnology and Oceanography (ASLO) 2004 summer meeting, June 13-18, Savannah, GA.

INVITED TALKS

2016 Jinan University (China), School of Environment

2013 Georgia Southern University, School of Public Health
University of Nevada Reno, School of Community Health Sciences
University of Nevada Las Vegas, School of Community Health Sciences
Western Kentucky University, College of Health and Human Services

2012 University of Maryland, Department of Environmental Science and Technology
Minnesota Department of Health

TEACHING

University of Wisconsin-Milwaukee

PH744 Environmental Toxicology (Instructor)	Spring 2015, 2016, 2017, 2018
PH743 Environmental Risk Assessment (Instructor)	Fall 2014, 2015, 2016, 2017
PH801 Public Health Seminar (Guest Lecturer)	Fall 2015, 2016, 2017
PH703 Environmental Health Sciences (Instructor)	Spring 2018

University of Minnesota Duluth

Advanced Toxicology Seminar (Guest Lecturer)	Fall 2012

The University of Georgia

Aquatic Toxicology (Guest Lecturer)	Spring 2010
Environmental Health Science (Guest Lecturer)	Fall 2006

SERVICE

School Committee Membership:

08/2015 - 09/2015	Zilber School Academic Planning Committee (APC)
10/2015 - 08/2017	Zilber School MPH Coordinating Committee (MPHCC)
09/2017 -	Zilber School Graduate Program Committee (GPC)
01/2018 -	Zilber School Fellowship Committee

University Committee Membership:

8/2017 -	UWM Institutional Animal Care and Use Committee (IACUC)

STUDENT ADVISING

Doctoral, Primary Advisor

2015 - Kade A. Lenz
Environmental Health Sciences, UWM Zilber School of Public Health

Doctoral, Dissertation Committee Member

2017 - Becky Curtis (Primary advisor: Rebecca Klaper)
Human and Ecosystem Health, UWM School of Freshwater Sciences

2015 - Everett Ross Tate (Primary advisor: Michael Laiosa)
Environmental Health Sciences, UWM Zilber School of Public Health

2014 - Mary Seaman (Primary advisor: Todd Miller)
Environmental Health Sciences, UWM Zilber School of Public Health

2013 - 2016 Jared S. Bozich (Primary advisor: Rebecca Klaper),
Human and Ecosystem Health, UWM School of Freshwater Sciences

MPH, Academic Advisor

2016 - Fauzia Osman, David Salentine, Kelsey Dail

2014 - 2016 Rabaiya Ali

MPH, Faculty advisor for Capstone Project

2014 Nusrat Begum Shaik

Visiting Scholar

2014 - 2016 Dr. Cailing Lu Guangxi Medical University, School of Public Health (China)

PROFESSIONAL SERVICE

2014, 2012 Poster Judge, SETAC Best Student Poster Presentation Award

2013, 2016 Grant Reviewer, CRDF Global 2013 U.S.-Russian University Research Competition

2016 Grant Reviewer, Puerto Rico Science Trust

Ad hoc Reviewer: *Aquatic Toxicology, Environmental Science and Technology Letters, Environmental Science and Pollution Research, Journal of Nanoscience and Nanotechnology, Toxicology and Applied Pharmacology, Environmental Chemistry, Nanotoxicology, International Journal of Nanomedicine, Chemosphere, Environmental Pollution, Ecotoxicology, Ecotoxicology and Environmental Safety, Environmental Science & Technology, Environmental Toxicology & Chemistry, Environmental Toxicology and Pharmacology, Free Radical Biology & Medicine, Journal of Hazardous Materials, Science of the Total Environment, Research on Chemical Intermediates, Toxicology Research, Environmental Research, Metabolomics, Marine Pollution Bulletin*

PROFESSIONAL AFFILIATIONS

2006 - Society of Environmental Toxicology and Chemistry
2009 - Society of Toxicology

HORNORS AND AWARDS

2009 First Place in poster presentation, Toxicology Program Retreat, UGA
2007 First Place in platform presentation, Toxicology Program Retreat, UGA
2006 Georgia Power Research Assistantship
1999 Excellent Graduate Student Award, Graduate School of Chinese Academy of Sciences