

CURRICULUM VITAE

DAVID M. CWIERTNY

University of Iowa
Department of Civil & Environmental Engineering
4655 Seamans Center
Iowa City, IA 52242
Phone: 319.335.1401 Fax: 319.335.5660
Email: david-cwiertny@uiowa.edu

FIELDS OF EXPERTISE

Water Sustainability, Environmental Chemistry, Water and Wastewater Treatment, Fate and Effects of Emerging Pollutant Classes and their Transformation Products, Environmental Policy, Environmental Implications and Applications of Nanotechnology

EDUCATION

- 2006 Ph.D., Environmental Chemistry and Engineering
Johns Hopkins University, Baltimore, Maryland
Thesis: *Mechanistic Investigations of Granular Iron and Granular Iron-Based Bimetallic Reductants for Treatment of Organohalide Pollutants*
- 2000 B.S., Environmental Engineering Science with a Minor in Chemistry
University of California, Berkeley, Awarded with High Honors

PROFESSIONAL APPOINTMENTS

- 2018-present University of Iowa, Professor, Department of Civil & Environmental Engineering (primary appointment); Department of Chemical & Biochemical Engineering (secondary appointment); Associate Faculty Research Engineer-IIHR Hydroscience & Engineering; Researcher UI Nanoscience & Nanotechnology Institute; Researcher, UI Environmental Health Sciences Research Center.
- 2017-present Director, Center for Health Effects of Environmental Contamination (CHEEC), University of Iowa
- 2015-present Director, Environmental Policy Research Program, UI Public Policy Center
- 2012-present Director of Graduate Studies
Department of Civil and Environmental Engineering, University of Iowa
- 2016-2017 Congressional Fellow, American Association for the Advancement of Science (AAAS). Minority staff on the House Committee of Energy and Commerce under ranking member Frank Pallone (D; NJ-6). Primary role serving subcommittees on Environment and the Economy and Energy and Power.
- 2014-2018 Associate Professor, University of Iowa, Department of Civil & Environmental Engineering
- 2011- 2014 Assistant Professor, University of Iowa, Department of Civil & Environmental Engineering
- 2007-2011 Assistant Professor, University of California, Riverside, Bourns College of Engineering, Department of Chemical & Environmental Engineering

- Member, Interdisciplinary Program in Material Science and Engineering
- 2005-2007 Post-doctoral Research Associate, University of Iowa
Departments of Civil & Environmental Engineering and Chemistry
- 2000-2005 Graduate Fellow/Research and Teaching Assistant, Johns Hopkins University
Department of Geography & Environmental Engineering
- 1998-1999 Undergraduate Research Assistant, University of California, Berkeley
Department of Civil & Environmental Engineering

Current – Lead PI

1. SusChEM: Collaborative Research: Environmental Fate and Effects of Dichloroacetamide Safeners: An Overlooked Class of Emerging Contaminants? National Science Foundation (CBET 1702610) 09/01/2017-08/31/2020; \$195,257.
2. NRT-INFEWS: Paths to Sustainable Food-Energy-Water Systems in Resource-Limited Communities. National Science Foundation (DGE 1633098); 9/1/2016- 8/31/2021; \$3,000,000.
3. Collaborative Research: Integrated *In Silico* and Non-Target Analytical Framework for High Throughput Prioritization of Bioactive Transformation Products. National Science Foundation (CHE 1609791). 9/1/2016-8/31/2019; \$200,000

Current – co-PI

1. Neonicotinoid Fate Across the Source Water-to-Drinking Water Continuum. National Science Foundation (CBET 1803197). 8/1/2018-7/31/2021; \$332,125 (PI: Greg LeFevre)
2. WRF/WERF: Functionalized Nanofiber Networks for Nutrient Removal and Recovery: Integrated Electrochemical Controls for Sustainable and Autonomous Treatment Technologies, National Science Foundation (CBET 1804757) 6/1/2018-5/31/2021; \$195,257 (UC Riverside Subaward)
3. A Combined Photo/Electrochemical Reductive Pathway Towards Enhanced PFAS Degradation. SERDP, 9/12/2018-9/12/2019; \$69,696 (UCLA Subaward)
4. Collaborative Research: Novel Materials and Reactor Design for Coupled Electrolytic Hydrogen Production and Nitrate Removal for Drinking Water Treatment. National Science Foundation (CBET 1705255) 5/01/2017-4/30/2020; \$121,247.
5. Rapid Uranium Sensors to Minimize Health Impacts in the Navajo Nation. National Institute of Environmental Health Sciences of the National Institutes of Health (R01ES027145) 1/01/2017-09/31/2021; \$1,739,570.
6. Biologically Mediated Abiotic Degradation of Chlorinated Ethenes: A New Conceptual Framework. US Department of Defense, Strategic Environmental Research and Development Program (ER-2532); 6/4/2015-6/4/2018; \$643,339.

Previously Concluded

1. Water Quality Implications of Unique Transformation Processes of Synthetic Steroids. United States Department of Agriculture (AFRI 2013-67019-21365); 9/1/2013-8/31/2017; \$113,088.
2. SusChEM: Collaborative Research: Development and Application of Piezoelectric Nanoheterostructures to Reduce the Chemical and Energy Demand of Water Treatment. National Science Foundation (CBET 1437122); 9/1/2014-8/31/2017; \$141,309.

3. Reversible photohydration of diene and triene steroids: A mechanism for unexpected persistence of unique, biologically active steroidal contaminants? National Science Foundation (CBET 1335711); 9/1/2013-8/31/2017; \$394,746.
4. Reaction of Carbon Nanotubes with Free Chlorine and Monochloramine Disinfectants: Byproduct Formation and Implications for Nanotube Environmental Fate and Toxicity. National Science Foundation (CBET 1233727); co-PI; 9/1/2012-8/31/2016; \$299,993.
5. CAREER: Hybrid Nanostructures as Catalysts for Advanced Oxidation Processes: An Integrated Research and Education Plan Promoting Water Reuse and Sustainability. National Science Foundation (CBET 1243473); Lead PI; 10/1/2010-8/31/16; \$390,538
6. Research and Demonstration Electrospun Nanofiber Filters: Multifunctional, Chemically Active Filtration Technologies for Small-Scale Water Treatment Systems. Environmental Protection Agency (EPA STAR R835177); Lead PI; 12/1/2011-11/30/2016; \$499,466.
7. SEED: Nanofiber-enabled, multi-target passive sampling device for determination of freely dissolved sediment pore water concentrations of organic contaminants. US Department of Defense, Strategic Environmental Research and Development (SERDP) SEED Program; co-PI; 3/1/2014 – 2/28/16; \$150,000.
8. Environmental Fate of Synthetic Growth Promoters Used in Animal Agriculture: Mechanistic Studies of Hormone Photolysis, Biodegradation and Sorption. USDA Agriculture and Food Research Initiative; co-PI; January 1, 2010 – December 31, 2013; Total budget of \$400,000 with Cwiertny subcontract of \$196,000.
9. Photochemical Disinfection of Agriculturally Introduced Pathogens: The Influence of Extracellular Polymeric Substances on the Bactericidal Capacity of Reactive Oxygen Species. USDA Cooperative State Research, Education and Extension Service; co-PI; August 1, 2008 – July 31, 2013; Total budget: \$400,000 with Cwiertny portion of \$200,000.

University of Iowa Internal Funding

1. Development of Nanoscale Aluminum-doped Iron Oxide Photoelectrocatalysts for Sustainable Energy Production from Organic-Rich Wastewater. University of Iowa Office of the Vice President of Research Mathematics and Physical Science Funding Program; Lead PI; 7/1/2012-6/30/2013; \$24,897.
2. Point-of-Use Electrocatalytic Filters for Reduction of Persistent Contaminants from Drinking Water” University of Iowa Center for Health Effects of Environmental Contamination (CHEEC); Lead PI; 2/1/2013-1/31/2014; \$29,700
3. Use of Waste Heat to Sustainably Generate High Quality Effluent for Aquifer Recharge. University of Iowa Center for Global and Regional Environmental Research (CGRER); Lead PI; 3/1/2013-2/28/2014; \$29,700.
4. Elucidating the Structure and Reactivity of Products Generated During Microsomal 17 β -Trenbolone Metabolism. Environmental Health Sciences Research Center (EHSRC); Lead PI; 1/1/2014-12/31/2014; \$40,000.
5. Identifying Bioactive Transformation Products of Glucocorticoid Steroids Generated During Water Treatment; OVPR Internal Funding Initiative; Lead PI; 06/01/2014-05/31/2015; \$30,000.

6. Development of Real-Time Sensitive and Selective Radiological Sensors; OVPR Internal Funding Initiative; co-PI; 02/01/2015-01/31/2016; \$50,000.
7. Development of Chemically Functionalized High Surface Area Nanofiber Networks for Carbon Capture. University of Iowa Center for Global and Regional Environmental Research (CGRER); Lead PI; 08/01/2016-07/31/2017; \$35,000.
8. Fate of Neonicotinoid Insecticides in Water and Wastewater Treatment Systems. University of Iowa Center for Health Effects of Environmental Contamination (CHEEC); Lead PI; 03/01/2016-02/28/2017; \$40,000.
9. Fabrication and Demonstration of a Diffusive Gradient Integrated Electrospun Nanofiber Mat as a Novel Passive Sampler Device for Moderately Polar Organic Micropollutants. Environmental Health Sciences Research Center (EHSRC); co-PI; 3/1/2017-2/28/2018; \$40,000.

HONORS AND AWARDS

Environmental Science & Technology Super Reviewer Award (2016)
 Participant, NAE Frontiers of Engineering Education Symposium (2015)
 University of Iowa, Early Career Scholar of the Year (2014)
Environmental Science & Technology Excellence in Review Award (2010)
 American Chemical Society Graduate Student Paper Award, Environmental Chemistry (2005)
 Environmental Protection Agency S.T.A.R. Graduate Fellowship (2004-2005)
 National Science Foundation Graduate Fellowship (2000-2003)
 Whiting School of Engineering Robert H. Roy Fellowship, Johns Hopkins University (2000-2001)
 Tau Beta Pi W.E. Deuchler, Sr. Graduate Fellowship (2000-2001)
 Tau Beta Pi Engineering Honor Society (inducted 1998)
 Edward Frank Kraft Scholarship Recipient, University of California, Berkeley (1996)

PUBLICATIONS

- 66) A.E. Kral, N.C. Pflug, M.E. McFadden, G.H. LeFevre, J.D. Sivey, D.M. Cwiertyny (2019). Photochemical Transformations of Dichloroacetamide Safeners. *Environmental Science & Technology*. *In Press*.
- 65) N.C. Pflug, C.J. Knutson, D. Martinović-Weigelt, D.C. Swanson, K.H. Wammer, D.M. Cwiertyny, J.B. Gloer (2019). Bioactive Rearrangement Products from Aqueous Photolysis of Pharmaceutical Steroids. *Organic Letters*, 21, 10, 3568-3571.
- 64) J.W. Bennett, X. Huang, Y. Fang, D.M. Cwiertyny, V.H. Grassian, S.E. Mason (2019) Methane Dissociation on α -Fe₂O₃(0001) and Fe₃O₄(111) Surfaces: First-Principles Insights into Chemical Looping Combustion. *Journal of Physical Chemistry C*, 123, 11, 6450-6463.
- 63) K. Klarich Wong, D.T. Webb, M.R. Nagorzanski, D.W. Kolpin, M.L. Hladik, D.M. Cwiertyny, G.H. LeFevre (2019). Chlorinated Byproducts of Neonicotinoids and their Metabolites: An Unrecognized Human Exposure Potential? *Environmental Science & Technology Letters*, 6, 98-105.
- 62) K.E. Greenstein, N.V. Myung, G.F. Parkin, D.M. Cwiertyny (2019). Performance Comparison of Hematite (α -Fe₂O₃)-Polymer Composite and Core-Shell Nanofibers as Point-of-Use Filtration

Platforms for Metal Sequestration. *Water Research*, 148, 492-503.

- 61) H.A. Alalwan, S.E. Mason, V.H. Grassian, D.M. Cwiertny (2018). α -Fe₂O₃ Nanoparticles as Oxygen Carriers for Chemical Looping Combustion: An Integrated Materials Characterization Approach to Understanding Oxygen Carrier Performance, Reduction Mechanism, and Particle Size Effects. *Energy & Fuels*, 32, 7959-7970.
- 60) G. Lu, A.J. Johns, B. Neupane, H.T. Phan, D.M. Cwiertny, T.Z. Forbes, and A.J. Haes (2018) Matrix-Independent Surface-Enhanced Raman Scattering Detection using Electrospun Amidoximated Polyacrylonitrile Mats and Gold Nanostars. *Analytical Chemistry*, 90, 6766-6772.
- 59) K.T. Peter, N.V. Myung, D.M. Cwiertny (2018). Surfactant-Assisted Fabrication of Porous Polymeric Nanofibers with Surface-Enriched Iron Oxide Nanoparticles: Composite Filtration Materials for Removal of Metal Cations. *Environ. Sci. Nano*. 5, 669-681.
- 58) J.D. Culpepper, M.M. Scherer, T.C. Robinson, a. Neumann, D.M. Cwiertny, D.E. Latta. Reduction of PCE and TCE by Magnetite Revisited (2018). *Environmental Science: Processes & Impacts*, 20, 1340-1349.
- 57) K.T. Peter, A.J. Johns, N.V. Myung, D.M. Cwiertny (2017) Functionalized Polymer-Iron Oxide Hybrid Nanofibers: Electrospun Filtration Devices for Metal Oxyanion Removal. *Water Research*, 117, 207-217.
- 56) J. Qian, B. Jennings, D.M. Cwiertny, A. Martinez (2017). Emerging Investigators Series: Development and Application of Polymeric Electrospun Nanofiber Mats as Equilibrium-Passive Sampler Media for Organic Compounds. *Environ. Sci. Process. Impacts*, 19, 1445-1456.
- 55) N.C. Pflug, M.K. Hankard, S.M. Berg, M. O'Conner, J.B. Gloer, E.P. Kolodziej, D.M. Cwiertny, K.H. Wammer (2017) Environmental Photochemistry of Dienogest: Phototransformation to Estrogenic Products and Increased Environmental Persistence via Reversible Photohydration. *Environmental Science: Process & Impacts*. DOI: 10.1039/C7EM00346C
- 54) H.A. Alalwan, D.M. Cwiertny, V.H. Grassian (2017) Co₃O₄ Nanoparticles as Oxygen Carriers for Chemical Looping Combustion: A Materials Characterization Approach to Understanding Oxygen Carrier Performance. *Chemical Engineering Journal*, 319, 279-287.
- 53) K.T. Peter, A.J. Johns, N.V. Myung, D.M. Cwiertny (2017) Functionalized Polymer-Iron Oxide Hybrid Nanofibers: Electrospun Filtration Devices for Metal Oxyanion Removal. *Water Research*, 117, 207-217.
- 52) K.L. Klarich, N.C. Pflug, E.M. DeWald, M.L. Hladik, D.W. Kolpin, D.M. Cwiertny, G.H. LeFevre (2017) Occurrence of Neonicotinoid Insecticides in Finished Drinking Water. *Environmental Science & Technology Letters*, 4, 168-173.
- 51) N.C. Pflug, A. Kupsco, E.P. Kolodziej, D. Schlenk, L.M. Teesch, J.B. Gloer, D.M. Cwiertny (2017) Formation of Bioactive Transformation Products during Glucocorticoid Chlorination. *Environmental Science: Water Research & Technology*, 3 (3), 450-461.
- 50) M. J. Nalbandian, M. Zhang, J. Sanchez, J. Nam, D.M. Cwiertny, N.V. Myung (2017) Mesoporous θ -Alumina/Hematite (θ -Al₂O₃/Fe₂O₃) Composite Nanofibers for Heavy Metal Removal. *Science of Advanced Materials*, 9, 22-29.
- 49) A. Gankanda, E. Coddens, D.M. Cwiertny, V.H. Grassian (2016) Sulfate Formation Catalyzed by Coal Fly Ash, Mineral Dust and Iron(III) Oxide: Variable Influence of Temperature and Light. *Environ. Sci.: Processes Impacts* doi: 10.1039/C6EM00430J

- 48) E.M. Verdugo, Y. Xie, J. Baltrusaitis, D.M. Cwiertny (2016) Hematite Decorated Multi-walled Carbon Nanotubes (α -Fe₂O₃/MWCNT) as sorbents for Cu(II) and Cr(VI): Comparison of Hybrid Sorbent Performance to its Nanomaterial Building Blocks. *RSC Adv.* doi: 10.1039/C6RA163326
- 47) E.M. Verdugo, K.J. Nelson, C.M. Bako, R.L. Valentine, D.M. Cwiertny (2016) Formation of Trihalomethanes and Haloacetic Acids during Chlorination of Functionalized Carbon Nanotubes. *Environ. Sci. Nano* doi: 10.1039/C6EN00157B
- 46) S. Egodawatte, K.E. Greenstein, I. Vance, E. Rivera, N.V. Myung, G.F. Parkin, D.M. Cwiertny, S.C. Larsen (2016). Electrospun Hematite Nanofiber/Mesoporous Silica Core/Shell Nanomaterials as an Efficient Adsorbent for Heavy Metals. *RSC Adv.* 6, 90516-90525.
- 45) A. Gankanda, D.M. Cwiertny, V.H. Grassian (2016) Role of Atmospheric CO₂ and H₂O Adsorption on ZnO and CuO Nanoparticle Aging: Formation of New Surface Phases and the Impact on Nanoparticle Dissolution. *J. Phys. Chem. C* 120, 19195-19203.
- 44) K. Wammer, K. Anderson, P. Erickson, S. Kliegman, M. Moffatt, S. Berg, J. Heitzman, N. Pflug, K. McNeill, D. Martinovic-Weigelt, R. Abagyan, D. M. Cwiertny, E.P. Kolodziej (2016) Environmental Photochemistry of Altrenogest: Photoisomerization to a Bioactive Product with Increased Environmental Persistence via Reversible Photohydration. *Environ. Sci. Technol.* 50, 7480-7488.
- 43) K.T. Peter, J.D. Vargo, T.P. Rupasinghe, A. De Jesus, A.V. Tivanksi, E.A. Sander, N.V. Myung, D.M. Cwiertny (2016) Synthesis, Optimization, and Performance Demonstration of Electrospun Carbon Nanofiber-Carbon Nanotube Composite Sorbents for Point-of-Use Water Treatment. *ACS Appl. Mater. Inter.* 8, 11431-11440.
- 42) J. Baltrusaitis, E.V. Patterson, M. O'Connor, S. Qu, E.P. Kolodziej, D.M. Cwiertny (2016) Reversible Photohydration of Trenbolone Acetate Metabolites: Mechanistic Understanding of Product-to-Parent Reversion through Complementary Experimental and Theoretical Approaches. *Environ. Sci. Technol.* DOI: 10.1021/acs.est.5b03905.
- 41) M.J. Nalbandian, M. Zhang, J. Sanchez, S. Kim, Y.-H. Choa, D.M. Cwiertny, N.V. Myung. (2016) Synthesis and Optimization of Fe₂O₃ Nanofibers for Chromate Adsorption from Contaminated Water Sources. *Chemosphere*, 144, 975-981.
- 40) J.D. Sivey, H.-J. Lehmler, C.J. Salice, A.N. Ricko, and D.M. Cwiertny (2015). Environmental Fate and Effects of Dichloroacetamide Herbicide Safeners: "Inert yet Biologically Active Agrochemical Ingredients. *Environ. Sci. Technol. Lett.*, DOI: 10.1021/acs.estlett.5b00220.
- 39) M.J. Nalbandian, M. Zhang, J. Sanchez, S. Kim, Y.-H. Choa, D.M. Cwiertny, N.V. Myung. (2015) Synthesis and Optimization of Ag-TiO₂ Composite Nanofibers for Photocatalytic Treatment of Impaired Water Sources. *J. Haz. Mater.* 299, 141-148.
- 38) A.S. Ward, D.M. Cwiertny, E.P. Kolodziej, C.C. Brehm (2015) Coupled Reversion and Stream-Hyporheic Exchange Processes Increase Environmental Persistence of Trenbolone Metabolites. *Nature Communications*. DOI: 10.1038/ncomms8067.
- 37) Cole, E.; McBride, S.; Kimbrough, K.; Lee, J.; Marchand, E.; Cwiertny, D.M.; Kolodziej, E.P. (2015). Rates and Product Identification for Trenbolone Acetate Metabolite Biotransformation under Aerobic Conditions. *Environmental Toxicology and Chemistry*, 34, 1472-1484.
- 36) M.J. Nalbandian, M. Zhang, J. Sanchez, Y.-H. Choa, D.M. Cwiertny, N.V. Myung. (2015) Synthesis and optimization of BiVO₄ and co-catalyzed BiVO₄ nanofibers for visible light-activated photocatalytic degradation of aquatic micropollutants. *Journal of Molecular Catalysis A*. 404, 18-26.

- 35) R.L. Oulton, J.P. Haase, S. Kaalberg, M.J. Nalbandian, and D.M. Cwiertny (2015). Hydroxyl Radical Formation during Ozonation of Multi-Walled Carbon Nanotubes: Performance Optimization and Demonstration of a Reactive CNT Filter. *Environmental Science & Technology*, 49, 3687-3697.
- 34) M.J. Nalbandian, K.E. Greenstein, D. Shuai, M. Zhang, Y.-H. Choa, G.F. Parkin, N.V. Myung, D.M. Cwiertny (2015). Tailored Synthesis of Photoactive TiO₂ Nanofibers and Au/TiO₂ Nanofiber Composites: Structure and Reactivity Optimization for Water Treatment Applications. *Environmental Science & Technology*, 49, 1654-1663.
- 33) S. Qu, E.P. Kolodziej, and D.M. Cwiertny (2014). Sorption and Mineral-Promoted Transformation of Synthetic Growth Promoters in Soil Systems. *J. Ag. Food Chem.* 62, 12277-12286.
- 32) D.M. Cwiertny, S.A. Snyder, D. Schlenk, E.P. Kolodziej (2014). Environmental Designer Drugs: When Transformation Does Not Eliminate Risk. Invited Feature Article to *Environmental Science and Technology*, 48, 11737-11745 (with associated cover art, Selected as runner-up for best feature article of 2014 for ES&T, and honored as 6th most read paper in ES&T for 2014).
- 31) E. Verdugo, C. Krause, K. Genskow, Y. Han, J. Baltrusaitis, T.E. Mattes, R.L. Valentine, and D.M. Cwiertny (2014). N-functionalized carbon nanotubes as a source and precursor of N-nitrosodimethylamine: Implications for environmental fate, transport and toxicity. *Environmental Science and Technology*, 48, 9279-9287.
- 30) K.L. Forsgren, S. Qu, R. Lavado, D.M. Cwiertny, and D. Schlenk. (2014) Trenbolone acetate metabolites promote ovarian growth and development in adult Japanese medaka (*Oryzias latipes*). *General and Comparative Endocrinology*. 202, 1-7.
- 29) A.A. Taylor, I. Chowdhury, A. Gong, D.M. Cwiertny, and S.L. Walker (2014) Deposition and Disinfection of Escherichia coli O157:H7 on Naturally Occurring Photoactive Materials in a Parallel Plate Chamber. *Environmental Science: Processes & Impacts* (formerly *Journal of Environmental Monitoring*), 16, 194-202.
- 28) S. Qu, E.P. Kolodziej, S.A. Long, J.B. Gloer, E.V. Patterson, J. Baltrusaitis, G. D. Jones, P.V. Benchetler, E.A. Cole, K.C. Kimbrough, and D.M. Cwiertny. (2013) Product-to-Parent Reversion of Trenbolone: Unrecognized Risks for Endocrine Disruption. *Science*, 342, 347-351.
- 27) S. Qu and D.M. Cwiertny (2013) Influence of Organic Surface Coatings on the Sorption of Anticonvulsants on Mineral Surfaces. *Environmental Science: Processes & Impacts* (formerly *Journal of Environmental Monitoring*), 15, 2038-2049.
- 26) Y. Xie and D.M. Cwiertny (2013) Chlorinated Solvent Transformation by Palladized Zero-Valent Iron: Mechanistic Insights from Reductant Loading Studies and Solvent Kinetic Isotope Effects. *Environmental Science and Technology* 47, 7940-7948
- 25) E.P. Kolodziej, S. Qu, K. Forsgren, S. Long, J. Gloer, G. Jones, D. Schlenk, J. Baltrusaitis, and D.M. Cwiertny. (2013). Identification and Environmental Implications of Photo-Transformation Products of Trenbolone Acetate Metabolites. *Environmental Science and Technology* 47, 5031-5041.
- 24) C.D. Hatch, M.J. Christie, R.M. Weingold, C.-M. Wu, D.M. Cwiertny, and J. Baltrusaitis (2013). Horizontal Attenuated Total Reflectance Fourier Transform Infrared and X-ray Photoelectron Spectroscopy Measurements of Water Adsorption on Oxidized Tin(II) Sulfide (SnS) Surfaces *Journal of Physical Chemistry C*, 117, 472–482.
- 23) S. Qu, E.P. Kolodziej, and D.M. Cwiertny (2012). Phototransformation rates and mechanism for synthetic hormones growth promoters used in animal agriculture. *Environmental Science and Technology*, 46, 13202-13211.

- 22) C.A. Lanzl, J. Baltrusaitis, and D.M. Cwiertny (2012). Dissolution of hematite nanoparticle aggregates: influence of primary particle size, dissolution mechanism, and solution pH. *Langmuir*, 28, 15797-15808.
- 21) Y. Xie and D.M. Cwiertny (2012). Influence of anionic cosolutes and pH on nanoscale zerovalent iron longevity: time scales and mechanisms of reactivity loss toward 1,1,1,2-tetrachloroethane and Cr(VI). *Environmental Science and Technology*, 46, 8365-8373
- 20) I. Chowdhury, D.M. Cwiertny and S.L. Walker (2012) Combined Factors Influencing the Aggregation and Deposition of Nano-TiO₂ in the Presence of Humic Acids and Bacteria. *Environmental Science and Technology*, 46, 6968-6976.
- 19) A.S. Gong, C.A. Lanzl, D.M. Cwiertny and S.L. Walker (2012). Lack of Influence of Extracellular Polymeric Substances (EPS) Level on Hydroxyl Radical Mediated Disinfection of *Escherichia coli*. *Environmental Science and Technology*, 46, 241-249.
- 18) Y. Xie and D.M. Cwiertny (2010). Use of Dithionite to Sustain and Enhance the Reactivity of Nanoscale Zero Valent Iron (NZVI) *In-Situ* Treatment Zones. *Environmental Science and Technology*, 44, 8649-8655.
- 17) R.L. Oulton, T. Kohn and D.M. Cwiertny (2010). Pharmaceuticals and Personal Care Products (PPCPs) in Effluent Matrices: A Survey of Transformation and Removal during Wastewater Treatment and Implications for Wastewater Management. *Journal of Environmental Monitoring*, 12, 1956-1978. Invited Critical Review for Special Issue of on Emerging Investigators in Environmental Engineering.
- 16) D.M. Cwiertny, W.A. Arnold, T. Kohn, L.A. Rodenburg, and A.L. Roberts (2010). Reactivity of Alkyl Polyhalides toward Granular Iron: Development of QSARs and Reactivity Cross Correlations for Reductive Dehalogenation. *Environmental Science and Technology*, 44, 7928-7936.
- 15) H. Fu, D.M. Cwiertny, G. Carmichael, M.M. Scherer, and V.H. Grassian (2010). Photoreductive Dissolution of Fe-Containing Mineral Dust Particles in Acidic Media. *Journal of Geophysical Research- Atmospheres*. DOI: 10.1029/2009JD012702
- 14) P. Larese-Casanova, D.M. Cwiertny, and M.M. Scherer (2010). Nanogoethite Formation from Oxidation of Fe(II) Sorbed on Aluminum Oxide: Implications for Contaminant Reduction. *Environmental Science and Technology*, 44, 3765-3771.
- 13) D.M. Cwiertny, G.J. Hunter, J.M. Pettibone, M. M. Scherer and V.H. Grassian (2009). Surface Chemistry and Dissolution of α -FeOOH Nanorods and Microrods: Environmental Implications of Size-Dependent Interactions with Oxalate. *Journal of Physical Chemistry C*, 113, 2175-2186.
- 12) Y. Hong, Y. Rheem, L. Min, D.M. Cwiertny, S.L. Walker, and N.V. Myung (2009) Electrochemical Synthesis of Fe_xNi_{1-x} Nanostructures for Environmental Remediation. *Chemical Engineering Journal* 151, 66-72.
- 11) D.M. Cwiertny, R.M. Handler, M.V. Schaefer, V.H. Grassian, and M.M. Scherer (2008). Interpreting Nanoscale Size Effects in Aggregating Fe-Oxide Suspensions: Reaction of Fe(II) with Goethite. *Geochimica et Cosmochimica Acta*, 72, 1365-1380.
- 10) D.M. Cwiertny, J. Baltrusaitis, G.J. Hunter, M.M. Scherer, and V.H. Grassian (2008). Characterization and Acid-Mobilization Study of Fe-Containing Mineral Dusts from Source Materials. *Journal of Geophysical Research: Atmospheres*, 113, doi: 10.1029/2007JD009332.
- 9) D.M. Cwiertny, M.A. Young and V.H. Grassian (2008). Chemistry and Photochemistry of Mineral Dust Aerosol. *Annual Review of Physical Chemistry*, 59, 27-51.

- 8) J.M. Pettibone, D.M. Cwiertny, M.M. Scherer and V.H. Grassian (2008). Adsorption of Organic Acids on TiO₂ Nanoparticles: Effects of pH, Nanoparticle Size, and Nanoparticle Aggregation. *Langmuir*, 24, 6659-6667.
- 7) D.M. Cwiertny, S.J. Bransfield, and A.L. Roberts (2007). Influence of the Oxidizing Species on the Reactivity of Iron-Based Bimetallic Reductants. *Environmental Science and Technology*, 41, 3734-3440.
- 6) J. Baltrusaitis, D.M. Cwiertny, and V.H. Grassian (2007). Adsorption of Sulfur Dioxide on Hematite and Goethite Particle Surfaces. *Physical Chemistry Chemical Physics*, 9, 5542-5554.
- 5) S.J. Bransfield, D.M. Cwiertny, K.J.T. Livi, and D.H. Fairbrother (2007). Influence of Transition Metal Additives and Temperature on the Rate of Organohalide Reduction by Granular Iron: Implications for Reaction Mechanisms. *Applied Catalysis B- Environmental*, 76, 348-356.
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- 2) S.J. Bransfield, D.M. Cwiertny, A.L. Roberts, and D.H. Fairbrother (2006). Influence of Cu Loading and Surface Coverage on the Reactivity of Granular Iron Toward 1,1,1-Trichloroethane. *Environmental Science and Technology*, 40, 1485-1490.
- 1) D.M. Cwiertny and A.L. Roberts (2005). On the Nonlinear Relationship Between k_{obs} and Reductant Mass Loading in Iron Batch Systems. *Environmental Science and Technology*, 39, 8948-8957.

BOOK CHAPTERS

D.M. Cwiertny and M.M. Scherer. (2010) "Chlorinated Solvent Chemistry: Structures, Nomenclature and Properties" In *In Situ Remediation of Dissolved Chlorinated Solvents in Groundwater*. C.H. Ward and H. Stroo, Editors. SERDP/ESTCP Remediation Technology Monograph Series. Springer Publishing; New York.

D.M. Cwiertny and M.M. Scherer. (2010) "Abiotic Processes Affecting the Remediation of Chlorinated Solvents" In *In Situ Remediation of Dissolved Chlorinated Solvents in Groundwater*. C.H. Ward and H. Stroo, Editors. SERDP/ESTCP Remediation Technology Monograph Series. Springer Publishing; New York.

EDITORIALS

D.M. Cwiertny (2016). Looking Back While Moving Forward. *Environmental Science: Water Research & Technology*, 2, 11-12

D.M. Cwiertny (2015). To New Beginnings and a Better Alternative. *Environmental Science: Water Research & Technology*, 1, 9-10.

GUEST EDITORIALS

D.M. Cwiertny and T. Kohn (2012). Emerging Investigators Themed Issue. *Journal of Environmental Monitoring* (now *Environmental Science: Processes & Impacts*), 14, 1743-1744.

J.M. Delgado-Saborit, H.D. Park, and D.M. Cwiertny (2014). Emerging Investigators: Challenges and Opportunities for Research Independence and Innovation. *Environmental Science: Processes & Impacts*, 16, 1169-1170.

INVITED CONFERENCE PRESENTATIONS

Cwiertny, D.M. *Development and application of nanotube- and nanofiber-enabled water treatment technologies*. Presented at the 251st American Chemical Society National Meeting and Exposition. Division of Environmental Chemistry. Symposium on Innovative Materials & Technologies for Water Purification. March 13-17, 2016. San Diego, CA.

Kolodziej, E.P., Cwiertny, D.M., Qu, S. *Novel Transformations of Trenbolone Acetate Metabolites Suggest Incomplete Environmental Risk Assessment for Trenbolone* Invited presentation, American Geophysical Union National Meeting. San Francisco, CA, Dec. 11, 2013.

D.M. Cwiertny. *Nanotube- and Nanofiber-Enabled Chemical Treatment Strategies: Next-Generation Technologies for Water Sustainability?* Presented at the Gordon Research Conference: Environmental Nanotechnology. Stowe, VT, June 2-7, 2013.

D.M. Cwiertny, C.A. Lanzl. *Influence of Particle Size and Aggregation on the Dissolution of Iron Oxides* Presented at the 243rd American Chemical Society National Meeting, Division of Geochemistry. Symposium on Atmospheric and Geochemical Interfaces. San Diego, CA, March 25-29, 2012.

D.M. Cwiertny, E.P. Kolodziej, and S., Qu. *Environmental Transformations of Synthetic Growth Promoters Used in Animal Agriculture*, Presented at the 242nd American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Reaction Mechanisms in Environmental Chemistry. Denver, CO, August 28-September 1, 2011.

D.M. Cwiertny. *Fate and Implications of Engineered Nanomaterials in Aquatic Systems*. Presented at the California Water Environment Association 37th Annual Pretreatment, Pollution Prevention, and Storm Water Conference and Exhibition. Symposium on Emerging Issues in Pretreatment and Pollution Prevention. Long Beach, CA, March 1-3, 2010.

Y. Xie and D.M. Cwiertny. *Improving Nanoscale Zero-Valent Iron (NZVI) Performance with Chemical Regeneration*. Presented at the Ground Water Resources Association of California 22nd Symposium in a Series on Groundwater Contaminants. Symposium on Nanotechnology for Environmental Cleanup and Pollution Control- Science, Implementation, and Regulatory Issues. San Francisco, CA, November 3, 2009.

D.M. Cwiertny, G.J. Hunter, M.M. Scherer and V.H. Grassian. *Surface Chemistry of α -FeOOH Nanorods and Microrods: Implications of Size-Dependent Interactions with Oxalate*. Presented at the 235th American Chemical Society National Meeting, Division of Colloid and Surface Chemistry. Special Symposium on the Physical Chemistry of Environmental Interfaces. New Orleans, LA, April 6-10, 2008.

D.M. Cwiertny, J. Baltrusaitis, G.J. Hunter, M. M. Scherer, and V.H.Grassian. *Pathways for Iron Mobilization from Mineral Dusts: Insights from Spectroscopic Dust Characterization and*

Complementary Dissolution Studies. Presented at the 58th Annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (Pittcon 2007). Symposium on Analytical Methods for Determining Environmental Change. Co-sponsored by the Analytical Chemistry Division of the American Chemical Society. Chicago, IL, February 25-March 2, 2007.

D.M. Cwiertny, R.M. Handler, and M. M. Scherer. *Fe(II) Sorption on Nanoscale Iron Oxides*. Presented at the 2006 Telluride Science Research Center Workshop on Iron Redox Chemistry at Environmentally Relevant Surfaces. Telluride, CO, July 24-29, 2006.

INVITED UNIVERSITY PRESENTATIONS

D.M. Cwiertny. *Beyond Emerging Contaminants: Bioactive Transformation Products and What to Do about Them*. Presented at Pittsburgh University, Department of Civil and Environmental Engineering, February 22, 2019.

D.M. Cwiertny. *Beyond Emerging Contaminants: Bioactive Transformation Products and What to Do about Them*. Presented at University of Southern California, Department of Civil and Environmental Engineering, October 5, 2018.

D.M. Cwiertny. *Beyond Emerging Contaminants: Bioactive Transformation Products and What to Do about Them*. Presented at University of St. Thomas, Department of Chemistry, September 14, 2018.

D.M. Cwiertny. *Beyond Emerging Contaminants: Bioactive Transformation Products and What to Do about Them*. Presented at George Washington University, Department of Civil and Environmental Engineering, April 14, 2017.

D.M. Cwiertny. *An Environmental Engineer's View from Washington*. Presented to the Department of Environmental Health and Engineering at Johns Hopkins University, April 11, 2017.

D.M. Cwiertny. *Beyond Emerging Contaminants: Bioactive Transformation Products and What to Do about Them*. Presented at Grinnell College, Department of Chemistry, September 3, 2015.

D.M. Cwiertny. *Environmental Designer Drugs: When Transformation May Not Eliminate Risk*. Presented at the Department of Chemical and Environmental Engineering, U.C. Riverside, May 29, 2015

D.M. Cwiertny. *The Role of Chemistry in Helping Engineers Achieve Water Sustainability*. Presented at the Department of Chemistry, Coe College, April 7, 2015

D.M. Cwiertny. *Beyond Emerging Contaminants: Bioactive Transformation Products and What to Do about Them*. Presented at the Science for Solutions: Emerging Contaminant Seminar Series, Penn State University, April 30, 2015.

D.M. Cwiertny. *Environmental Designer Drugs: When Transformation May Not Eliminate Risk*. Presented at the Graduate Toxicology Program Retreat, Iowa State University, October 24, 2014.

D.M. Cwiertny. *In the Twilight of Trenbolone: The Vampire Steroid*. Presented at the Department of Civil and Environmental Engineering, Northwestern University, November 22, 2013.

D.M. Cwiertny. *In the Twilight of Trenbolone: The Vampire Steroid*. Presented at the Department of Civil and Environmental Engineering, University of Wisconsin, October 29, 2013.

D.M. Cwiertny. *In the Twilight of Trenbolone: The Vampire Steroid*. Presented at the Department of Civil and Environmental Engineering, Duke University, September 23, 2013.

D.M. Cwiertny. *In the Twilight of Trenbolone: The Vampire Steroid*. Presented at the Department of

Geography and Environmental Engineering, Johns Hopkins University, Baltimore, MD, February 26, 2013.

D.M. Cwiertny. *Development of Nanofiber- and Nanotube-Enabled Treatment Technologies for Water and Wastewater Treatment*. Presented at the Department of Civil and Environmental Engineering, University of Illinois, Urbana-Champaign, April 23, 2012.

D.M. Cwiertny. *Development of Nanofiber- and Nanotube-Enabled Treatment Technologies for Water and Wastewater Treatment*. Presented at the Department of Civil and Environmental Engineering, University of Nevada, Reno, March 15, 2012.

D.M. Cwiertny. *From Treatment Technologies to Pollutant Fate: Interfacial Processes and Materials Applications in Environmental Engineering and Chemistry*. Presented at the Department of Chemistry, Cornell College, February 14, 2012.

D.M. Cwiertny. *Advanced Oxidation Processes with Carbon Nanotubes: Surface-Promoted Formation of Hydroxyl Radical during Ozonation*. Presented at the Department of Civil and Environmental Engineering, University of Minnesota, Minneapolis, MN, November 18, 2011.

D.M. Cwiertny. *Advanced Oxidation Processes with Carbon Nanotubes: Surface-Promoted Formation of Hydroxyl Radical during Ozonation*. Presented at the Department of Civil and Environmental Engineering, University of California, Irvine, April 21, 2011.

D.M. Cwiertny. *Advanced Oxidation Processes with Carbon Nanotubes: Surface-Promoted Formation of Hydroxyl Radical during Ozonation*. Presented at the Department of Civil and Environmental Engineering/Department of Chemical and Biochemical Engineering (joint seminar), University of Iowa, Iowa City, IA, September 24, 2010.

D.M. Cwiertny. *Applications at the Interface of Environmental Engineering and Chemistry*. Presented at the Department of Chemistry, Chapman University, August 11, 2009.

D.M. Cwiertny, Y. Xie and M.R. Matsumoto. *Chemical Approaches to Improve the Performance of Nanoscale Zero-Valent Iron for Groundwater Remediation*. Presented at the Department of Civil and Environmental Engineering, University of California at Davis, March 16, 2009.

D.M. Cwiertny. *Iron-Based Bimetallic Reductants for Treatment of Halogenated Organic Solvents*. Presented at the Department of Civil and Environmental Engineering, University of California at Los Angeles, April 22, 2008.

D.M. Cwiertny. *Iron-Based Bimetallic Reductants for Treatment of Halogenated Organic Solvents*. Presented at University of Washington, St. Louis, Department of Energy, Environmental and Chemical Engineering, St. Louis, Missouri, April 9-10, 2007.

D.M. Cwiertny. *Iron-Based Bimetallic Reductants for Treatment of Halogenated Organic Solvents*. Presented at University of California, Riverside, Department of Chemical and Environmental Engineering, Riverside, California, March 13, 2007

D.M. Cwiertny. *Iron-Based Bimetallic Reductants for Treatment of Halogenated Organic Solvents*. Presented at University of Connecticut, Department of Civil and Environmental Engineering, Storrs, Connecticut, February 20, 2007.

D.M. Cwiertny. *Iron-Based Bimetallic Reductants for Treatment of Halogenated Organic Solvents*. Presented at University of Alaska, Fairbanks, Department of Chemistry, Fairbanks, Alaska, January 29, 2007.

D.M. Cwiertny. *Iron-Based Bimetallic Reductants for Treatment of Halogenated Organic Solvents*. Presented at Massachusetts Institute of Technology, Department of Civil and Environmental Engineering, Cambridge, Massachusetts, April 6, 2006.

D.M. Cwiertny. *Iron-Based Bimetallic Reductants for Treatment of Halogenated Organic Solvents*. Presented at University of Wisconsin, Department of Civil and Environmental Engineering, Madison, Wisconsin, April 25-26, 2005.

D.M. Cwiertny. *Iron-Based Bimetallic Reductants for Treatment of Halogenated Organic Solvents*. Presented at University of Iowa, Department of Civil and Environmental Engineering, Iowa City, Iowa, March 4, 2005.

D.M. Cwiertny. *Iron-Based Bimetallic Reductants for Treatment of Halogenated Organic Solvents*. Presented at University of Toronto, Department of Geology, Toronto, Ontario, Canada, November 12, 2004.

CONFERENCE PRESENTATIONS

D.M. Cwiertny, E.P. Kolodziej, J.B. Gloer, R. Abagyan, E.V. Patterson. *Integrated analytical and computation tools for assessing the risks of emerging contaminants and their bioactive transformation products*. Presented at the 254th American Chemical Society National Meeting and Exposition. Division of Environmental Chemistry. Symposium on Changes in Chemical Risk Assessment under Amended TSCA: Approaches & Implementation. August 20-24, 2017, Washington, D.C.

J. Qian, D.M. Cwiertny, A. Martinez. *Development of a nanotechnology enabled passive sampling device for legacy and emerging organic pollutants*. Presented at the 254th American Chemical Society National Meeting and Exposition. Division of Environmental Chemistry. Symposium on Trace Organic Contaminants (TrOCs) in Aquatic Systems: Advancements in Monitoring & Remediation. August 20-24, 2017, Washington, D.C.

K. Klarich, D.M. Cwiertny, G.H. LeFevre. *Transformation and fate of neonicotinoid insecticides during drinking water treatment*. Presented at the 254th American Chemical Society National Meeting and Exposition. Division of Environmental Chemistry. Symposium on Ecological and Human Health Impacts of Emerging Environmental Contaminants. August 20-24, 2017, Washington, D.C.

C.L. Boles, T.A. Thedell, K. O'Brien, D.M. Cwiertny, M.W. Nonnenmann. *Comparison of Filter Materials, Wash Solutions, and Extraction Methods in the Detection and Quantification of Influenza Virus*. Presented at the American Industrial Hygiene Conference and Exposition, Seattle, WA. June 5th- 7th, 2017.

J. Culpepper, D. Latta, D.M. Cwiertny, M.M. Scherer. *Revisiting reduction of PCE and TCE by magnetite*. Presented at the 253rd American Chemical Society National Meeting and Exposition. Division of Geochemistry. Symposium on Redox-Driven Environmental Geochemical Reactions for Metals, Major Elements and Organic Pollutants. April 2-6, 2017, San Francisco, CA.

J. O'Brien, S. Berg, N. Pflug, D.M. Cwiertny, K. Wammer. *Aqueous photolysis of the steroid gestrinone in the presence of sodium azide*. Presented at the 253rd American Chemical Society National Meeting and Exposition. Division of Chemical Education. Undergraduate Research Posters. April 2-6, 2017, San Francisco, CA.

M. Hankard, S. Berg, N. Pflug, D.M. Cwiertny, D. Martinovic-Weigelt, K. Wammer. *Environmental photochemistry of dienogest: Photolysis, regeneration, and product bioactivity*. Presented at the 253rd

- American Chemical Society National Meeting and Exposition. Division of Chemical Education. Undergraduate Research Posters. April 2-6, 2017, San Francisco, CA.
- K. Klarich, N. Pflug, G. LeFevre, J. Gloer, D.M. Cwiertny. *Fate and transformation of neonicotinoid insecticides during water and wastewater treatment*. Presented at the 252nd American Chemical Society National Meeting and Exposition. Division on Agrochemicals. Symposium on Neonicotinoid Insecticides: Use, Fate and Effects. August 21-25, 2016. Philadelphia, PA.
- D.M. Cwiertny, E.P. Kolodziej. *Formation and implications of bioactive steroid transformation products*. Presented at the 252nd American Chemical Society National Meeting and Exposition. Division of Environmental Chemistry. Symposium in Honor of Professor Alan T. Stone. August 21-25, 2016, Philadelphia, PA.
- K.E. Greenstein, G.F. Parkin, D.M. Cwiertny. *Development of polymer-iron oxide hybrid nanofiber networks for metal sequestration in point-of-use water treatment applications*. Presented at the 252nd American Chemical Society National Meeting and Exposition. Division of Environmental Chemistry. C. Ellen Gonter Graduate Student Awards. August 21-25, 2016, Philadelphia, PA.
- S. Egodawatte, D.M. Cwiertny, S. Larsen. *Adsorption of chromium and copper on electrospun hematite mesoporous silica core shell nanomaterials*. Presented at the 251st American Chemical Society National Meeting and Exposition. Division of Environmental Chemistry. Symposium on New Challenges on Metals and Metalloids: Chemistry, Treatment and the Impacts on Water Quality. March 13-17, 2016. San Diego, CA.
- A. Martinez, J. Qian, B. J. Jennings, D.M. Cwiertny. *Development of nanofiber materials as passive sampling devices for determination of freely-dissolved sediment pore water of hydrophilic and hydrophobic organic contaminants*. Presented at the 10th International Conference on Remediation of Chlorinated and Recalcitrant Compounds. May 22-26, 2016, Palm Springs, CA.
- S. Berg, J. O'Brien, K. Anderson, D.M. Cwiertny, E.P. Kolodziej, K. Wammer. *Kinetic studies of the reversible photodegradation of dienone and trienone steroids*. Presented at the 251st American Chemical Society National Meeting and Exposition. Division of Chemical Education. Undergraduate Research Posters. March 13-17, 2016. San Diego, CA.
- M. O'Connor. E.P. Kolodziej, D.M. Cwiertny. *Photolysis and product-to-parent reversion of dienogest*. Presented at the 251st American Chemical Society National Meeting and Exposition. Division of Environmental Chemistry. General Posters. March 13-17, 2016. San Diego, CA.
- D.M. Cwiertny, E.P. Kolodziej. *Formation of bioactive transformation products via steroid photolysis*. Presented at the 251st American Chemical Society National Meeting and Exposition. Division of Environmental Chemistry. Symposium on Aquatic Photochemistry. March 13-17, 2016. San Diego, CA.
- K.L. Klarich, E.M. Dewald, G.H. LeFevre, D.M. Cwiertny. *Transformation and fate of neonicotinoid insecticides during drinking water treatment*. Presented at the 37th SETAC North American Annual Meeting. Nov 6-10, 2016. Orlando, FL.
- B. Michalsen, A. Kupsco, E. Uwimana, N. Pflug, N. Evans, E.P. Kolodziej, D. Schlenk, V.S. Wilson, H. Joachim-Lehmler, D.M. Cwiertny. *Microsomal metabolism of trenbolone acetate metabolites. Transformation product formation and bioactivity*. Presented at the 37th SETAC North American Annual Meeting. Nov 6-10, 2016. Orlando, FL.

- A. Martinez, J. Qian, B. Jennings, D.M. Cwiertny. *Next generation environmental passive sampler materials: Electrospun nanofibers mats (ENMs)*. Presented at the 37th SETAC North American Annual Meeting. Nov 6-10, 2016. Orlando, FL.
- D.M. Cwiertny, E.P. Kolodziej. *Beyond emerging contaminants; bioactive transformation products and their implications for ecosystem health*. Presented at the 36th SETAC North American Annual Meeting. Nov. 1-5 2015. Salt Lake City, UT.
- K.H. Wammer, K.C. Anderson, P.R. Erickson, S. Kliegman, K. McNeill, D. Martinovic-Weigelt, D.M. Cwiertny, E.P. Kolodziej. *Environmental photochemistry of altrenogest*. Presented at the 36th SETAC North American Annual Meeting. Nov. 1-5 2015. Salt Lake City, UT.
- D.M. Cwiertny, E.P. Kolodziej. *Environmental fate of trenbolone acetate metabolites: Recent progress and remaining challenges posed by bioactive transformation products*. Presented at the 36th SETAC North American Annual Meeting. Nov. 1-5 2015. Salt Lake City, UT.
- B.J. Jennings, D.M. Cwiertny, N.V. Myung. *Development of piezocatalytic nanomaterials for applications in water treatment*. Presented at the 5th Annual Meeting of the Sustainably Nanotechnology Organization. Nov. 10-12, 2016. Orlando, FL
- N. Pflug, A. Kupsco, E.P. Kolodziej, D. Schlenk, J. Gloer, D.M. Cwiertny. *Formation of bioactive transformation products during glucocorticoid chlorination*. Division of Environmental Chemistry. Presented at the 250th American Chemical Society National Meeting and Exposition. Symposium on Assessing transformation products by non-target and suspected target screening: the new frontier in environmental chemistry and engineering. August 16-20, 2015. Boston, MA.
- Wammer, K.; Anderson, K.; Erickson, P.; Kliegman, S.; McNeill, K.; Martinovic-Weigelt, D.; Cwiertny, D.M.; Kolodziej, E.P. *Environmental Photochemistry of Altrenogest*. Presented at the 249th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Environmental Reactivity of Organic Micropollutants and their Transformation Products in Receiving Waters, Denver, CO, March 22-26, 2015.
- K.T. Peter, D.M. Cwiertny. *Application of electrospun carbon nanofibers as sorbents: Influence of incorporated carbon nanotubes and macroporosity on material properties and surface reactivity*. Presented at the 3rd Sustainable Nanotechnology Organization Conference. Nov 2-4, 2014. Boston, MA.
- Haase, J.P., Redmond, C.; Cwiertny, D.M. *Development and scale-up of a hybrid carbon nanotube filter as a reactive substrate in ozone-based advanced oxidation processes*. Presented at the 248th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Reactive Membranes and Surfaces in Water Treatment Applications, San Francisco, CA, August 10-14, 2014
- Peter, K., Cwiertny, D.M. *Application of electrospun carbon nanofibers as sorbents: Influence of incorporation of carbon nanotubes on material properties and surface reactivity*. Presented at the 248th American Chemical Society National Meeting, Division of Environmental Chemistry. Presented at the 248th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Reactive Membranes and Surfaces in Water Treatment Applications, San Francisco, CA, August 10-14, 2014
- Greenstein, K.E.; Lanzl, C.; Baltrusaitis, J.; Koser, D.; Parkin, G.F.; Cwiertny, D.M. *Nanostructured iron oxides as photoelectrocatalysts for waste-to-energy conversion*. Presented at the 248th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on

Heterogeneous Catalysis for Environmental and Energy Applications, San Francisco, CA, August 10-14, 2014

Kolodziej, E.P., Cwiertny, D.M. *Implications of structural conservation during environmental transformation of steroidal pharmaceuticals.* Presented at the 248th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Science in the Realm of Environmental Policy: Opportunities and Challenges, San Francisco, CA, August 10-14, 2014

Cwiertny, D.M., Kolodziej, E.P. *Reversible photohydration: An overlooked pathway in emerging pollutant fate?* Presented at the 248th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium in Honor of Professor Richard L. Valentine, San Francisco, CA, August 10-14, 2014

Verdugo, E.M.; Genskow, K.; Han, Y.; Krause, C.; Mattes, T.E.; Valentine, R.L., Cwiertny, D.M. *Reaction of carbon nanotubes with chemical disinfectants: Byproduct formation and implications for nanotube environmental fate and toxicity.* Presented at the 248th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium in Honor of Professor Richard L. Valentine, San Francisco, CA, August 10-14, 2014

Shuai, D.; Greenstein, K.E.; Cwiertny, D.M. *Achieving sustainable water-energy: Waste-energy-driven advanced oxidation processes for antimicrobial applications.* Presented at the 247th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Advances in Materials for Water and Energy, Dallas, TX, March 16-20, 2014.

Kolodziej, E.P., Cwiertny, D.M., Qu, S. *Novel Transformations of Trenbolone Acetate Metabolites Suggest Incomplete Environmental Risk Assessment for Trenbolone.* Society of Environmental Toxicology and Chemistry National Meeting, Nashville, TN, Nov. 19, 2013.

Kolodziej, E.P., Sedlak, D.L., Harter, T., Jones, G.D., Cwiertny, D.M., Qu, S. *Animal Agriculture as a Source of Steroid Hormones: Insights and Critical Data Gaps.* Society of Environmental Toxicology and Chemistry National Meeting, Nashville, TN, Nov. 19, 2013.

Kolodziej, E.P., Cwiertny, D.M., Marchand, E.A., McBride, S., Cole, E.A., Qu, S. *The Role of Biotransformation, Photolysis, and Mineral Interactions on the Environmental Fate on Synthetic Growth Promoters Used in Animal Agriculture.* Soil and Water Conservation Society Annual Conference, Reno, NV July 21-24, 2013.

S. Qu, E.P. Kolodziej, and D.M. Cwiertny. *Qu. Reversible Photohydration of Dienone and Trienone Steroids.* Presented at the 246th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on the Distribution and Fate of Emerging Contaminants in Hydrologic Systems of the Built Environment. Indianapolis, IA, September 8-12, 2013.

E.P. Kolodziej, D.M. Cwiertny. E. Cole, G.D. Jones, E.A. Marchand, and S. Qu. *Evaluating the Implications of Unique Transformation Pathways on the Environmental Fate of Synthetic Steroids Used in Animal Agriculture.* Presented at the 246th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on the Distribution and Fate of Emerging Contaminants in Hydrologic Systems of the Built Environment. Indianapolis, IA, September 8-12, 2013.

S. Qu, E.P. Kolodziej, and D.M. Cwiertny. *Photoproduct-to-Parent Reversion for Trenbolone Acetate Metabolites. An Unrecognized Route to Endocrine Disruption in Agriculturally Impacted Surface Waters?* Presented at the 246th American Chemical Society National Meeting, Division of

Environmental Chemistry. C. Ellen Gonter Environmental Chemistry Award Symposium. Indianapolis, IA, September 8-12, 2013.

D. Shuai and D.M. Cwiertny. *Achieving Sustainable Water-Energy: Waste-Heat Driven Advanced Oxidation Processes for Removal of Emerging Contaminants*. Presented at the 246th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Materials-Based Technologies for Water and Energy Sustainability: Research Frontiers and Challenges to Adoption. Indianapolis, IA, September 8-12, 2013.

D.M. Cwiertny, R.L. Oulton, and J.P. Haase. *Toward the Development of Carbon Nanotube-Enabled Advanced Oxidation Processes*. Presented at the 246th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Materials-Based Technologies for Water and Energy Sustainability: Research Frontiers and Challenges to Adoption. Indianapolis, IA, September 8-12, 2013.

D. Shuai, N.V. Myung, and D.M. Cwiertny. *Exploration of Harvesting Heat and Mechanical Vibration to Drive Advanced Oxidation Processes for Water Treatment*. Presented at the 2013 Conference of the Association of Environmental Engineering and Science Professors, Symposium on Materials for Water and Energy Sustainability. Golden, CO, July 14-16, 2013.

D. Shuai, K. Greenstein, M.J. Nalbandian, N.V. Myung, and D.M. Cwiertny. *Electrospun Photocatalytic TiO₂ Nanofiber Composites with Enhanced Performance for Water Treatment*. Presented at the 245th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Transformative Nanotechnologies: Energy and Environment, Solutions and Challenges. New Orleans, LA, April 7-11, 2013.

E.P. Kolodziej, G. Jones, E. Cole, and D.M. Cwiertny. *Transformation and Transport of Androgenic, Steroidal Growth Promoters Used in Animal Agriculture*. Presented at the Gordon Research Conference, Environmental Sciences: Water. Holderness, NH, June 24-29, 2012.

R.L. Oulton, M.J. Nalbandian, D.H. Fairbrother, and D.M. Cwiertny. *Use of Carbon Nanotubes to Enhance Hydroxyl Radical Formation during Ozonation*. Presented at the Gordon Research Conference, Environmental Sciences: Water. Holderness, NH, June 24-29, 2012.

S. Qu, E.P. Kolodziej, and D.M. Cwiertny. *Environmental Fate of Synthetic Growth Promoters Used in Animal Agriculture: Mechanistic Studies of Hormone Photolysis and Abiotic Soil Processes*. Presented at the Gordon Research Conference, Environmental Sciences: Water. Holderness, NH, June 24-29, 2012.

M. J. Nalbandian, D.M. Cwiertny, and N.V. Myung. *Synthesis and Optimization of Photocatalytic TiO₂ Nanofibers for Treatment of Impaired Water Supplies*. Presented at the 244th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Materials for Water Sustainability. Philadelphia, PA, August 19-23, 2012.

E.M. Verdugo, Y. Xie, and D.M. Cwiertny. *Hybrid Hematite/Multi-Walled Carbon Nanotube (α -Fe₂O₃/MWCNT) Nanostructures as Sorbents for Metal Contaminants in Water*. Presented at the 244th American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Materials for Water Sustainability. Philadelphia, PA, August 19-23, 2012.

R.L. Oulton, E. Verdugo and D.M. Cwiertny. *Hydroxyl Radical Production during Ozonation of Carbonaceous Nanomaterials* Presented at the 243rd American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Environmental Applications and Ecological Implications of Nanotubes, Nanowires and Fullerenes. San Diego, CA, March 25-29, 2012.

- R.L. Oulton, E. Verdugo and D.M. Cwiertny. *Hydroxyl Radical Production during Ozonation of Carbonaceous Nanomaterials* Presented at the 243rd American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Environmental Applications and Ecological Implications of Nanotubes, Nanowires and Fullerenes. San Diego, CA, March 25-29, 2012.
- C.A. Lanzl and D.M. Cwiertny. *Size Dependent Dissolution of Hematite Aggregates* Presented at the 243rd American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Nanomaterials at Key Environmental Interfaces. San Diego, CA, March 25-29, 2012.
- R.L. Oulton, M.J. Nalbandian, K. Wepasnick, H. Fairbrother and D.M. Cwiertny. Influence of Multiwall Carbon Nanotube Surface Oxidation on Hydroxyl Radical Formation during Ozonation. Presented at the American Institute of Chemical Engineers National Meeting, Minneapolis, MN October 16-21, 2011.
- D.M. Cwiertny, E.P. Kolodziej, and S., Qu. *Environmental Transformations of Synthetic Growth Promoters used in Animal Agriculture*. Presented at the 242nd American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Reaction Mechanisms in Environmental Organic Chemistry. Denver, CO, August 28-September 1, 2011.
- S. Qu, E.P. Kolodziej and D.M. Cwiertny. *Sorption and Mineral-Promoted Transformation Pathways of Synthetic Growth Promoters in Soil Systems*. Presented at the 242nd American Chemical Society National Meeting, Division of Environmental Chemistry. Symposium on Veterinary Pharmaceuticals in the Environment. Denver, CO, August 28-September 1, 2011.
- Y. Xie and D.M. Cwiertny. *Examining the Role of Atomic Hydrogen in Granular Iron and Pd/Fe systems via Solvent Isotope Effects*. Presented at the 242nd American Chemical Society National Meeting, Division of Colloid and Surface Chemistry. Symposium on Reactive Properties of Environmental Interfaces. Denver, CO, August 28-September 1, 2011.
- R.L. Oulton, M.J. Nalbandian, K. Wepasnick, H. Fairbrother and D.M. Cwiertny. *Influence of Multiwall Carbon Nanotube Surface Oxidation on Hydroxyl Radical Formation during Ozonation*. Presented at the 241st American Chemical Society National Meeting, Division of Colloid and Surface Chemistry, Symposium on Reactivity, Transformations and Detection of Natural and Engineered Nanomaterials in the Environment, Anaheim, CA, March 27-31, 2011.
- C.A. Lanzl and D.M. Cwiertny. *Size-Dependent Dissolution of Hematite Nanoparticles: Implications for Iron Cycling in Surface Waters*. Presented at the 241st American Chemical Society National Meeting, Division of Colloid and Surface Chemistry, Anaheim, CA, March 27-31, 2011. Symposium on Reactivity, Transformations and Detection of Natural and Engineered Nanomaterials in the Environment, Anaheim, CA, March 27-31, 2011.
- R.L. Oulton, M.J. Nalbandian, and D.M. Cwiertny. *Carbon Nanotubes Promote Hydroxyl Radical Formation During Ozonation*. Presented at the 240th American Chemical Society National Meeting, Division of Environmental Chemistry, Boston, MA, August 22-26, 2010. Symposium on Environmental Applications and Implications of Nanotechnology.
- Y. Xie and D.M. Cwiertny. *Influence of Geochemical Variables on Nanoscale Zero-Valent Iron (NZVI) Longevity: Implications of Particle Aging for Treatment Applications*. Presented at the 240th American Chemical Society National Meeting, Division of Environmental Chemistry, Boston, MA, August 22-26, 2010. Symposium on Surface and Interfacial Phenomena in Environmental Processes.
- A. S. Gong, C. Lanzl., D.M. Cwiertny, and S.L. Walker. *Photochemical Disinfection of Pathogens: Role of Bacterial Extracellular Polymeric Substances (EPS) Coverage in Systems with Nitrate*. Presented at

the 239th ACS National Meeting and Exposition, Division of Environmental Chemistry, San Francisco, CA March 21-25, 2010. Symposium on Sustainable Processes for Drinking Water and Wastewater Treatment.

A.S. Gong, C. Lanzl, D.M. Cwiertny and S.L. Walker. *Photochemical Disinfection of Pathogens: Bactericidal Capacity and Rate Studies of Reactive Oxygen Species in Systems with Nitrate*. Presented at 2009 Association of Environmental Engineering and Science Professors Conference on Grand Challenges in Environmental Engineering and Science. University of Iowa, Iowa City, IA, July 26-29th, 2009.

M.V. Schaefer, R.M. Handler, D.M. Cwiertny and M. M. Scherer. *Sustained Reaction of Fe(II) with Mn(IV) Oxides*. Presented at 2009 Association of Environmental Engineering and Science Professors Conference on Grand Challenges in Environmental Engineering and Science. University of Iowa, Iowa City, IA, July 26-29th, 2009.

D.M. Cwiertny and S. Qu. *Adsorption of Effluent-Derived Anticonvulsants on Mineral Surfaces*. Presented at the 6th International Water Association and Groundwater Resources Association of California Specialized Conference on Assessment and Control of Micropollutants and Hazardous Substances in Water. San Francisco, CA, June 8-10, 2009.

D.M. Cwiertny and Y. Xie. *Dithionite as a Regenerant for the Reducing Capacity of Nanoscale Zero-Valent Iron In Situ Treatment Zones*. Presented at the 238th American Chemical Society National Meeting, Division of Environmental Chemistry, Washington, D.C., August 16-20, 2009. Symposium on Emerging Environmental Technologies towards a Cleaner and Sustainable Society.

D.M. Cwiertny and S. Qu. *Factors Controlling the Adsorption of Effluent-Derived Pharmaceuticals on Mineral Surfaces*. Presented at the 237th American Chemical Society National Meeting, Division of Environmental Chemistry, Salt Lake City, UT, March 23-27, 2009. Symposium on Frontiers in Water Reuse: Detection, Advanced Treatment and Environmental Fate of Contaminants of Emerging Concern.

Y. Xie and D.M. Cwiertny. *Oxidation of Zero-Valent Iron Nanoparticles: Implications for Reactivity and Opportunities for Regeneration*. Presented at the 237th American Chemical Society National Meeting, Division of Environmental Chemistry, Salt Lake City, UT, March 23-27, 2009. Symposium on Geochemistry of Engineered Nanoparticles in the Environment.

Y. Xie, M.R. Matsumoto and D.M. Cwiertny. *Chemical Regeneration of Nanoscale Zero-Valent Iron with Dithionite: Characterization and Reactivity of Regenerated Materials*. Presented at the 2008 Gordon Research Conference on Environmental Science: Water, Plymouth, NH, June 22-27, 2008.

D.M. Cwiertny, R.M. Handler, M.V. Schaefer, V.H. Grassian, and M.M. Scherer. *Fe(II) Sorption on Nanoscale Goethite*. Presented at the 233rd American Chemical Society National Meeting, Division of Environmental Chemistry, Chicago, IL, March 25-29, 2007. Symposium on Abiotic and Biotic Factors Affecting Contaminant Transformation at Iron Oxide Surfaces. Extended abstract to be published by ACS Division of Environmental Chemistry.

D.M. Cwiertny, R.M. Handler, H.A. Al-Hosney, V.H. Grassian, and M.M. Scherer. *Reactivity of Ferrous Iron Associated with Nanoparticulate Iron Oxides*. Presented at the 231st American Chemical Society National Meeting, Division of Environmental Chemistry, Atlanta, GA, March 26-30, 2006. Symposium on Advances in Surface-Mediated Transformation of Environmental Systems. Extended abstract published by ACS Division of Environmental Chemistry.

- D.M. Cwiertny and A.L. Roberts. *Exploring the Influence of Fe⁰ Metal Additives on the Rates of 1,1,1-Trichloroethane, cis-Dichloroethylene and Water Reduction by Bimetallic Reductants*. Presented at the 230th American Chemical Society National Meeting, Division of Environmental Chemistry, Washington, DC, August 28-September 1, 2005 (Environmental Chemistry Awards Symposium). Extended abstract published by ACS Division of Environmental Chemistry.
- D.M. Cwiertny, S.J. Bransfield, D.H. Fairbrother, and A.L. Roberts. *Surface Characterization and Reactivity Studies of Iron-Based Bimetallic Reductants*. Presented at the 2004 U.S. EPA Science to Achieve Results (STAR) Fellowship Conference, Washington, D.C., October 11-13, 2004.
- D.M. Cwiertny and A.L. Roberts. *Nonlinear Influence of Iron Surface Area on the Reduction of Chlorinated Solvents*. Presented at the 228th American Chemical Society National Meeting, Division of Environmental Chemistry, Philadelphia, PA, August 22-26, 2004 (Symposium in Honor of Charles O'Melia). Extended abstract published by ACS Division of Environmental Chemistry.
- D.M. Cwiertny, S.J. Bransfield, D.H. Fairbrother, and A.L. Roberts. *Surface Characterization and Reactivity Studies of Iron-Based Bimetallic Reductants*. Presented at the 2004 Gordon Research Conference on Environmental Science: Water, Plymouth, NH, June 27-July 2, 2004.
- D.M. Cwiertny, S.J. Bransfield, D.H. Fairbrother, and A.L. Roberts. *Effects of Catalytic Metal Identity and Loading on the Reactivity of Iron-Based Bimetallic Reductants Toward Alkyl and Vinyl Halides*. Presented at the 227th American Chemical Society National Meeting, Division of Industrial Engineering and Chemistry, Anaheim, CA, March 28-April 1, 2004 (Symposium on Nanotechnology and the Environment).
- D.M. Cwiertny and A.L. Roberts. *Surface-Associated Protons as a Descriptor of Granular Iron Reactivity in the Reduction of 1,1,1-Trichloroethane*. Presented at the 2002 Gordon Research Conference on Environmental Science: Water, Plymouth, NH, June 23-28, 2002.
- R.M. Handler, D.M. Cwiertny, C.B. Kennedy, C.M. Johnson, and M.M. Scherer. *Size-Dependent Reactions Between Fe(II) and Goethite*. Presented at the 233rd American Chemical Society National Meeting, Division of Environmental Chemistry, Chicago, IL, March 25-29, 2007 (Symposium on Abiotic and Biotic Factors Affecting Contaminant Transformation at Iron Oxide Surfaces). Extended abstract to be published by ACS Division of Environmental Chemistry.
- M. Elsner, D.M. Cwiertny, M.M.G. Chartrand, G. Lacrampe-Couloume, A. L. Roberts, and B. Sherwood-Lollar. *Probing Iron Oxide Reactivity with Organic Contaminants: From Kinetic and Product Studies to Stable Isotope Fractionation*. Presented at the 233rd American Chemical Society National Meeting, Division of Environmental Chemistry, Chicago, IL, March 25-29, 2007 (Symposium on Abiotic and Biotic Factors Affecting Contaminant Transformation at Iron Oxide Surfaces). Extended abstract to be published by ACS Division of Environmental Chemistry.
- M.V. Schaefer, R.M. Handler, D.M. Cwiertny, and M.M. Scherer. *Oxidation of Fe(II) by Mn-Oxides: Characterization of Fe(III) Reaction Products*. Accepted for presentation at the 233rd American Chemical Society National Meeting, Division of Environmental Chemistry, Chicago, IL, March 25-29, 2007 (Symposium on Abiotic and Biotic Factors Affecting Contaminant Transformation at Iron Oxide Surfaces). Extended abstract to be published by ACS Division of Environmental Chemistry.
- M. Elsner, D.M. Cwiertny, A.L. Roberts, and B. Sherwood-Lollar. *Dehalogenation of 1,1,2,2-Tetrachloroethane by Fe⁰, Cu/Fe, Cr^{II} and OH⁻: Combined Insight from Product Formation and Associated Carbon Isotope Fractionation*. Presented at the 2006 Gordon Research Conference on Environmental Science: Water, Plymouth, NH, June 25-30, 2006.

- D.H. Fairbrother, S.J. Bransfield, D.M. Cwiertyny, and A.L. Roberts. *Reductive Degradation of Organohalides by Bimetallic Iron*. Presented at the 230th American Chemical Society National Meeting, Division of Inorganic Chemistry, Washington, DC, August 28-September 1, 2005.
- T. Kohn, D.M. Cwiertyny, W.A. Arnold, and A.L. Roberts. *Reactivity of Organohalides Toward Granular Iron, Cr(II), and an Iron(II) Porphyrin: A Correlation Analysis*. Presented at the 2004 Gordon Research Conference on Environmental Science: Water, Plymouth, NH, June 27-July 2, 2004.
- D.H. Fairbrother, A.L. Roberts, S.J. Bransfield, A.C. Grenier, M.M. McGuire, and D.M. Cwiertyny. *Reactivity and Longevity Studies on Iron-Based Bimetallic Catalysts During Organohalide Remediation*. Presented at the 30th Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS), Fort Lauderdale, FL, October 19-23, 2003.
- S.J. Bransfield, D.M. Cwiertyny, A.L. Roberts, and D.H. Fairbrother. *Surface Characterization and Kinetics of Copper-Iron Bimetallic Reductants for the Reduction of 1,1,1-TCA*. Presented at 10th European Conference on Applications of Surface and Interface Analysis, Berlin, Germany, October 5-10, 2003.
- S.J. Bransfield, D.M. Cwiertyny, A.C. Grenier, L.A. Langley, M.M. McGuire, A.L. Roberts, and D.H. Fairbrother. *Reactivity and Longevity Studies on Iron-Based Bimetallic Reductants During Organohalide Remediation*. Presented at the 77th American Chemical Society Colloid and Surface Science Symposium, Atlanta, GA, June 15-18, 2003.
- A.C. Grenier, M.M. McGuire, D.M. Cwiertyny, D.H. Fairbrother, and A.L. Roberts. *Treatment of Vapor-Phase Organohalide Contaminants Using Fe(0) and Bimetallic Reductants*. Presented at the Remediation Technologies Development Forum (RTDF) Permeable Reactive Barrier Action Team Meeting, Washington, D.C., November 6-7, 2002.
- C.-H. Huang, D.M. Cwiertyny, and D.L. Sedlak. *Immunochemical Techniques to Overcome the Analytical Challenges for Studies of Estrogenic Hormones in Environmental Matrices*. Presented at the 2000 Gordon Research Conference on Environmental Science: Water, Plymouth, NH, June 25-June 30, 2000.

PROFESSIONAL MEMBERSHIPS

- American Chemical Society (2002-present): Environmental Chemistry Division member (2002-present); Geochemistry Division member (2005-present); Colloids and Surfaces Division member (2007-present); Industrial Engineering and Chemistry member (2017-present)
- Association of Environmental Engineering and Science Professors (2005-present)
- Royal Society of Chemistry (2014-present)
- Society of Environmental Toxicology and Chemistry (2015-present)
- American Association for the Advancement of Science (2016-present)

SYNERGISTIC ACTIVITIES

Editorial Work:

- Founding Editor-in-Chief: *Environmental Science: Water Research & Technology* (2014-2018)
- Member of Editorial Advisory Board for *Environmental Science and Technology* (2012-2015)

- Member of Editorial Advisory Board for *Environmental Science: Processes & Impacts* (formerly the *Journal of Environmental Monitoring*; 2012-2014)
- Guest editor for *Journal of Environmental Monitoring* Emerging Investigators themed issue (June 2012).
- Guest editor for *Environmental Science: Processes & Impacts* Emerging Investigators themed issue (June 2014).

Advisory Board Membership:

- Iowa Energy Center (2016-2018; Governor Appointed)
- University of Iowa Center for Health Effects of Environmental Contamination (2014-present)
- University of Iowa Nanoscience and Nanotechnology Institute (2014-present)

Conference Organization

- Member, Organizing Committee of EmCon 2014: Fourth International Conference on Occurrence, Fate, Effects & Analysis of Emerging Contaminants in the Environment. Iowa City, IA August 19-22, 2014.

Symposium Organizer:

- Symposium on Water Reuse and Emerging Contaminants at the American Chemical Society National Meeting, Division of Environmental Chemistry, Salt Lake City, UT, March, 2008 (co-organizer Edward Kolodziej).
- Symposium on Water Reuse and Sustainability at the Association of Environmental Engineering and Science Professors Biannual Conference, Iowa City, IA, July, 2009 (co-organizers Mark Matsumoto and Sharon Walker)
- Member, Executive Planning Committee for the Groundwater Resource Association (GRA) of California Symposium on Nanotechnology for Environmental Cleanup and Pollution Control. To be held in San Francisco, CA (November, 2009)
- Symposium on Reactivity, Transformation and Detection of Natural and Engineered Nanomaterials in the Environment. Division of Colloid and Surface Chemistry, 241st American Chemical Society National Meeting, Anaheim, CA, March 27-31, 2011 (co-organizers Howard Fairbrother and Heather Shipley).
- Award Symposium for Creative Advances in Environmental Science and Technology Honoring Vicki H. Grassian, 243rd American Chemical Society National Meeting, Division of Environmental Chemistry, San Diego, CA, March 25-29, 2012 (co-organizers Paula Hudson, Hind Al-Abed, Gonghu Li).
- Symposium on Materials for Water Sustainability, Division of Environmental Chemistry, 244th American Chemical Society National Meeting, Philadelphia, PA, August 19-23, 2012 (co-organizers Brian Chaplin, David Ladner).
- Symposium on Water-Energy Nexus: Advanced Materials for Sustainable Water and Energy at the Association of Environmental Engineering and Science Professors Biannual Conference, Golden, CO, July 15, 2013 (co-organizers Timothy Strathmann, Manish Kumar, Brian Chaplin and David Ladner).
- Symposium on Materials-Based Technologies for Water and Energy Sustainability: Research Frontiers and Practical Challenges to Adoption, 246th American Chemical Society National Meeting, Indianapolis, IN, September 8-12, 2013 (co-organizers Timothy Strathmann, Manish Kumar, Chongzheng Na).

- Symposium on Advances in Materials for Water and Energy, 247th American Chemical Society National Meeting, Dallas, TX March 16-20, 2014 (co-organizers Jaehong Kim, Timothy Strathmann, and Jonas Baltrusaitis)
- Symposium in Honor of Richard L. Valentine, 248th American Chemical Society National Meeting, Division of Environmental Chemistry, San Francisco, CA, August 10-14, 2014 (co-organizers Peter Vikesland and Chad Jafvert).
- Feeding the World: Challenges for Water Quality and Quantity. Thursday, April 9th, 2015, Iowa City, IA. Organized as part of the Forkenbrock Series on Public Policy through the UI Public Policy Center.
- Symposium in Honor of Jerry Schnoor, 253rd American Chemical Society National Meeting, Division of Environmental Chemistry, San Francisco, CA, April 2-6, 2017 (co-organizers Joel Burken and Craig Just).

Professional Workshop Organization:

- Starting Out on the Right Foot: Tips for Success for Aspiring and New Faculty. At the Association of Environmental Engineering and Science Professors Biannual Conference, Tampa, Florida (July 2011) and Golden, CO (July 2013). Co-organizer Sharon Walker.

Journal Reviewer (selected examples): Environmental Science: Processes & Impacts, Environmental Science: Nano, Environmental Science: Water Research & Technology, Environmental Science and Technology, Environmental Science and Technology: Letters, Chemosphere, Journal of Hazardous Materials, Journal of Physical Chemistry, Water Research, Separation Science, Journal of Geophysical Research, Biochemical Engineering Journal, Applied Catalysis B, Chemical Engineering Journal, Catalysis Letters, Geochimica et Cosmochimica Acta, Journal of Contaminant Hydrology, Journal of Environmental Monitoring, Industrial Engineering and Chemistry Research, Chemical Communications, Langmuir, ACS Applied Materials and Interfaces.

Proposal Reviewer (selected examples): US National Science Foundation, Swiss National Science Foundation, German Research Foundation, French Science Foundation, Santa Ana Watershed Project Authority

Education and Outreach:

- Instructor, First Year Seminar – “Your Water: Where’s it come from, what’s in it, and will it be here tomorrow”, University of Iowa (Fall semester, 2012-2016)
- Mentor in University of Iowa Nanotechnology REU Program (2012-present)
- Mentor in the University of Iowa SROP-McNair Scholars Program (2013 and 2015)
- Founding Faculty Advisor of the UCR Chapter of *Engineers Without Borders* (2007-2011). Co-advisor of CA AB Chapter of *Tau Beta Pi* (2008-2011).
- Participation in the UCR College of Education’s Copernicus Summer Program (2008-2009). Led lecture, discussion and laboratory demonstration on *Environmental Applications and Implications of Nanotechnology* to ~20 students from nearby community colleges.

STUDENT ADVISING

Doctoral Students (Years and Current Position):

Yang Xie (2007-2011; Engineer, Intel)

Shen Qu (2007-2012; Scientist, FDA Center for Veterinary Medicine),

Rebekah L. Oulton (2008-2013; Assistant Professor, Cal Poly San Luis Obispo)

Caylyn Lanzl (2008-2013; Civilian Engineer with U.S. Navy in San Diego),
Edgard Verdugo (2010-2015; Post-doc, Southern Nevada Water Authority);
Katie Greenstein (2012-2016; Post-doc, Southern Nevada Water Authority)
Kathy Peter (2013-2016; Post-doc, University of Washington)
Nick Pflug (2014-2018; Post-doc, ETH-Zurich)
Jiajie Qian (2014-2018; Post-doc, University of Iowa)
Hayder Alawan (2014-2018; Chair, Mechanical Technical Department, AlKut Technical Institute,
Middle Technical University, Iraq)
Matthew Nagorzanski (2016-present)
Monica McFadden (2017-present)
Madeline Jensen (2017-present)
Sania Kamran (2018-present)
Maggie Carolan (2018-present)

Masters Students:

Jason Haase (2012-2015; Senior Marketing Specialist, Dow Chemical)
Kyle Nelson (2013-2015; Technical Sales Engineer, Clean Energy Fuels)
Brandon Jennings (2015-2017; HR Green)
Adam Johns (2016-2018; Clean Water Services)
Andrew Kral (2016-2018; Michigan Law School)
Kathryn Klarich (2016-2018; Vertex Pharmaceuticals)

Post-doc:

Jiajie Qian (2018-current)
Aruni Indika Gankanda (2016-2017; Post-doc, University of Arkansas)
Edgard Verdugo (2015-2016; Post-doc, Southern Nevada Water Authority)
Brad Michalsen (2014-2015)
Danmeng Shuai (2012-2013; Assistant Professor, George Washington University)

ADVISORS

PhD: A. Lynn Roberts (Johns Hopkins); Post-doc: Michelle M. Scherer, Vicki H. Grassian (UI)