

## PETER J. VIKESLAND

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### EDUCATION

Ph.D.	University of Iowa	1998	Environmental Engineering
MSCE	University of Iowa	1995	Environmental Engineering
BA	Grinnell College	1993	Chemistry

### PROFESSIONAL EXPERIENCE

2002 – Present	Nick Prillaman Professor (2018-), Full (2013- ), Associate (2007-2013) and Assistant (2002-2007) Professor, Department of Civil and Environmental Engineering, Virginia Tech
1999 – 2001	Postdoctoral Associate, Department of Geography and Environmental Engineering, The Johns Hopkins University
1993 – 1998	Graduate Research Assistant, Department of Civil and Environmental Engineering, The University of Iowa

### PERSONAL HONORS

- Association of Environmental Engineering and Science Professors (AEESP) Walter J. Weber Frontier in Research Award (2018)
- Lead author of article “Toward a Comprehensive Strategy to Mitigate Dissemination of Environmental Sources of Antibiotic Resistance” selected as 1<sup>st</sup> Runner-Up Best Feature Article by *Environmental Science and Technology* (2017)
- Gastprofessor (Visiting Professor), ETH Zurich (2017)
- AEESP Distinguished Service Award for Outstanding Service as AEESP President (2017)
- Virginia Tech College of Engineering Dean’s Award for Excellence in Research (2017)
- Elected Fellow of the Royal Society of Chemistry (2016)
- *Environmental Science and Technology* “Super Reviewer” Award (2015)
- Lead Guest Editor for a special issue of *Environmental Engineering Science* focused on the Grand Challenges of Environmental Engineering and Science in the 21<sup>st</sup> Century.
- UPS Foundation Visiting Associate Professor, Stanford University Department of Civil and Environmental Engineering (2012)
- University of Iowa Department of Civil and Environmental Engineering Richard L. Valentine Distinguished Lecturer (2012)
- Inaugural TEDxVirginia Tech Invited Presenter (2012)
- *Environmental Science and Technology* Excellence in Review Award (2012)
- AEESP Distinguished Service Award for Outstanding Service as Chair of the Internet Resources Committee (2008)

- Virginia Tech College of Engineering Faculty Fellow (2006-2009)
- Invited Participant at the National Academy of Engineering Japan-America Frontiers of Engineering Symposium (2005)
- Virginia Tech Scholar of the Week (August 22, 2005)
- Invited Participant at the National Academy of Sciences Keck Futures Initiative Conference on Designing Nanostructures at the Interface Between Biomedical and Physical Systems (2004)
- Virginia Tech College of Engineering Dean's Award for Outstanding Assistant Professor (2004)
- National Science Foundation CAREER Award (2004-2009)
- Invited Participant at the National Academy of Engineering Frontiers of Engineering Symposium (2003)
- ASCE Excellence in Civil Engineering Education (ExCEED) Fellow (2002)
- Alumni Scholar – Grinnell College Department of Chemistry (2001)
- First Place American Water Works Association (AWWA) Dissertation Award (2000)
- Honorable Mention Dissertation Award from the Association of Environmental Engineering and Science Professors (AEESP) (1999)
- American Chemical Society Division of Environmental Chemistry Graduate Student Paper Award (1999)
- American Water Works Association Abel Wolman Doctoral Fellowship (1996-1998)

## **ADVISEE HONORS**

- Advisor to Haoran Wei, recipient Jacobs Engineering Group/AEESP Outstanding Doctoral Dissertation Award (2019)
- Advisor to Marjorie Willner, recipient American Chemical Society Division of Environmental Chemistry Ellen Gonter Paper Award (2018)
- Advisor to Haoran Wei, recipient American Chemical Society Division of Environmental Chemistry Ellen Gonter Paper Award (2017)
- Advisor to Haoran Wei and Marjorie Willner, recipients American Chemical Society Division of Environmental Chemistry Graduate Student Awards (2017)
- Advisor to Matthew Chan, recipient American Chemical Society Division of Environmental Chemistry Graduate Student Award (2016)
- Advisor to Paramjeet Pati, recipient American Chemical Society Division of Environmental Chemistry Graduate Student Award (2015)
- Advisor to Ronald Kent, recipient American Chemical Society Division of Environmental Chemistry Graduate Student (2013) and Ellen Gonter Paper (2014) Awards
- Advisor to Ronald Kent, recipient EPA-STAR Graduate Student Fellowship (2012)
- Advisor to Rebecca Halvorson, recipient American Chemical Society Division of Environmental Chemistry Graduate Student Award (2012)
- Advisor to Rebecca Halvorson, recipient Abel Wolman Doctoral Fellowship, American Water Works Association (2011)
- Advisor to Matthew Hull, recipient American Chemical Society Division of Environmental Chemistry Graduate Student (2011) and Ellen Gonter Paper (2011) Awards
- Advisor to Jason Jones, recipient American Chemical Society Division of Environmental Chemistry Undergraduate Student Award (2011)

- Advisor to Krista Rule Wigginton, recipient AWWA Award for 2<sup>nd</sup> Place Best Dissertation (2010)
- Advisor to Xiaojun Chang, recipient American Chemical Society Division of Environmental Chemistry Graduate Student Award (2010)

## FUNDED RESEARCH PROJECTS

- “Quantification of the pH of Aerosol Droplets via Nanoprobe Based Sensing”, PI, awarded by the *National Science Foundation*, 2017-2020 (\$330,000).
- “PIRE: Halting Environmental Antimicrobial Resistance Dissemination (HEARD)”, PI, awarded by the *National Science Foundation*, 2015-2020 (\$3,600,000).
- “NNCI: The Virginia Tech National Center for Earth and Environmental Nanotechnology Infrastructure (VT NCE<sup>2</sup>NI)”, co-PI, awarded by the *National Science Foundation*, 2015-2020 (\$2,500,000).
- “Controlled Evaluation of Nanoparticle Dissolution Using Atomic Force Microscopy”, PI, awarded by the *National Science Foundation*, 2014-2017 (\$390,000).
- “Collaborative Research: Fate, Transport, and Organismal Uptake of Rod-Shaped Nanomaterials”, PI, awarded by the *National Science Foundation*, 2013-2016 (\$120,000). Collaborative project with N. Saleh (U. Texas-Austin) and C. Murphy (U. Illinois Urbana-Champaign).
- “Paper-Based Sensors for Airborne Pathogen Detection”, co-PI, awarded by the Institute for Critical Technology and Applied Science at Virginia Tech, 2013-2015 (\$248,752). PI: Linsey Marr, Virginia Tech, co-PI: Elankumaran Subbiah, Virginia Tech.
- “Fate of Nanocellulose and Impacts on Microbial Communities During Wastewater Treatment”, co-PI, awarded by the *National Science Foundation*, 2012-2103 (\$100,000). PI: Amy Pruden, Virginia Tech; co-PI: Scott Renneckar, Virginia Tech.
- “Inkjet Imprinted Paper for Poliovirus Detection and Differentiation”, PI, awarded by the *Bill and Melinda Gates Foundation*, 2011-2012 (\$100,000). Co-PIs: Krista Wigginton, U. Michigan and Tamar Kohn, EPFL.
- “Aptamer Functionalized Nanoparticles for *S. aureus* detection”, PI, awarded by the *National Science Foundation*, 2011-2014 (\$396,134). Co-PI: Amy Pruden, Virginia Tech.
- “Virginia Tech – Sustainable Nanotechnology Interdisciplinary Graduate Education Program” (VT-SuN IGEP), PI, awarded by the Virginia Tech Graduate School, 2011-2014 (\$500,000).
- “Bionanomaterial Uptake and Fate in *Corbicula fluminea*”, PI, awarded by the *National Science Foundation*, 2009-2012 (\$230,000).
- “Rapid Concentration and Detection of Microcystins and Other Cyanobacterial Byproducts in Drinking Water”, PI, awarded by the *Water Research Foundation*, 2009-2011 (\$150,000).
- “Critical Programmatic Expansion of the ICTAS Environmental Nanoscience and Technology (ENT) Research Theme: Nanoparticle/Cell Interactions and Nanotechnology-Enabled Sensor Development”, co-PI, awarded by the *Virginia Tech Institute for Critical Technology and Applied Science (ICTAS)*, 2009-2010 (\$150,000).
- “Acquisition of a Confocal Raman/Atomic Force Microscope to Support Environmental Interface Research at Virginia Tech”, PI, awarded by the *Virginia Tech College of Engineering SCHEV ETF*, 2009 (\$493,993).

- “Development of Biosensors for Monitoring Engineered Nanomaterials in the Environment”, PI, awarded by the *Virginia Tech Institute for Critical Technology and Applied Science (ICTAS)*, 2008-2009 (\$16,000).
- “Collaborative Research: Formation of Polyhalogenated Dioxins and Furans from Triclosan and Polybrominated Diphenyl Ethers”, PI, awarded by the *National Science Foundation*, 2006-2008, (This is a collaborative project with the University of Minnesota; \$57,000 is VT portion of total project budget of \$240,000).
- “In-situ Detection of *Cryptosporidium* Using Surface Enhanced Raman Spectroscopy”, PI, awarded by the *National Science Foundation*, 2006-2008, (\$230,000).
- “Magnetite Nanoparticles for Environmental Remediation”, PI, subcontract to EPA SBIR Phase II grant to Luna Innovations, 2006-2007 (\$75,000 is VT portion).
- “Nanotox: Cross-Media Environmental Transport, Transformation, and Fate of Manufactured Carbonaceous Nanomaterials” co-PI, awarded by the *National Science Foundation*, 2005-2008 (\$350,000).
- “CAREER: Formation and Reactivity of Nanoscale Corrosion Products – An Integrated Research and Education Plan” PI, awarded by the *National Science Foundation*, 2004-2009 (\$400,000).
- “Construction of the Environmental BioNanoTechnology Laboratory” PI, awarded by the Virginia Tech A Support Program for Innovative Research Strategies (ASPIRES), 2005 (\$82,030).
- “Magnetite Nanoparticles for Environmental Remediation” PI, subcontract to EPA SBIR Phase I grant to Luna Innovations, 2005 (\$20,000 is VT portion).
- “Autogeneous Healing of Concrete in the Drinking Water Industry” PI, awarded by the *American Water Works Association Research Foundation*, 2005-2007 (\$164,969).
- “Upgrading of the Vibrational Spectroscopy Laboratory at Virginia Tech” co-PI, awarded by the *National Science Foundation*, 2004-2005 (\$423,009)
- “Treatability Evaluation for Three Rohm and Haas Company Chemicals of Concern” PI, subcontract to Parsons Engineering Science from Rohm and Haas, 2004 (\$105,000 is VT portion)
- “Assessment of Seasonal Chlorination Practices and Impacts to Chloraminating Utilities” PI, awarded by the *American Water Works Association Research Foundation*, 2002-2005 (\$510,374).
- “Evaluation of Triclosan Reactivity in Chlorinated and Monochloraminated Waters,” PI, awarded by the *American Water Works Association Research Foundation*, 2002-2004 (\$150,000).
- “Effect of Dissimilatory Iron Reducing Bacteria on the Longevity of Iron Permeable Reactive Barriers,” PI, awarded by the *Virginia Water Resources Research Center*, 2003-2004 (\$18,500).

## PROFESSIONAL SERVICE AND REGISTRATIONS

### *National and International Service*

- Editor-in-Chief, *Environmental Science: Nano*, Published by the Royal Society of Chemistry (2018-2022)
- President (2016-2017), President-Elect (2015-2016), and Vice-President (2014-2015) of the Association of Environmental Engineering and Science Professors (AEESP)

- Member of editorial advisory boards for *Environmental Science: Water Research and Technology* (2014-2017); *Environmental Pollution* (2008-2015)
- Member of American Water Works Association Academic Achievement Award Committee (2012-2018)
- Member of Project Advisory Committee (PAC) for Water Environment Federation sponsored project “Kinetics Modeling and Experimental Investigation of Chloramine Photolysis in Ultraviolet-Driven Advanced Water Treatment” (2016-2019)
- Member of Project Advisory Committee (PAC) for AWWARF sponsored projects “Disinfection By-Product Formation and Control During Chloramination” (2000-2003) and “Exploring the Mechanisms of DXAA Formation During Chloramination (2004-2007)
- Reviewer for *Environmental Science and Technology*, *Journal of the American Chemical Society*, *Geochimica et Cosmochimica Acta*, *ASCE Journal of Environmental Engineering*, *Journal of Contaminant Hydrology*, *Water Research*, *Journal of Chromatography*, *Langmuir*, *Analytical Chemistry*, *Journal of Environmental Monitoring*, *Analytical Letters*, *Nature Communications*, *Journal of Raman Spectroscopy*, *PLOS ONE*, *PNAS*, *ACS Sustainable Chemistry and Engineering*, *ACS Applied Materials and Interface*, *Chemical Communications*, *ACS Nano*, *Nature Nanotechnology*
- Proposal Reviewer for *US Environmental Protection Agency*, *US National Science Foundation*, *National Institute of Environmental Health Sciences*, *American Chemical Society-Petroleum Research Fund*, *Hong Kong University of Science and Technology*, *Swiss National Science Foundation*, *Singapore Agency for Science Technology and Research (A\*STAR)*, *Israeli Ministry of Science and Technology*
- Member of the AEESP Internet Resources Committee. Vice-Chair (2005), Chair (2006), past-chair (2007).

#### University Service

- Coordinator of the Environmental and Water Resources Engineering Group within the Department of Civil and Environmental Engineering at Virginia Tech (2018-present)
- Director of the Virginia Tech Sustainable Nanotechnology Interdisciplinary Graduate Education Program (SuN IGEP; 2012-present)
- Director of the Virginia Tech ICTAS Sustainable Nanotechnology (VTSuN) Program (2014-present)
- Member of the Virginia Tech College of Engineering International Programs Faculty Committee (2015-2017)
- Member of the CEE Department Graduate Education Committee (2012-present)
- Member of the Virginia Tech Institute for Critical Technology and Applied Science (ICTAS) Advisory Board (2006-2009)
- Member of the CEE Department Faculty Awards Committee (2005-2007).
- Member of Environmental and Water Resources Engineering Graduate Admissions Committee (2002-2014).

#### Registrations

- Registered Iowa Engineer Intern # 12964

## PROFESSIONAL AFFILIATIONS

- American Association for the Advancement of Science (AAAS)
- American Chemical Society (Environmental Chemistry and Geochemistry Divisions)
- American Society for Engineering Education (ASEE)
- American Society for Microbiology (ASM)
- American Water Works Association (AWWA)
- Association of Environmental Engineering and Science Professors (AEESP)
- Water Environment Federation (WEF)

## EDITORIALS

1. Vikesland, P.J.; McNeill, K.; and Novak, P.J. (2019) “Best Papers from 2018 in the Environmental Science family of journals: great science with a global reach” *Environmental Science: Nano*, Vol. 6, pp. 1004-1005, (<http://dx.doi.org/10.1039/c9en90018g>).
2. Vikesland, P. (2019) “Environmental Science: Nano – Looking Back, Looking Forward”. *Environmental Science: Nano*, Vol. 6, pp. 12, (<http://dx.doi.org/10.1039/C9EN90001B>).
3. Vikesland, P. (2018). “Environmental Science: Nano – Looking Towards the Future”. *Environmental Science: Nano*, Vol. 5, pp. 9, (<http://dx.doi.org/10.1039/C7EN90052J>).
4. Vikesland, P.J. (2017) “Introduction – Environmental Engineering Science in the 21<sup>st</sup> Century” *Environmental Engineering Science*, Vol. 34, pp. 1-2 (<http://dx.doi.org/10.1089/ees.2016.0548>).
5. Vikesland, P.J. and Raskin, L. (2016) “Editorial: The Drinking Water Exposome” *Environmental Science: Water Research and Technology*, Vol. 2, 561-564. (<http://dx.doi.org/10.1039/C6EW90016J>).

## PUBLICATIONS

1. Arrango, G.; Dai, D.; Pruden, A.; Vikesland, P.; Heath, L.S.; and Zhang, L. (2019). “NanoARG: A Web Service for Contextualizing Antimicrobial Resistance Genes Identified from Nanopore-Derived Metagenomes” *Microbiome*, *In Press*.
2. Zhang, M.; Chen, S.; Yu, X.; Vikesland, P.; and Pruden, A. (2019) “Degradation of Extracellular Genomic, Plasmid DNA, and Specific Antibiotic Resistance Genes by Chlorination” *Frontiers in Environmental Science and Engineering*, Vol. 13, pp. 38-49. (<http://dx.doi.org/10.1007/s11783-019-1124-5>).
3. Zhang, T.; Lowry, G.V.; Cápiro, N.L.; Chen, J.; Chen, W.; Chen, Y.; Dionysiou, D.D.; Elliott, D.W.; Ghoshal, S.; Hofmann, T.; Hsu-Kim, H.; Hughes, J.B.; Jiang, C.; Jiang, G.; Jing, C.; Kavanaugh, M.; Li, Q.; Liu, S.; Pan, B.; Phenrat, T.; Qu, X.; Quan, X.; Saleh, N.B.; Vikesland, P.J.; Wang, Q.; Westerhoff, P.; Wong, M.S.; Xia, T.; Xing, B.; Yan, B.; Zhang, L.; Zhou, D.; and Alvarez, P.J.J. (2019) “In situ Remediation of Subsurface Contamination: Opportunities and Challenges for Nanotechnology and Advanced Materials” *Environmental Science: Nano*, Vol. 6, pp. 1283-1302. (<http://dx.doi.org/10.1039/C9EN00143C>). **Featured Cover Article.**

4. Wei, H.; Huang, Q.; and Vikesland, P.J. (2019). "The Aromatic Amine  $pK_a$  Determines the Affinity for Citrate-Coated Gold Nanoparticles: *In Situ* Observation via Hot Spot-Normalized Surface Enhanced Raman Spectroscopy." *Environmental Science & Technology Letters*, Vol. 6, pp. 199-204. (<http://dx.doi.org/10.1021/acs.estlett.9b00056>).
5. Hochella, M.F.; Mogk, D.W.; Ranville, J.; Allen, I.C.; Luther, G.W.; Marr, L.C.; McGrail, B.P.; Murayama, M.; Qafoku, N.P.; Rosso, K.M.; Sahai, N.; Schroeder, P.A.; Vikesland, P.J.; Westerhoff, P.; and Yang, Y. (2019) "Emerging Understanding of Natural, Incidental, and Engineered Nanomaterials and Their Impacts on the Earth System" *Science*, Vol. 363, Issue 6434, eaau8299 (<http://dx.doi.org/10.1126/science.aau8299>).
6. Abtahi, S.; Trevisan, R.; Di Giulio, R.; Murphy, C.J.; Saleh, N.B.; and Vikesland, P.J. (2019). "Implications of Aspect Ratio on the Uptake and Nanotoxicity of Gold Nanomaterials to *Corbicula fluminea*." *Nano: Impact*, Vol. 14, 100153 (<http://dx.doi.org/10.1016/j.impact.2019.100153>).
7. Vikesland, P.J.; Garner, E.; Gupta, S.; Kang, S.; Maile-Moskowitz, A.; and Zhu, N. (2019) "Differential Drivers of Antimicrobial Resistance Across the World" *Accounts of Chemical Research*, Vol. 52, pp. 916-924. (<https://doi.org/10.1021/acs.accounts.8b00643>).
8. Metch, J.W.; Wang, H.; Ma, Y.; Miller, J.H.; Vikesland, P.J.; Bott, C.; Higgins, M.; Murthy, S.; and Pruden, A. (2019) "Insights Gained into Activated Sludge Nitrification through Structural and Functional Profiling of Microbial Community Response to Starvation Stress" *Environmental Science: Water Research and Technology*, Vol. 5, pp. 884-896. (<https://doi.org/10.1039/C9EW00001A>).
9. Singh, R.R.; Angeles, L.F.; Butryn, D.M.; Metch, J.W.; Garner, E.; Vikesland, P.J.; and Aga, D.S. (2019) "Towards a Harmonized Method for the Global Reconnaissance of Multi-Class Antimicrobials and Other Pharmaceuticals in Wastewater and Receiving Surface Waters" *Environment International*, Vol. 124, pp. 361-369. (<https://doi.org/10.1016/j.envint.2019.01.025>).
10. Wei, H.; Leng, W.; Song, J.; Liu, C.; Willner, M.R.; Huang, Q.; Zhou, W.; and Vikesland, P.J. (2019) "Real-Time Monitoring of Ligand Exchange Kinetics on Gold Nanoparticle Surfaces Enabled by Hot Spot-Normalized Surface-Enhanced Raman Scattering" *Environmental Science and Technology*, Vol. 53, pp. 575-585 (<https://doi.org/10.1021/acs.est.8b03144>).
11. Willner, M.R. and Vikesland, P.J. (2018). "Nanomaterial Enabled Sensors for Environmental Contaminants" *Journal of Nanobiotechnology*, Vol. 16: 95 (<https://doi.org/10.1186/s12951-018-0419-1>).
12. Willner, M.R.; McMillan, K.S.; Cameron, R.; Graham, D.; Vikesland, P.J.; and Zagnoni, M. (2018). "Surface Enhanced Raman Spectroscopy (SERS) Based Microfluidics for Single-Cell Analysis" *Analytical Chemistry*, Vol. 90, pp. 12004-12010. (<https://doi.org/10.1021/acs.analchem.8b02636>).
13. Vikesland, P.J. (2018). "Nanosensors for Water Quality Monitoring" *Nature Nanotechnology*, Vol. 13, pp. 651-660. (<https://doi.org/10.1038/s41565-018-0209-9>).
14. Wei, H.; Vejerano, E.P.; Leng, W.; Huang, Q.; Willner, M.R.; Marr, L.C.; and Vikesland P.J. (2018). "Aerosol Microdroplets Exhibit a Stable pH Gradient" *Proceedings of the National Academy of Sciences*, Vol. 115, pp. 7272-7277. (<https://doi.org/10.1073/pnas.1720488115>)

15. Pruden, A.; Alcalde, R.E.; Alvarez, P.J.J.; Ashbolt, N.; Bischel, H.; Capiro, N.L.; Crossett, E.; Frigon, D.; Grimes, K.; Haas, C.N.; Ikuma, K.; Kappell, A.; LaPara, T.; Kimbell, L.; Li, M.; Xu, L.; McNamara, P.; Seo, Y.; Sobsey, M.D.; Sozzi, E.; Navab-Daneshmand, T.; Nguyen, T.; Raskin, L.; Riquelme, M.V.; Vikesland, P.J.; Wigginton, K.; and Zhi, Z. (2018) "An Environmental Science and Engineering Framework for Combating Antimicrobial Resistance". *Environmental Engineering Science*, Vol. 35, pp. 1005-1011. (<https://doi.org/10.1089/ees.2017.0520>)
16. Bahamonde, J.; Brenseke, B.; Chan, M.; Kent, R.; Vikesland, P.J.; and Prater, M. (2018) "Gold Nanoparticle Toxicity in Mice and Rats: Species Differences" *Toxicologic Pathology*, Vol. 46, pp. 431-443. (<https://doi.org/10.1177/0192623318770608>).
17. Liu, C.; Leng, W.; and Vikesland, P.J. (2018). "Controlled Evaluation of the Effects of Surface Coating on Silver Nanoparticle Dissolution Rates". *Environmental Science and Technology*, Vol. 55, pp. 2726-2734. (<http://dx.doi.org/10.1021/acs.est.7b05622>).
18. Wei, H.; Leng, W.; Song, J.; Willner, M.R.; Marr, L.C.; Zhou, W.; and Vikesland, P.J. (2018). "Improved Quantitative SERS Enabled by Surface Plasmon Enhanced Elastic Light Scattering" *Analytical Chemistry*, Vol. 90, pp. 3227-3237. (<http://dx.doi.org/10.1021/acs.analchem.7b04667>).
19. Metch, J.W.; Burrows, N.D.; Murphy, C.J.; Pruden, A.; and Vikesland, P.J. (2018) "Metagenomic Analysis of Microbial Communities Yields Insight into Impacts of Nanoparticle Design". *Nature Nanotechnology*, Vol. 13, pp. 253-259. (<http://dx.doi.org/10.1038/s41565-017-0029-3>).
20. Li, A-D; Metch, J.; Wang, Y.; Garner, E.; Zhang, A.N.; Riquelme, M.V.; Vikesland, P.J.; Pruden, A.; and Zhang, T. (2018) "Effects of Sample Preservation and DNA Extraction on Enumeration of Antibiotic Resistance Genes in Wastewater". *FEMS Microbiology Ecology*, Vol. 94, Issue 2, fix189. (<http://dx.doi.org/10.1093/femsec/fix189>).
21. Arango, G.; Garner, E.; Pruden, A.; Heath, L.S.; Vikesland, P.; and Zhang, L. (2018). "DeepARG: A Deep Learning Approach for Predicting Antibiotic Resistance Genes from Metagenomic Data". *Microbiome*. Vol. 6, 23 (<http://dx.doi.org/10.1186/s40168-018-0401-z>).
22. Chan, M.Y.; Leng, W.; and Vikesland, P.J. (2018) "Surface-Enhanced Raman Spectroscopy Characterization of Salt Induced Aggregation of Gold Nanoparticles". *ChemPhysChem*, Vol. 19, pp. 24-28. (<http://dx.doi.org/10.1002/cphc.201700798>). **Featured Cover Article.**
23. Vikesland, P.J.; Pruden, A.; Alvarez, P.J.J.; Aga, D.; Bürgmann, H.; Li, X.-D.; Manaia, C.; Nambi, I.; Wigginton, K.; Zhang, T.; and Zhu, Y.-G. (2017). "Toward a Comprehensive Strategy to Mitigate Dissemination of Environmental Sources of Antibiotic Resistance". *Environmental Science and Technology*, Vol. 51, pp. 13061-13069 (<http://dx.doi.org/10.1021/acs.est.7b03623>). **Featured Cover Article. Selected as First Runner Up Best Feature Article of 2017.**
24. Riquelme, M.V.; Leng, W.; Carzolio; Pruden, A.; and Vikesland, P.J. (2017) "Stable Oligonucleotide-Functionalized Gold Nanosensors for Environmental Biocontaminant Monitoring". *Journal of Environmental Sciences*, Vol. 62, pp. 49-59. (<http://dx.doi.org/10.1016/j.jes.2017.08.005>).



25. Wei, H.; McCarthy, A.; Song, J.; Zhou, W.; and Vikesland, P.J. (2017) "Quantitative SERS by Hot Spot Normalization – Surface Enhanced Rayleigh Band Intensity as an Alternative Evaluation Parameter for SERS Substrate Performance" *Faraday Discussions*, Vol. 205, pp. 491-504.. (<http://dx.doi.org/10.1039/C7FD00125H>).
26. Li, Y.; Geng, X.; Leng, W.; Vikesland, P.J.; and Grove, T.Z. (2017) "Gold Nanospheres and Gold Nanostars Immobilized onto Thiolated Eggshell Membranes as Highly Robust and Recyclable Catalysts" *New Journal of Chemistry*, Vol. 41, 17, pp. 9406-9413. (<http://dx.doi.org/10.1039/C7NJ01908D>).
27. Dai, D.; Prussin, A.J.; Marr, L.C.; Vikesland, P.J.; Edwards, M.E.; and Pruden, A.J. (2017) "Factors Shaping the Human Exposome in the Built Environment: Opportunities for Engineering Control." *Environmental Science and Technology*, Vol. 51, pp. 7759-7774 (<http://dx.doi.org/10.1021/acs.est.7b01097>).
28. Abtahi, S.M.H.; Burrows, N.D.; Idesis, F.A.; Murphy, C.J.; Saleh, N.B.; and Vikesland, P.J. (2017) "Sulfate Mediated End-to-End Assembly of Gold Nanorods". *Langmuir*, Vol. 33, pp. 1486-1495 (<http://dx.doi.org/10.1021/acs.langmuir.6b04114>).
29. Pati, P.; McGinnis, S.; and Vikesland, P. (2016) "Waste Not Want Not: Life Cycle Implications of Gold Recovery and Recycling from Nanowaste." *Environmental Science: Nano*, Vol. 3, pp. 1133-1143. (<http://dx.doi.org/10.1039/c6en00181e>).
30. Singh, G.; Chandoha-Lee, C.; Zhang, W.; Vikesland, P.J.; Renneckar, S.; and Pruden, A. (2016) "Biodegradation of Nanocrystalline Cellulose by Environmentally-Relevant Anaerobic Cellulose-Degrading Consortia." *Water Research*, Vol. 104, pp. 137-146. (<http://dx.doi.org/10.1016/j.watres.2016.07.073>).
31. Kent, R.D. and Vikesland, P.J. (2016) "Dissolution and Persistence of Copper-Based Nanomaterials in Undersaturated Solutions with Respect to Cupric Solid Phases" *Environmental Science and Technology*, Vol. 50, 6772-6781. (<http://dx.doi.org/10.1021/acs.est.5b04719>).
32. Geng, X.; Leng, W.; Carter, N.A.; Vikesland, P.J.; and Grove, T.Z. (2016) "Protein-aided Formation of Triangular Silver Nanoprisms with Enhanced SERS Performance" *Journal of Materials Chemistry B*, Vol. 4, 4182-4190. (<http://dx.doi.org/10.1039/C6TB00844E>).
33. Riquelme, M.V.; Zhao, H.; Srinivasaraghavan, V.; Pruden, A.; Vikesland, P.J.; and Agah, M. (2016) "Optimizing Blocking of Nonspecific Bacterial Attachment to Impedimetric Biosensors" *Sensing and Bio-Sensing Research*, Vol. 8, 47-54. (<http://dx.doi.org/10.1016/j.sbsr.2016.04.003>).
34. Wei, H.; Willner, M.; Marr, L.; and Vikesland, P.J. (2016) "Highly Stable SERS pH Nanoprobes Produced by Co-Solvent Controlled AuNP Aggregation" *Analyst*, Vol. 141, 5159-5169. (<http://dx.doi.org/10.1039/C6AN00650G>).
35. Vikesland, P.J.; Rebodos, R.L.; Bottero, J.Y.; Rose, J.; and Masion, A. (2016) "Aggregation and Sedimentation of Magnetite Nanoparticle Clusters" *Environmental Science: Nano*, Vol. 3, 567-577 (<http://dx.doi.org/10.1039/C5EN00155B>).
36. Saverot, S.; Geng, X.; Leng, W.; Vikesland, P.J.; Grove, T.Z.; and Bickford, L.R. (2016) "Facile, Tunable, and SERS-Enhanced HEPES Gold Nanostars." *RSC Advances*, Vol. 6, 29669-29673 (<http://dx.doi.org/10.1039/C6RA00450D>).

37. Afrooz, A.R.M.; Das, D.; Murphy, C.M.; Vikesland, P.J.; and Saleh, N. (2016) "Co-transport of Gold Nanospheres with Single-walled Carbon Nanotubes in Saturated Porous Media." *Water Research*, Vol. 99, 7-15. (<http://dx.doi.org/10.1016/j.watres.2016.04.006>).
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39. Wei, H. and Vikesland, P.J. (2015) "pH-Triggered Molecular Alignment for Reproducible SERS Detection via an AuNP/Nanocellulose Platform." *Scientific Reports*, Vol. 5, Article number: 18131, (<http://dx.doi.org/10.1038/srep18131>).
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## ARTICLES SUBMITTED OR IN PREPARATION

107. Arrango, G.; Guron, G.; Garner, E.; Riquelme, M.; Heath, L.; Pruden, A.; Vikesland, P.; and Zhang, L. (201x). “ARG-miner: A Web Platform for Crowdsourcing-Based Curation of Antibiotic Resistance Genes” *Submitted*.
108. Chan, M.; Leng, W.; and Vikesland, P.J. (201x). “Investigating Mono- and Divalent Cation Induced Aggregation of Gold Nanoparticles in Aqueous Environments via Surface-Enhanced Raman Spectroscopy” *In Preparation*.

**PRESENTATIONS – Invited University or Institute Seminars**

1. Vikesland, P.J. 2019 “Adventures in Environmental Plasmonics – The Application of Surface Enhanced Raman Spectroscopy (SERS) for Environmental Analyte Detection” Duke University Fitzpatrick Institute for Photonics, February 27.
2. Vikesland, P.J. 2018 “All That Glitters is Not Gold – Applications of Nanotechnology for Environmental Sampling”, University of Rhode Island, Department of Chemical Engineering Seminar Series, November 8.
3. Vikesland, P.J. 2018 “All That Glitters is Not Gold – Applications of Nanotechnology for Environmental Sampling” South China University of Technology School of Environment and Energy, May 23.
4. Vikesland, P.J. 2017 “All That Glitters is Not Gold’ – Environmental Applications of Gold Enabled Plasmonics” University of Vienna Department of Environmental Geosciences, December 11.
5. Vikesland, P.J. 2017 “Environmental Sensing and The Exposome” Swiss Federal Institute of Aquatic Science and Technology-EAWAG Seminar, September 22.
6. Vikesland, P.J. 2017 “All That is Gold Does Not Glitter’ – Environmental Applications of Gold Enabled Plasmonics” Baylor University Environmental Science Department Seminar, March 22.
7. Vikesland, P.J. 2016 “Applications of Nanotechnology for Environmental Sensing” Hong Kong University, Hong Kong, China, November 28.
8. Vikesland, P.J. 2016 “All That is Gold Does Not Glitter’ – Environmental Applications of Gold Enabled Plasmonics” University of Pittsburgh Department of Civil and Environmental Engineering, Pittsburgh, PA September 9.
9. Vikesland, P. 2016 “Nanoparticle Enabled Contaminant Sensing: Environmental Plasmonics” École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland March 1.
10. Vikesland, P.J. 2015. “Nanoparticle Enabled Contaminant Sensing: Environmental Applications of Gold Enabled Plasmonics” University of California–Riverside Department of Chemical and Environmental Engineering Seminar, February 18, Riverside, CA.
11. Vikesland, P.J. 2014. “Effects of Aggregation on Nanoparticle Fate and Reactivity – The Importance of Fractal Dimension” China University of Geosciences, September 18, Beijing, China.
12. Vikesland, P.J. 2014. “Effects of Aggregation on Nanoparticle Fate and Reactivity – The Importance of Fractal Dimension” China Institute of Hydrogeology and Environmental Geology, September 17, Shijiazhuang, China.
13. Vikesland, P.J. 2014. “Nanoparticle Enabled Contaminant Sensing: Environmental Applications of Gold Enabled Plasmonics” China University of Geosciences, September 15, Beijing, China.
14. Vikesland, P.J. 2014. “Nanoparticle Enabled Contaminant Sensing: Environmental Applications of Gold Enabled Plasmonics”, Carnegie Mellon University, July 14, Pittsburgh, PA.



15. Vikesland, P.J. 2014. "All That Is Gold Does Not Glitter: Environmental Applications of Gold Enabled Plasmonics" University of Glasgow, June 3, Glasgow, Scotland.
16. Vikesland, P.J. 2014. "All That Is Gold Does Not Glitter: Environmental Applications of Gold Enabled Plasmonics" Strathclyde University, June 2, Glasgow, Scotland.
17. Vikesland, P.J. 2014. "All That Is Gold Does Not Glitter: Environmental Applications of Gold Enabled Plasmonics" School of Sustainable Engineering and the Built Environment, Arizona State University, February 25, 2014.
18. Vikesland, P.J. 2013. "Applications of Surface Enhanced Raman Spectroscopy for Environmental Sensing", Osaka University, Osaka, Japan, December 12.
19. Vikesland, P.J. 2013. "Applications of Surface Enhanced Raman Spectroscopy for Environmental Sensing", Japan National Institute for Materials Science, Tsukuba, Japan, December 9.
20. Vikesland, P.J. 2013. "Applications of Surface Enhanced Raman Spectroscopy in Environmental Sensing", Harvard University Environmental Science and Engineering Seminar Series, November 15.
21. Vikesland, P.J. 2012. The Richard L. Valentine Distinguished Lecture in Civil and Environmental Engineering, "Nanoparticle Based Sensors for Environmental Contaminants" University of Iowa, Department of Civil and Environmental Engineering, October 5, Iowa City, IA.
22. Vikesland, P.J. 2012. "Nanomaterials: Environmental Scourge or Environmental Savior?" Stanford University Seminar Series on Issues in Environmental Science, Engineering, and Sustainability, July 16, Palo Alto, CA.
23. Vikesland, P.J. 2012. "Nanoparticle Based Sensors for Environmental Contaminants" Stanford University, Department of Civil and Environmental Engineering, May 18, Palo Alto, CA.
24. Vikesland, P.J. 2011. "Gold Nanoparticles: Environmental Scourge or Environmental Savior?", Center for the Environmental Implications of Nanotechnology (CEINT), Duke University, October 27.
25. Vikesland, P.J. 2011. "Gold Nanoparticles: Environmental Savior or Environmental Scourge?", Swiss Federal Institute of Technology (ETH), May 13.
26. Vikesland, P.J. 2011. "Effects of Fractal Dimension on Nanoparticle Aggregation and Sedimentation", University of Michigan, Department of Civil and Environmental Engineering, April 13.
27. Vikesland, P.J. 2008. "Effects of Solution Chemistry on C<sub>60</sub> Aggregate Formation and Transport" EAWAG, Dübendorf, Switzerland, March 11.
28. Vikesland, P.J. 2007. "The Effects of Particle Aggregation on the Fate and Reactivity of Carbonaceous and Iron Oxide Nanomaterials" Civil and Environmental Engineering, Rice University, Houston, TX, November 2.

29. Vikesland, P.J. 2007. “The Effects of Particle Aggregation on the Fate and Reactivity of Carbonaceous and Iron Oxide Nanomaterials”, Nanoscience and Nanotechnology Institute, The University of Iowa, Iowa City, IA, October 12.
30. Vikesland, P.J. 2006. “Environmental Impacts of Nanotechnology”, Johns Hopkins Department of Geography and Environmental Engineering Seminar Series, April 11.
31. Vikesland, P.J. 2006. “Triclosan Reactivity with Drinking Water Disinfectants”, University of Illinois Urbana-Champaign WaterCAMPWS Seminar Series, February 3.

## **PRESENTATIONS – Invited Conference Presentations and Keynotes**

1. Vikesland, P.J. 2019 “Nanotechnology Enabled Water Sensing – Have You Heard the NEWS?” Nano-Enabled Water Technologies: Opportunities and Challenges Conference, King Abdullah University of Science and Technology (KAUST), January 28-30, 2019. **(Invited Speaker)**.
2. Vikesland, P.J. 2018. “Environmental Nanotechnology - Implications and Applications of Nanotechnology on Environmental Systems”, Continuing and Professional Education Water Quality Workshops for Water Utility Owners, Managers, and Operators, November 14 **(Invited Lecture)**.
3. Vikesland, P.J. 2018. “Nanotechnology Enabled Water Quality Sensing” International Water Association Leading Edge Technology Conference, Nanjing, China May 27-May 31 **(Keynote Presentation)**.
4. Vikesland, P.J. 2018. “Surface-Enhanced Raman Spectroscopy Evaluation and Visualization of AuNP Transport and Aggregation, 4<sup>th</sup> International Conference on Environmental Pollution and Health, Nankai University, Tianjin, China May 18-20 **(Keynote Presentation)**.
5. Vikesland, P.J. 2018. “Nanocellulose Based Nanocomposites for Environmental Sensing” American Chemical Society National Meeting, New Orleans, LA March 18-22 (Abstract and **Invited Oral Presentation**).
6. Vikesland, P.J. and Wei, H. 2017. “Quantitative SERS Enabled by ‘Hot Spot’ Normalization’ Surface Enhanced Raman Scattering – SERS Faraday Discussion, Glasgow, Scotland, August 30 – September 1 (Abstract, Peer-reviewed paper, **Invited Presentation**).
7. Vikesland, P.J. 2016. “Applications of Nanotechnology for Environmental Sensing” Beijing Symposium 2016 on Environmental Processes and Risks of Chemical Contaminants, Xiamen, China, November 30-December 2 (Abstract and **Invited Oral Presentation**).
8. Vikesland, P.J., Wei, H., Willner, M., and Marr, L. 2016. “Applications of SERS pH Nanoprobes Produced by Co-Solvent Controlled AuNP Aggregation” SCLx 2016 Conference, Minneapolis, MN September 19-22 **(Invited Oral Presentation)**.
9. Vikesland, P.J. 2014. “Nanosensors for Environmental Quality Assessment” Sustainable Nanotechnology Organization 2014 Conference, November 2-4, Boston, MA (Abstract and **Invited Oral Presentation**).

10. Vikesland, P.J. 2014. "Overview of Sustainable Nanotechnology Education" Sustainable Nanotechnology Organization 2014 Conference, November 2-4, Boston, MA (Abstract and **Invited Oral Presentation**).
11. Vikesland, P.J. 2014. "Occam's Razor: Our Continuing Adventures in Chlorination and Chloramination", American Chemical Society Fall Meeting, August 10-14, San Francisco, CA (Abstract and **Invited Oral Presentation**).
12. Vikesland, P.J. 2014. "Nanoparticle Enabled Contaminant Sensing: Environmental Applications of Gold Enabled Plasmonics", Environmental Sciences: Water Gordon Conference, June 22-27, Holderness, NH (**Invited Oral Presentation**).
13. Vikesland, P.J. 2014. "Virginia Tech's Unique Interdisciplinary Graduate Education Program: A Response to the Pressing Need for Interdisciplinary Research and Education" Interdisciplinary Research Honor Society Annual Meeting, Virginia Tech, February 27, (**Invited Keynote Presentation**).
14. Vikesland, P.J. 2013. "Challenges and Opportunities for the Nanotechnology Community", NSF Nanoscale Science and Engineering Grantees Meeting, Arlington, VA, December 4, (**Invited Keynote Presentation**).
15. Vikesland, P.J.; Leng, W.; Riquelme, M.V.; Pruden, A. 2013. "Aptamer-enabled SERS Detection of *Staphylococcus aureus*", SCLx Annual Conference, Milwaukee, WI, October 2, (**Invited Oral Presentation**).
16. Vikesland, P.J. 2013. "Fate of Nanomaterials in the Natural Environment", IMETE Summer School, September 11, Gent, Belgium. (**Invited Lecture**).
17. Vikesland, P.J. 2013. "Nanoparticle Based Sensors for Water Quality Testing", IMETE Summer School, September 11, Gent, Belgium. (**Invited Lecture**).
18. Vikesland, P.J., Pruden, A., McGinniss, S., Pati, P., and Singh, G. 2013. "Sustainable Nanotechnology in the Classroom and in the Laboratory", Association of Environmental Engineering and Science Professors (AEESP) 50<sup>th</sup> Anniversary Conference, July 14-16, Golden, CO. (**Invited Oral Presentation**).
19. Vikesland, P.J. 2013. "Nanomaterial Enabled Detection of Environmental Contaminants" ASME 2013 2<sup>nd</sup> Global Congress on Nanoengineering for Medicine and Biology, February 4-6, Boston, MA (**Invited Keynote Presentation**).
20. Vikesland, P.J. 2012. "Nanotechnology will Revolutionize Water supply Sustainability", Inaugural TEDxVirginia Tech Conference, November 9, Blacksburg, VA (**Invited Oral Presentation**).
21. Vikesland, P.J. and Chang, X. 2012. "Probing the  $nC_{60}$  Solid-Solution Interface Using UV-Vis Spectroscopy", American Chemical Society Spring Meeting, March 25-29, San Diego, CA (Abstract and **Invited Oral Presentation**).
22. Hull, M., Chaurand, P., Rose, R., Auffan, M., Bottero, J.Y., Jones, J., Schultz, I., and Vikesland P. 2011. "Filter-Feeding Bivalves Store and Biodeposit Colloidally Stable Gold Nanoparticles" American Chemical Society Fall Meeting, August 28-September 1, (**Invited Oral Presentation**).

23. Vikesland, P.J. 2011. "Surface Enhanced Raman Spectroscopy (SERS) Based Detection of Waterborne Pathogens", IWA Specialist Conference – Applications of Nanotechnology in the Water Sector, Monte Verita, Ascona, Switzerland, May 15-May 18 (**Invited Oral Presentation**).
24. Vikesland, P.J., Rebodos, R.L., and Masion, A. "Effects of Fractal Dimension on Nanoparticle Aggregation and Sedimentation" 2011. American Chemical Society Spring Meeting, March 27-31, Anaheim, CA (Abstract and **Invited Oral Presentation**).
25. Hull, M.S.; Chaurand, P.; Rose, J.; Jones, K.; Gloe, K. and Vikesland, P.J. 2010. "Uptake and Biotransformation of Gold Nanoparticles by a Freshwater Bivalve", Goldschmidt 2010, Knoxville, TN, June 14-18 (Abstract and **Invited Oral Presentation**).
26. Vikesland, P.J. and Rebodos, R.L. 2010. "Effects of Oxidation on Nanomagnetite Magnetization, Aggregation, and Sedimentation", Goldschmidt 2010, Knoxville, TN, June 14-18 (Abstract and **Invited Oral Presentation**).
27. Vikesland, P.J. 2009. "Effects of Oxidation on Magnetite Aggregation and Sedimentation", French & American Young Engineering Scientists Symposium, Saclay, France, November 16-18 (**Invited Oral Presentation**).
28. Vikesland, P.J. 2009. "Effects of Oxidation on Magnetite Aggregation and Sedimentation" Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement (CEREGE), Aix-en-Provence, France, October 20 (**Invited Oral Presentation**).
29. Vikesland, P.J. 2009. "Nanotechnology Enabled Pathogen Detection in Drinking Water", Association of Environmental Engineering and Science Professors Biannual Meeting, Iowa City, IA, July 27-28 (**Invited Oral Presentation**).

## **PRESENTATIONS – Conference and/or Workshop**

1. Garner, E.; Aga, D.S.; Nambi, I.; Larsson, J.; Bürgmann, H.; Zhang, T.; Pruden, A.; and Vikesland, P.J. 2018. "Global Survey of the Antibiotic 'Resistome' in Raw Sewage Versus Treated Wastewater Treatment Plant Effluent" Halting Antimicrobial Resistance Dissemination in Aquatic Environments (HEARD2018), Monte Verità, Ascona, Switzerland, September 16-19 (Abstract and Oral Presentation).
2. Maile-Moskowitz, A.; Riquelme, M.V.; Garner, E.; Aga, D.S.; Nambi, I.; Larsson, J.; Bürgmann, H.; Zhang, T.; Pruden, A.; and Vikesland, P.J. 2018. "International Comparison of Antibiotic Resistance Genes from Wastewater Treatment Plant Final Effluent and Their Receiving Environment" Halting Antimicrobial Resistance Dissemination in Aquatic Environments (HEARD2018), Monte Verità, Ascona, Switzerland, September 16-19 (Abstract and Poster Presentation).
3. Keenum, I.; Garner, E.; Aga, D.S.; Nambi, I.; Larsson, J.; Bürgmann, H.; Zhang, T.; Vikesland, P.J. , and Pruden, A. 2018. "Comparing Antibiotic Resistance Genes Abundance from an International Survey of Wastewater Treatment Plant Biosolids" Halting Antimicrobial Resistance Dissemination in Aquatic Environments (HEARD2018), Monte Verità, Ascona, Switzerland, September 16-19 (Abstract and Poster Presentation).

4. Chan, M.Y.; Leng, W.; and Vikesland, P.J. 2018. "Investigating Mono- and Divalent Cation Induced Aggregation of Gold Nanoparticles in Aqueous Environments via Surface-Enhanced Raman Spectroscopy" 13<sup>th</sup> International Conference on the Environmental Effects of Nanoparticles and Nanomaterials (ICEENN), Duke University, Durham, NC September 5-8. (Abstract and Oral Presentation).
5. Chan, M.Y.; Leng, W.; and Vikesland, P.J. 2018. "Investigating Mono- and Divalent Cation Induced Aggregation of Gold Nanoparticles in Aqueous Environments via Surface-Enhanced Raman Spectroscopy" 13<sup>th</sup> International Conference on the Environmental Effects of Nanoparticles and Nanomaterials (ICEENN), Duke University, Durham, NC September 5-8. (Abstract and Oral Presentation).
6. Wei, H.; Marr, L.; and Vikesland, P.J. 2018. "Measurement of the pH of Individual Aerosol Droplets by Surface-Enhanced Raman Spectroscopy" 10<sup>th</sup> International Aerosol Conference, St. Louis, MO September 2-7 (Abstract and Oral Presentation).
7. Wei, H.; Marr, L.; and Vikesland, P.J. 2018. "*In situ* Detection of Droplet pH Using Surface-Enhanced Raman Spectroscopy" Goldschmidt Conference, Boston, MA August 12-17. (Abstract and Oral Presentation).
8. Dou, J.; Krieger, U.K.; and Vikesland, P.J. 2018. "SERS pH Nanoprobes in Single, Levitated Aerosols Particles" Goldschmidt Conference, Boston, MA August 12-17. (Abstract and Oral Presentation).
9. Chan, M.Y.; Leng, W.; and Vikesland, P.J. 2018. "Investigating Mono- and Divalent Cation Induced Aggregation of Gold Nanoparticles in Aqueous Environments via Surface-Enhanced Raman Spectroscopy" Goldschmidt Conference, Boston, MA August 12-17. (Abstract and Oral Presentation).
10. Vikesland, P.J. 2018 "The Wastewater Antibiotic Resistome: A Global Survey" International Water Association Leading Edge Technology Conference, Nanjing, China May 27-May 31. (Abstract and Oral Presentation).
11. Riquelme, M.V., Metch, J., Garner, E., Maile-Moskowitz, A., Angeles, L., Aga, D., Nambi, I., Larsson, J., Bürgmann, H, Zhang, T., Vikesland, P.J., Pruden, A. 2018 "International Comparison of the Antibiotic "Resistome" of Raw Sewage" American Chemical Society National Meeting, New Orleans, LA March 18-22 (Abstract and Oral Presentation).
12. Chan, M.Y., Hochella, M.F., and Vikesland, P.J. 2017 "Sustainable Nanotechnology as a Platform for Interdisciplinary and Holistic Graduate Education" Sustainable Nanotechnology Conference, Marina del Rey, CA November 5-7 (Abstract and Oral Presentation).
13. Chan, M.Y., Leng, W., and Vikesland, P.J. 2017 "Visualization, Characterization, and Analysis of Gold Nanoparticle Fate and Transport in Aqueous Porous Media with Surface Enhanced Raman Spectroscopy" Sustainable Nanotechnology Conference, Marina del Rey, CA November 5-7 (Abstract and Oral Presentation).
14. Huang, Q., Wei, H., and Vikesland, P.J. 2017 "Air-water Interface Enrichment and Vertical Distribution of Surface-enhanced Raman scattering (SERS) Active Gold/Silver Nanoprobes Sustainable Nanotechnology Conference, Marina del Rey, CA November 5-7 (Abstract and Oral Presentation).

15. Abtahi, H. and Vikesland, P.J. 2017 “Fate and Organismal Uptake of Elongated Gold Nanoparticles in Aquatic Environments” Sustainable Nanotechnology Conference, Marina del Rey, CA November 5-7 (Abstract and Oral Presentation).
16. Wei, H., Marr, L., and Vikesland, P., 2017 “Measurement of the pH of Individual Aerosol Droplets by Surface-Enhanced Raman Spectroscopy” American Association for Aerosol Research Annual Conference, Raleigh, NC October 16-20 (Abstract and Oral Presentation).
17. Willner, M.R., McMillan, K., Cameron, R., Graham, D., Vikesland, P.J., and Zagnoni, M. 2017 “Surface-Enhanced Raman Spectroscopy (SERS) Optofluidics for Whole Cell Analysis” SCIX2017, Reno, NV October 8-13 (Abstract and Oral Presentation).
18. Wei, H., Leng, W., Song, J., Willner, M., Marr, L., Zhou, W. and Vikesland, P.J. 2017 “Quantitative SERS by “Hot Spot” Normalization” SCIX2017, Reno, NV October 8-13 (Abstract and Oral Presentation).
19. Willner, M.R., McMillan, K., Graham, D., Vikesland, P.J., and Zagnoni, M. 2017 “Optofluidic Surface-Enhanced Raman Spectroscopy (SERS) Interrogation: Proof of Concept via Lectin Detection of Cancerous Cells” Surface Enhanced Raman Scattering – SERS Faraday Discussion, Glasgow, Scotland, August 30 – September 1 (Abstract and Poster Presentation).
20. Vikesland, P.J., Pruden, A., Riquelme, M., Metch, J., Garner, E., Zhu, J., Argoty, G. Aga, D., Butryn, D., Singh, R., Zhang, T., Nambi, I., Bürgmann, H., and Larsson, G.K. 2017 “Global Examination of Antibiotics and Antibiotic Resistance in Wastewater Treatment Plants” 4<sup>th</sup> International Symposium on the Environmental Dimension of Antibiotic Resistance (EDAR), Lansing, MI August 13-17 (Abstract and Oral Presentation).
21. Arango, G., Garner, E., Pruden, A., Vikesland, P., Heath, L.S., and Zhang, L. 2017 “DeepARG: A Deep Learning-Based Approach for Predicting Antibiotic Resistance in Metagenomes” 4<sup>th</sup> International Symposium on the Environmental Dimension of Antibiotic Resistance (EDAR), Lansing, MI August 13-17 (Abstract and Poster Presentation).
22. Gnegy, M., Pruden, A., Vikesland, P., and Wigginton, K. 2017 “Phage-Mediated Dissemination of Antibiotic Resistance Genes in Wastewater Treatment Processes” 4<sup>th</sup> International Symposium on the Environmental Dimension of Antibiotic Resistance (EDAR), Lansing, MI August 13-17 (Abstract and Poster Presentation).
23. Angeles, L.G., Singh, R., Argoty, G., Willner, M., Garner, E., Metch, J., Chan, M., Blair, M., Riquelme, M., Pruden, A., Vikesland, P., and Aga, D. 2017 “Analysis of Multiple Classes of Antimicrobials in Wastewater and Surface Water from Samples Around the Globe” 4<sup>th</sup> International Symposium on the Environmental Dimension of Antibiotic Resistance (EDAR), Lansing, MI August 13-17 (Abstract and Poster Presentation).
24. Riquelme, M.R., Metch, J., Singh, G., Srinivasan, R., Nambi, I., Pruden, A., and Vikesland P. 2017 “Antibiotic Resistance Gene Occurrence in Two Indian Wastewater Treatment Plants and Their Receiving Environments” 4<sup>th</sup> International Symposium on the Environmental Dimension of Antibiotic Resistance (EDAR), Lansing, MI August 13-17 (Abstract and Poster Presentation).

25. Chan, M., Leng, W., and Vikesland, P.J. 2017 “Visualization, Characterization, and Analysis of Gold Nanoparticle Fate and Transport in Aqueous Porous Media Environment with Advanced Photonics Technique” 2017 AEESP Research and Education Conference, The University of Michigan, Ann Arbor, MI June 21-22 (Abstract and Oral Presentation).
26. Riquelme, M.V., Metch, J., Garner, E., Vikesland, P., and Pruden, A. 2017 “Global Survey of Antibiotic Resistance Genes in Wastewater Treatment Plants” 2017 AEESP Research and Education Conference, The University of Michigan, Ann Arbor, MI June 21-22 (Abstract and Oral Presentation).
27. Wei, H., Vejerano, E., Leng, W., Marr, L., and Vikesland, P. 2017 “In Situ Detection of pH of Individual Aerosol Droplets by Surface-Enhanced Raman Spectroscopy” 2017 AEESP Research and Education Conference, The University of Michigan, Ann Arbor, MI June 21-22 (Abstract and Oral Presentation).
28. Metch, J.W., Ma, Y., Yang, Y., Burrows, N.D., Murphy, C.J., Zhang, T., Vikesland, P.J.; and Pruden, A. “Metagenomics Reveals Nanoparticle Impact on Resistomes of Activated Sludge” 2017 AEESP Research and Education Conference, The University of Michigan, Ann Arbor, MI June 21-22 (Abstract and Poster Presentation).
29. Dai, D., Metch, J.W., Riquelme, V., Garner, E., Blair, M., Pruden, A., and Vikesland, P.J. “Metagenomics Reveals Nanoparticle Impact on Resistomes of Activated Sludge” 2017 AEESP Research and Education Conference, The University of Michigan, Ann Arbor, MI June 21-22 (Abstract and Poster Presentation).
30. Willner, M., McMillan, K., Zagnoni, M., Graham, D., and Vikesland, P.J. 2017 “Optofluidic Surface-Enhanced Raman Spectroscopy (SERS) Interrogation for Targeted Detection of Individual Cells” 2017 AEESP Research and Education Conference, The University of Michigan, Ann Arbor, MI June 21-22 (Abstract and Poster Presentation).
31. Liu, C.; Leng, W.; and Vikesland, P.J. 2017 “Controlled Evaluation of the Impacts of Surface Coatings on Silver Nanoparticle Dissolution” 2017 AEESP Research and Education Conference, The University of Michigan, Ann Arbor, MI June 21-22 (Abstract and Poster Presentation).
32. Chan, M., Leng, W., and Vikesland, P.J. 2017 “Low Frequency Vibrational Mode Surface Enhanced Raman Spectroscopy Characterization of Gold Interactions with Aqueous Halides” American Chemical Society National Meeting, San Francisco, CA April 2-6 (Abstract and Oral Presentation).
33. Willner, M., McMillan, K., Zagnoni, M., Graham, D., and Vikesland, P.J. 2017 “High Throughput Optofluidic Surface-Enhanced Raman Spectroscopy (SERS) Interrogation: Proof of Concept via Lectin Detection of Cancerous Cells” American Chemical Society National Meeting, San Francisco, CA April 2-6 (Abstract and Oral Presentation).
34. Vikesland, P.J., Wei, H., Leng, W., Breazeal, V.R., and Willner, M. 2017 “Environmental Applications of Nanoparticle-Enabled Sensing” American Chemical Society National Meeting, San Francisco, CA April 2-6 (Abstract and Oral Presentation).
35. Wei, H., Willner, M. Marr, L.C., and Vikesland, P.J. 2017 “Highly Stable SERS Nanoprobes for pH Detection in Confined Water Environment” American Chemical Society National Meeting, San Francisco, CA April 2-6 (Abstract and Oral Presentation).

36. Willner, M., Graham, D., Zagnoni, M., and Vikesland, P.J. 2017 "Optofluidic Surface-Enhanced Raman Spectroscopy (SERS) Interrogation for Targeted Detection of Individual Cells" American Chemical Society National Meeting, San Francisco, CA April 2-6 (Abstract and Oral Presentation).
37. Liu, C., Leng, W., and Vikesland, P.J. 2017 "Controlled Evaluation of Surface Coating Effects on Silver Nanoparticle Dissolution" American Chemical Society National Meeting, San Francisco, CA April 2-6 (Abstract and Oral Presentation).
38. Chan, M., Leng, W., Walker, S.L., and Vikesland, P.J. 2017 "Three-Dimensional Surface Enhanced Raman Spectroscopy Evaluation and Visualization of Gold Nanoparticle Transport in a Silicon-Based Micromodel" American Chemical Society National Meeting, San Francisco, CA April 2-6 (Abstract and Oral Presentation).
39. Vikesland, P.J. 2017 "Controlled Evaluation of Nanomaterial Transformations" EMPA-NanoImpact Conference, Monte Verità, Switzerland, March 12-17, 2017 (Oral Presentation).
40. Wei, H. and Vikesland, P.J. 2016 "Quantitative Investigation of pK<sub>a</sub>-SERS Relationship by 'Hot-Spot' Normalization" Sustainable Nanotechnology Organization Annual Conference, Orlando, FL November 10-12 (Oral Presentation).
41. Wei, H., Leng, W. and Vikesland, P.J. 2016 "Quantitative Investigation of pK<sub>a</sub>-SERS Relationship by 'Hot-Spot' Normalization" SClx 2016 Conference, Minneapolis, MN September 19-22 (Abstract and Oral Presentation).
42. Metch, J.W., Vikesland, P.J., Burrows, N.D., Murphy, C.J., and Pruden, A. 2016 "Activated Sludge Microbial Community Response to Variations to Gold Nanoparticles Morphology and Surface Coating" American Chemical Society National Meeting, Philadelphia, PA August 21-25 (Abstract and Oral Presentation).
43. Vikesland, P.J. and Wei, H. 2016 "Chemical Structure Impacts on SERS Detection of Environmental Pollutants" American Chemical Society National Meeting, Philadelphia, PA August 21-25 (Abstract and Oral Presentation).
44. Vikesland, P.J., Wei, H., Marr, L., Pruden, A., Riquelme, M.V., and Willner, M.R. 2016 "Nanosensors for Water Quality Monitoring: pH and Antibiotic Resistance Gene Detection" Environmental Sciences: Water Gordon Conference, Holderness, NH, June 26-30 (Abstract and Poster Presentation).
45. Chan, M., Leng, W., Walker, S.L., Borschneck, D., Rose, J., and Vikesland, P.J. 2016 "Three-Dimensional Evaluation and Visualization of AuNP Transport in Silicon-Based Micromodel with SERS and  $\mu$ -CT" American Chemical Society National Meeting, San Diego, CA March 13-17 (Abstract and Oral Presentation).
46. Leng, W., Gruszewski, H., Schmale, D., and Vikesland, P.J. 2016 "Colorimetric Nanoprobes for Mycotoxin Deoxynivalenol Detection" American Chemical Society National Meeting, San Diego, CA March 13-17 (Abstract and Oral Presentation).
47. Wei, H. and Vikesland, P.J. 2016 "Extending SERS Application to Lower pH: A Stable Platform for Environmental Pollutant Detection" American Chemical Society National Meeting, San Diego, CA March 13-17 (Abstract and Oral Presentation).



48. Pati, P., and Vikesland P.J. 2015. "Nanomaterial Recovery from Wastestreams" Sustainable Nanotechnology Organization Conference, Portland, Oregon, November 8-10 (Abstract and Oral Presentation).
49. Singh, G., Riquelme, M.V., Pruden, A., and Vikesland P.J. 2015. "Biodegradation of Nanocellulose and Microbial Community Response: Effect of Surface Modification and Morphology" Sustainable Nanotechnology Organization Conference, Portland, Oregon, November 8-10 (Abstract and Oral Presentation).
50. Riquelme, M.V., Pruden, A., and Vikesland P.J. 2015. " Gold nanoprobe-Based Detection of Antibiotic Resistance Genes in Treated Wastewater Effluent" Sustainable Nanotechnology Organization Conference, Portland, Oregon, November 8-10 (Abstract and Oral Presentation).
51. Willner, M. and Vikesland P.J. 2015. " High Throughput Optofluidic Surface Enhanced Raman Spectroscopy (SERS) Interrogation: Proof of Concept via Lectin Detection of Cancerous Cells" Sustainable Nanotechnology Organization Conference, Portland, Oregon, November 8-10 (Abstract and Oral Presentation).
52. Wei, H., and Vikesland P.J. 2015. "pH-triggered SERS Detection of Environmental Pollutants" Sustainable Nanotechnology Organization, Portland, Oregon, November 8-10 (Abstract and Oral Presentation).
53. Pati, P., Vikesland, P.J., and McGinnis, S. 2015. "Precious Metal and Rare Earth Element Recovery From Waste Streams" American Chemical Society Fall Meeting, Boston, MA, August 16-20 (Abstract and Oral Presentation).
54. Wei, H., Leng, W., and Vikesland, P.J. 2015. "pH-triggered SERS Detection of Atrazine with AuNP/BC Nanocomposite" Gordon Research Conferences - Environmental Nanotechnology, West Dover, Vermont, June 21-26 (Abstract and Poster Presentation).
55. Kent, R. and Vikesland, P.J. 2015. "Controlled Evaluation of Copper-Based Nanomaterial Dissolution Kinetics" American Chemical Society National Meeting, Denver, CO March 23-26 (Abstract and Oral Presentation).
56. Vikesland, P.J., Pati, P., and McGinnis, S. 2015. "Precious Metal Recovery from Nanowaste for Sustainable Nanotechnology: Current Challenges and Life Cycle Considerations" SUN-SNO-GUIDENANO Sustainable Nanotechnology Conference 2015, Venice, Italy March 9-11 (Abstract and Oral Presentation).
57. Vikesland, P.J. 2015. "The Virginia Tech Interdisciplinary Graduate Education Program" SUN-SNO-GUIDENANO Sustainable Nanotechnology Conference 2015, Venice, Italy March 9-11 (Abstract and Oral Presentation).
58. Abtahi, S.H., Murphy, C.A., Saleh, N., and Vikesland, P.J. 2014. "Stability of Gold Nanorods in Aquatic Environments" Sustainable Nanotechnology Organization 2014 Conference, November 2-4, Boston, MA (Abstract and Oral Presentation).
59. Chan, M.Y. and Vikesland, P.J. 2014. "Applications of Surface Enhanced Raman Spectroscopy for Quantification of Nanoparticle Aggregation" Sustainable Nanotechnology Organization 2014 Conference, November 2-4, Boston, MA (Abstract and Poster Presentation).

60. Metch, J., Vikesland, P.J., and Pruden, A. 2014. "Disinfection by-Product Formation Catalyzed by Silver Nanoparticles in Wastewater Effluent" Sustainable Nanotechnology Organization 2014 Conference, November 2-4, Boston, MA (Abstract and Oral Presentation).
61. Pati, P., Vikesland, P.J., and McGinnis, S. 2014. "Precious Metal Recovery From Nanowaste for Sustainable Nanotechnology: Current Challenges and Life Cycle Considerations" Sustainable Nanotechnology Organization 2014 Conference, November 2-4, Boston, MA (Abstract and Oral Presentation).
62. Pati, P., Vikesland, P.J., and McGinnis, S. 2014. "Life Cycle Assessment of Cerium Dioxide Nanoparticle-Based Fuel Additives" Sustainable Nanotechnology Organization 2014 Conference, November 2-4, Boston, MA (Abstract and Oral Presentation).
63. Willner, M.R., Simpson, J., Zagnoni, M., Graham, D., and Vikesland, P.J. 2014. "High Throughput Optofluidic Surface Enhanced Raman Spectroscopy (SERS) Interrogation: Proof of Concept Via Lectin Detection of Cancerous Cells" Sustainable Nanotechnology Organization 2014 Conference, November 2-4, Boston, MA (Abstract and Oral Presentation).
64. Chan, M.Y., Leng, W., and Vikesland, P.J. 2014. "Three-Dimensional Visualization and Quantification of Gold Nanomaterial Aggregation via Surface Enhanced Raman Spectroscopy" American Chemical Society Fall Meeting, August 10-14, 2014, San Francisco, CA (Abstract and Oral Presentation).
65. Pati, P., Vikesland, P.J., and McGinnis, S. 2014. "Life Cycle Assessment of Nanotechnology: Environmental Impacts of Nanomaterial Production and Precious Metal Recovery from Nanowaste", American Chemical Society Fall Meeting, August 10-14, 2014, San Francisco, CA (Abstract and Oral Presentation).
66. Abtahi S.M.H, Vikesland, P.J., Murphy C., and Saleh N. "Fate and Transport of Elongated Gold Nanoparticles in Aquatic Systems", American Chemical Society Fall Meeting, August 10-14, 2014, San Francisco, CA (Abstract and Oral Presentation).
67. Kent, R., Oser, J., and Vikesland, P. 2014. "Controlled Evaluation of Silver Nanoparticle Sulfidation in a Full-Scale Wastewater Treatment Plant" American Chemical Society Fall Meeting, August 10-14, 2014, San Francisco, CA (Abstract and Oral Presentation).
68. Abtahi, S.H. and Vikesland, P.J. 2014. "Fate and Transformation of Elongated Shaped Metallic Nanoparticles in Aquatic Environments", CEINT Internal Conference, May 22-23, Durham, NC (Oral Presentation).
69. Pati, P., Vikesland, P.J., and McGinnis, S. 2014. "Lifecycle Assessment of Gold and Ceria Nanoparticles", CEINT Internal Conference, May 22-23, Durham, NC (Oral Presentation).
70. Kent, R.D. and Vikesland, P.J. 2014. "Controlled Evaluation of Silver Nanoparticle Transformations", CEINT Internal Conference, May 22-23, Durham, NC (Oral Presentation).
71. Vikesland, P.J. "All That Is Gold Does Not Glitter: Environmental Applications of Gold Enabled Plasmonics" Colloid+Surface Symposium, Virginia Tech, April 29, 2014 (Oral Presentation).

72. Pati, P., Vikesland, P.J., and McGinnis, S. "Incorporating Life Cycle Thinking into Green Synthesis of Nanomaterials" American Chemical Society Spring Meeting, March 16-20, 2014, Dallas, TX (Abstract and Oral Presentation).
73. Abbas, K., Elvinger, F., Eubank, S., Hodgson, J., Hosig, K., Johnson, C., Kerker, T., Krometis, L.-A., Marmagas, S., O'Dell, M., Pierson, W., Redican, K., Schurig, G., Vikesland, P.J., Widmer, J. "Interprofessional Integration and Sustainability of One Health in Education and Beyond" Association of American Veterinary Medical Colleges Annual Meeting, March 14-16, 2014 (Oral Presentation).
74. Willner, M.R. and Vikesland, P.J. "Nanomaterial Enabled Virus Detection" Interdisciplinary Research Honor Society Annual Meeting, Virginia Tech, February 27, 2014 (Poster Presentation).
75. Metch, J., Ma, Y., Vikesland, P.J., and Pruden, A. "Implications of Disposal of Engineered Nanoparticles to Wastewater Treatment Plants: Nitrification and Disinfectant By-Product Formation", 2014 Borchardt Conference, University of Michigan. February 25 (Poster Presentation).
76. Vikesland, P.J., Pruden, A., and Marr, L. "The Virginia Tech Sustainable Nanotechnology Program", Sustainable Nanotechnology Organization 2013 Conference, November 3-5, 2013, Santa Barbara, CA (Oral Presentation).
77. Chan, M.Y., Leng, W., and Vikesland, P.J. "Three-dimensional Visualization and Quantification of Gold Nanomaterial Deposition and Aggregation in Porous Media via Raman Spectroscopy", Sustainable Nanotechnology Organization 2013 Conference, November 3-5, 2013, Santa Barbara, CA (Oral Presentation).
78. Kent, R.D., Oser, J.G., and Vikesland, P.J. "Controlled Evaluation of Silver Nanoparticle Sulfidation: Reaction Mechanism and Particle Stability", Sustainable Nanotechnology Organization 2013 Conference, November 3-5, 2013, Santa Barbara, CA (Oral Presentation).
79. Lahr, R.H. and Vikesland, P.J. "Surface-enhanced Raman Spectroscopy (SERS) Cellular Imaging of Intracellular Biosynthesized Gold Nanoparticles", Sustainable Nanotechnology Organization 2013 Conference, November 3-5, 2013, Santa Barbara, CA (Oral Presentation).
80. Metch, J., Ma, Y., Vikesland, P.J., and Pruden, A. "Disinfection By-Product Formation Catalyzed by Nanoparticles in Wastewater Effluents", Sustainable Nanotechnology Organization 2013 Conference, November 3-5, 2013, Santa Barbara, CA (Poster Presentation).
81. Pati, P., Vikesland, P.J., and McGinnis, S. "How Green is "Green" Nanotechnology?", Sustainable Nanotechnology Organization 2013 Conference, November 3-5, 2013, Santa Barbara, CA (Oral Presentation).
82. Riquelme, M.V.; Leng, W., Pruden, A., and Vikesland, P.J. "Aptamer-Functionalized Gold Nanoparticles for the Rapid Detection of *Staphylococcus aureus*", Sustainable Nanotechnology Organization 2013 Conference, November 3-5, 2013, Santa Barbara, CA (Oral Presentation).

83. Willner, M., Lahr, R.H., and Vikesland, P.J. "Paper Based Sensors for Environmental Contaminants" Sustainable Nanotechnology Organization 2013 Conference, November 3-5, 2013, Santa Barbara, CA (Oral Presentation).
84. Lahr, R. and Vikesland, P.J. "Surface-Enhanced Raman Spectroscopy (SERS) Cellular Imaging of Intracellular Biosynthesized Gold Nanoparticles" ICTAS Research Day, Virginia Tech, October 11, 2013 (Poster Presentation).
85. Pati, P., Vikesland, P.J., and McGinnis, S. "Evaluating "Green" Synthesis Processes for Nanoparticles Through a Life Cycle Perspective" ICTAS Research Day, Virginia Tech, October 11, 2013 (Poster Presentation).
86. Reese, L., Zamani, F., Leng, W., Vikesland, P.J., and Bickford, L.R. "Assessing Pancreatic Cancer Cell Uptake of Gold-Based Nanoparticles Using Confocal Raman Microscopy" Biomedical Engineering Society Annual Meeting, September 25-28, 2013 (Poster Presentation).
87. Kim, J.Y., Pati, P., Vikesland, P.J. "Nanotechnology Using Waste: Gold Nanoparticle Synthesis Using Coffee and Banana Extracts", Virginia Tech Summer Undergraduate Research Symposium, July 31, 2013, Blacksburg, VA (Poster Presentation).
88. Vikesland, P.J. "Sustainable Nanotechnology: Safer by Design" France/U.S. Nanotechnology Policy Forum, March 7-8, 2013, Washington, DC. (Invited Oral Presentation).
89. Oser, J., Kent, R.D. and Vikesland, P.J. 2013. Transformations of Silver Nanoparticles in Wastewater Biosolids. Spring 2013 Virginia Tech Undergraduate Research Symposium, April 19, Blacksburg, VA.
90. Lahr, R.H. and Vikesland, P.J. 2013. "Gold Nanoparticle Biosynthesis and Intracellular Surface Enhanced Raman Spectroscopy (SERS) of *Pseudokirchneriella subcapitata*", CEINT Internal Conference, March 4-5, Durham, NC.
91. Pati, P., Vikesland, P.J., and McGinnis, S. 2013. "How Green is "Green"? LCA of Gold Nanoparticle Synthesis Processes", CEINT Internal Conference, March 4-5, Durham, NC.
92. Kent, R.D. and Vikesland, P.J. 2013. "Controlled Evaluation of Silver Nanoparticle Transformations", CEINT Internal Conference, March 4-5, Durham, NC.
93. Pati, P.; McGinnis, S.; and Vikesland, P.J. "Gate-to-Gate Life Cycle Assessment of Gold Nanoparticle Synthesis Processes", Sustainable Nanotechnology Organization Conference, November 4-6, 2012, Arlington, VA (Abstract and Oral Presentation).
94. Vikesland, P.J. and Kent, R.D. "Controlled Evaluation of Silver Nanoparticle Reactivity Using Atomic Force Microscopy", Environmental Sciences: Water Gordon Conference, June 24-June 29, 2012, Holderness, NH (Abstract and Poster Presentation).
95. Halvorson, R.A. and Vikesland, P.J. "Isolation of Water Contaminants Using Microfluidic Paper-Based Analytical Devices ( $\mu$ PADs) and Surface Enhanced Raman Spectroscopy (SERS) Detection" Environmental Sciences: Water Gordon Conference, June 24-June 29, 2012, Holderness, NH (Abstract and Poster Presentation).
96. Chan, M.Y., Hull, M.S., Jones, J.C. and Vikesland, P.J. "Transport, Stability, and Deposition of Functionalized Gold Nanoparticles in Porous Media", 2012 Goldschmidt Conference, Montreal, June 25-June 29 (Abstract and Oral Presentation).

97. Vikesland, P.J. "Gold Nanomaterials: Environmental Scourge or Environmental Savior?" Noble Metal Nanostructures Gordon Conference, June 17-June 22, South Hadley, MA (Abstract and Poster Presentation).
98. Vikesland, P.J. "Hypobromous Acid, Bromine Chloride and Other Novel Disinfecting Agents: The Contributions of Martin Reinhard to Our Understanding of Drinking Water Disinfection", American Chemical Society Spring Meeting, March 25-29, 2012, San Diego, CA (Abstract and Oral Presentation).
99. Halvorson, R.A. and Vikesland, P.J. "Intracellular Gold Nanoparticle Formation by *Pseudokirchneriella subcapitata* and Characterization by ESEM, TEM, and Surface-Enhanced Raman Spectroscopy (SERS)", American Chemical Society Spring Meeting, March 25-29, 2012, San Diego, CA (Abstract and Oral Presentation).
100. Chan, M.Y., Hull, M.S., Jones, J.C. and Vikesland, P.J. "Transport, Stability, and Deposition of Functionalized Gold Nanoparticles in Porous Media", American Chemical Society Spring Meeting, March 25-29, 2012, San Diego, CA (Abstract and Oral Presentation).
101. Kent, R.D. and Vikesland, P.J. "Controlled Evaluation of Silver Nanoparticle Dissolution Using Atomic Force Microscopy", American Chemical Society Spring Meeting, March 25-29, 2012, San Diego, CA (Abstract and Oral Presentation).
102. Vikesland, P.J., Hull, M., Chan, M., Kent, R., and Pati, P. "Alterations to Nanoparticle Associated Proteins", Goldschmidt Conference, Prague, Czech Republic, August 15-19, 2011 (Oral Presentation).
103. Halvorson, R.A. and Vikesland, P.J. "Cyanotoxin Monitoring Using Raman Spectroscopy", American Chemical Society Spring Meeting, March 27-31, 2011, Anaheim, CA (Abstract and Oral Presentation).
104. Hull, M. and Vikesland, P.J. "Concentration and Detection of Engineered Nanoparticles Discharged to Aquatic Ecosystems Using the Asian Clam, *Corbicula fluminea*", American Chemical Society Spring Meeting, March 27-31, 2011, Anaheim, CA (Abstract and Oral Presentation).
105. Vikesland, P.J. and Rebodos, R.L. "Effects of Particle Aggregation on Nanoparticle Reactivity", 16<sup>th</sup> International Conference on Advanced Oxidation Technologies for Treatment of Water, Air, and Soil, San Diego, CA, November 15-18, 2010 (Extended Abstract, Invited Presentation, and Member International Organizing Committee).
106. Chang, X. and Vikesland, P.J. "*n*C<sub>60</sub> Aggregates and Molecular C<sub>60</sub> Formation in Sodium Citrate Solutions via Extended Mixing", Interfaces Against Pollution Conference 2010 (IAP2010), Beijing, China, June 20-22, 2010 (Abstract and Oral Presentation).
107. Hull, M.S. and Vikesland, P.J. "Size-Selective Uptake of Gold NP by Sentinal Filter-Feeder", ICEIN 2010: International Conference on Environmental Implications of Nanotechnology, Los Angeles, CA, May 11-13, 2010 (Abstract and Oral Presentation)
108. Vikesland, P.J. "Virginia Tech Environmental BioNanoTechnology Laboratory" Virginia Tech-NIST Research Meeting, January 15, 2010.
109. Hull, M., Jones, J, and Vikesland, P.J. "Effects of Surface Coating and Solution Ionic Composition on Aggregation of Au Nanoparticles in Freshwater Systems", International

- Conference on the Environmental Implications of NanoTechnology 2009, Howard University, September 9-11, 2009 (Oral Presentation).
- I 10. Vikesland, P.J., Wigginton, K.R., Anderson, C., Halvorson, R., and Kohn, T. "Pathogen Detection with Nanotechnology Enabled Biosensors", IWA Leading Edge Technology Conference, Singapore June 23-25, 2009 (Oral Presentation).
  - I 11. Rebodos, R.L. and Vikesland, P.J. "Alterations to Magnetite Aggregation State During Oxidation", American Chemical Society Meeting, Salt Lake City, UT, March 22-26, 2009 (Abstract and Oral Presentation).
  - I 12. Fiss, E.M. and Vikesland, P.J. "Reactivity of Bisphenol-A with Free Chlorine in the Presence of Iodide and Bromide", American Chemical Society Meeting, Salt Lake City, UT, March 22-26, 2009 (Abstract and Oral Presentation).
  - I 13. Vikesland, P.J. and Marr, L. "Cross-Media Environmental Transport, Transformation, and Fate of Manufactured Carbonaceous Nanomaterials", EPA Environmental Nanotechnology Grantees Workshop, Tampa Bay, FL, November 19-21, 2008 (Abstract and Oral Presentation).
  - I 14. Vikesland, P.J. and Rule, K.L. "Nanotechnology Enabled Detection of Drinking Water Pathogens", Sustainable and Safe Drinking Water in Developing and Developed Countries: Where Science Meets Policy, Chapel Hill, NC, November 5-6, 2008 (Manuscript and Oral Presentation).
  - I 15. Fiss, E.M. and Vikesland, P.J. "Modeling the Reactivity of Pharmaceutical and Personal Care Products During Chlorination and Chloramination in the Presence of Bromide and Iodide", Sustainable and Safe Drinking Water in Developing and Developed Countries: Where Science Meets Policy, Chapel Hill, NC, November 5-6, 2008 (Manuscript and Oral Presentation).
  - I 16. Diesel, E. A., Schreiber, M. E., van der Meer, J. R., Hull, M.S., Vikesland, P.J., Love, N.G., van Lintel, H., Braschler, T., and Renaud, P. "Novel Uses for Environmental Sensors: Towards a Mode of Action Sensor Array for Arsenic", Geological Society of America Annual Meeting. Houston, Texas, October 5-9, 2008. (Poster Presentation)
  - I 17. Rule, K.L. and Vikesland, P.J. "A Nanotechnology Enabled Detection Method for *Cryptosporidium parvum* and *Giardia lamblia*", American Chemical Society Meeting, Philadelphia, PA, August 17-21, 2008 (Manuscript and Oral Presentation).
  - I 18. Fiss, E.M. and Vikesland, P.J. "Reactivity of Pharmaceutical and Personal Care Products with Chlorine in the Presence of Bromide and Iodide", American Chemical Society Meeting, Philadelphia, PA, August 17-21, 2008 (Manuscript and Oral Presentation).
  - I 19. Khunjar, W.O., Love, N.G., Vikesland, P.J., Skotnicka-Picka, J., Aga, D.S., Yi, T., and Harper, W.F. "Biotransformation and Chlorination of Pharmaceuticals and Their Byproducts During Wastewater Treatment", American Chemical Society Meeting, Philadelphia, PA, August 17-21, 2008 (Manuscript and Oral Presentation).
  - I 20. Halvorson, R. and Vikesland, P.J. "Rapid concentration and Detection of Cyanobacterial Byproducts in Drinking Water", Gordon Research Conference – Environmental Sciences: Water, June 22-26, 2008 (Poster Presentation).

121. Wigginton, K.R. and Vikesland, P.J. "Surface Enhanced Raman Spectroscopy for Multiplex Pathogen Detection", Gordon Research Conference – Environmental Sciences: Water, June 22-26, 2008 (Poster Presentation).
122. Vikesland, P.J. and Chang, X. "Citrate Stabilized Molecular Crystals of C<sub>60</sub>", Gordon Research Conference – Environmental Sciences: Water, June 22-26, 2008 (Poster Presentation).
123. Vikesland, P.J., Chang, X., Duncan, L.K., Jinschek, J.R., and Chan, M. "Effects of Small Molecular Weight Acids on C<sub>60</sub> Aggregate Formation and Transport", American Chemical Society Meeting, New Orleans, LA, April 6-10, 2008 (Manuscript and Oral Presentation).
124. Rule, K.L. and Vikesland, P.J. "SERS-Based Detection Method for Pathogen Monitoring in Drinking Water", American Chemical Society Meeting, New Orleans, LA, April 6-10, 2008 (Manuscript and Oral Presentation).
125. Chang, X. and Vikesland, P.J. "Novel C<sub>60</sub> Aggregates Produced by Extended Mixing in the Presence of Citric Acid", American Chemical Society Meeting, New Orleans, LA, April 6-10, 2008 (Oral Presentation).
126. Vikesland, P.J., Marr, L.C., Jinschek, J.R., Chang, X., and Duncan, L.K. "Effects of Solution Chemistry on C<sub>60</sub> Aggregate Formation and Transport", EMPA-NanoECO Conference, Monte Verità, Switzerland, March 2-7, 2008 (Oral Presentation).
127. Vikesland, P.J., Marr, L.C., Jinschek, J.R., Duncan, L.K., Yeganeh, B., and Chang, X. "Characterization of C<sub>60</sub> Aggregates in Aqueous and Airborne Systems", Association of Environmental Engineering and Science Professors Bi-Annual Conference, Blacksburg, VA, August 2-4, 2007 (Oral Presentation).
128. Vikesland, P.J., Love, N.G., Fiss, E.M., Zaklikowski, A.E., Chandran, K., DiGiano, F., and Carrico, B. "Water Quality Impacts of Disinfectant Switching Practices at Pilot and Full-Scale", American Water Works Association Annual Conference and Exhibition, Toronto, June 24-28, 2007 (Manuscript and Oral Presentation).
129. Rule, K.L. and Vikesland, P.J. "Nanotechnology Enabled Detection of *Cryptosporidium*", American Water Works Association Annual Conference and Exhibition, Toronto, June 24-28, 2007 (Manuscript and Oral Presentation).
130. Vikesland, P.J. and Rule, K.L. "Nanotechnology Enabled Detection of *Cryptosporidium*", International Water Association Leading Edge Technology Conference, Singapore, June 3-6, 2007 (Manuscript and Oral Presentation).
131. Vikesland, P.J.; Fiss, E.M.; Rule, K.L.; and Greyshock, A.E. "Disinfection By-product Formation Resulting From Chlorination of Antimicrobial Personal Care Products", American Chemical Society Meeting, Chicago, IL, March 25-29, 2007 (Manuscript and Oral Presentation).
132. Rule, K.L. and Vikesland, P.J. "SERS Based Immunoassay for the Detection of *Cryptosporidium parvum* in Drinking Water", American Chemical Society Meeting, Chicago, IL, March 25-29, 2007 (Manuscript and Oral Presentation).

133. Duncan, L.A. and Vikesland, P.J. "Characterization of the Size, Shape, Crystallinity and Surface Charge of C<sub>60</sub> Aggregates Formed in Aqueous Systems", American Chemical Society Meeting, Chicago, IL, March 25-29, 2007 (Manuscript and Oral Presentation).
134. Rebodos, R.F.; Templeton, J.A.; and Vikesland, P.J. "Loss of Reactivity of Magnetite (Fe<sub>3</sub>O<sub>4</sub>) Due to Particle Aggregation Induced by the Presence of Electrolytes", American Chemical Society Meeting, Chicago, IL, March 25-29, 2007 (Manuscript and Oral Presentation).
135. Vikesland, P.J. "Nanotechnology - DNAPL Remediation", Environmental Protection Agency Webinar, March 15, 2007. (Presentation available on-line at: [http://www.clu-in.org/conf/tio/nano3\\_031507](http://www.clu-in.org/conf/tio/nano3_031507)).
136. Rule, K.L. and Vikesland, P.J. "Development of a Biosensor for Cryptosporidium in Drinking Water", American Institute of Chemical Engineers Annual Meeting, San Francisco, CA, November 12-17, 2006 (Abstract and Oral Presentation).
137. Duncan, L. and Vikesland, P.J. "Aggregation Behavior of C<sub>60</sub> in Air and Water", American Chemical Society Meeting, San Francisco, CA, September 10-14, 2006 (Abstract and Oral Presentation).
138. Rebodos, R.F. and Vikesland, P.J. "Reactivity of Magnetite Nanoparticles Under Anoxic Conditions", American Chemical Society Meeting, San Francisco, CA, September 10-14, 2006 (Abstract and Oral Presentation).
139. Fiss, E.M., Rule, K.L., and Vikesland, P.J. "Chloroform Formation from the Chlorination of Antibacterial Products", American Water Works Association Annual Conference, San Antonio, TX, June 11-16, 2006 (Manuscript and Oral Presentation).
140. Zaklikowski, A.; Love, N.G.; Chadran, K.; and Vikesland, P.J. "Effect of Temporal Breakpoint Chlorination Practices on the Activity and Recovery of Nitrifying Bacteria in Chloraminated Water", American Water Works Association Annual Conference, San Antonio, TX, June 11-16, 2006 (Manuscript and Oral Presentation).
141. Vikesland, P.J. and Heathcock, A. "Reactivity of Nanoscale Magnetite with Groundwater Contaminants", American Chemical Society Meeting, Atlanta, GA, March 26-30, 2006 (Abstract and Oral Presentation).
142. Rebodos, R.F. and Vikesland, P.J. "Aggregation of Magnetite and Maghemite Nanoparticles in Anoxic Conditions", American Chemical Society Meeting, Atlanta, GA, March 26-30, 2006 (Abstract and Oral Presentation).
143. Vikesland, P.J. "Environmental Impacts of Nanotechnology", The California NanoSystems Institute 2<sup>nd</sup> Annual Frontiers in Nanosystems Conference, Kauai, HI, February 22, 2006 (Invited Oral Presentation).
144. Edwards, M., Vikesland, P., Parks, J., and Dudi, A. "Autogenous Healing of Concrete", American Water Works Association Water Quality and Technology Conference, Quebec City, Quebec, November 6-10, 2005 (Manuscript and Oral Presentation).
145. Vikesland, P.J. "Water Quality Impacts of Disinfectant Switching Practices at Pilot and Full Scale", American Water Works Association Annual Conference, San Francisco, CA, June 12-16, 2005 (Manuscript and Oral Presentation).



146. Makus, K.E. and Vikesland, P.J. "Reduction of Halogenated Groundwater Contaminants by Nano-Sized Magnetite", 15<sup>th</sup> V.M. Goldschmidt Conference, Moscow, ID, May 20-25, 2005 (Abstract and Poster Presentation).
147. Rebodos, R. and Vikesland, P.J. "Effects of Co-solutes on Bioaugmented Granular Iron Systems", 15<sup>th</sup> V.M. Goldschmidt Conference, Moscow, ID, May 20-25, 2005 (Abstract and Oral Presentation).
148. Vikesland, P.J. and Makus, K.E. "Reduction of Halogenated Groundwater Contaminants at Reduced Iron Surfaces", ACS National Conference, Philadelphia, PA, August 22-26, 2004 (Manuscript and Oral Presentation).
149. Vikesland, P.J., Rule, K., Greynshock, A. "Triclosan Fate in Chlorinated and Chloraminated Waters", ACS National Conference, Philadelphia, PA, August 22-26, 2004 (Manuscript and Oral Presentation).
150. Rule, K.R., Ebbett, V.R., and Vikesland, P.J. "The Mechanisms, Kinetics and Products of Triclosan-Disinfectant Reactions", American Water Works Association Water Quality and Technology Conference, Philadelphia, PA, November 2-6, 2003 (Manuscript and Oral Presentation).
151. Makus, K.E. and Vikesland, P.J., "Iron Corrosion Product Identification Using Micro-Raman Spectroscopy," 13<sup>th</sup> V.M. Goldschmidt Conference, Kurashiki, Japan, September 7-13, 2003 (Abstract and Oral Presentation).
152. Ebbett, V.R. and Vikesland, P.J., "The Kinetics of the Chlorination of Triclosan", American Water Works Association Annual Conference, Anaheim, CA, June 15-19, 2003 (Oral Presentation).
153. Vikesland, P.J., "Granular Iron and Bioaugmented Granular Iron: Effects of Co-Solutes", 7<sup>th</sup> International Battelle In-Situ and On-Site Bioremediation Conference, Orlando, FL, June 2-5, 2003 (Oral Presentation).
154. Kohn, T., Livi, K., Vikesland, P., Fairbrother, H., and Roberts, A.L., "Characterization of Solution-Dependent Granular Iron Surface Precipitates and Their Influence on Reactivity Towards Trichloroethylene", ACS National Meeting, New Orleans, LA, March 23-27, 2003 (Extended Abstract and Oral Presentation).
155. Vikesland, P.J., "Co-Solute Effects on the Reactivity of Iron with Groundwater Contaminants", Oak Ridge National Laboratory, Environmental Science Division, January 11, 2003 (Oral Presentation).
156. Vikesland, P.J., Klausen, J., Kohn, T., Burris, D.R., Ball, W.P., and Roberts, A.L., "Co-Solute Effects on the Reactivity of Iron with Groundwater Contaminants", Third International Conference on the Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May 20-23, 2002 (Abstract and Oral Presentation).