LEANNE M. GILBERTSON

202 Benedum Hall, 3700 O'Hara Street, Pittsburgh PA 15261
LMG110@pitt.edu | 412-624-1683 | www.leannegilbertson.com | @lmgLab

EDUCATION

YALE UNIVERSITY, New Haven, CT — 2009 – 2014
Department of Chemical and Environmental Engineering
Doctor of Philosophy, May 2014
Master of Philosophy, May 2012
Master of Science, May 2012

HAMILTON COLLEGE, Clinton, NY — 2003 – 2007
Department of Chemistry
Bachelor of Arts, Magna Cum Laude, Chemistry & Education

PROFESSIONAL EXPERIENCE

Assistant Professor, Civil and Environmental Engineering, University of Pittsburgh — 2015 – Present
Secondary Appointment, Chemical and Petroleum Engineering

Postdoctoral Associate, Chemical and Environmental Engineering, — 2014 – 2015
Center for Green Chemistry and Green Engineering, Yale University

High School Chemistry and AP Chemistry Teacher, St. James School, MD — 2009

Teaching Fellow, George Watson's College, Edinburgh Scotland — 2007 – 2008

HONORS AND AWARDS

Ralph E. Powe Junior Faculty Enhancement Award	2017
3M Non-Tenured Faculty Award	2017
Excellence in Review Award, Environmental Science & Technology	2016
Top 10 Reviewer Award, Environmental Science: Nano	2016
Yale-Jefferson Public Service Award, Yale University	2014
Harding Bliss Prize for Excellence in Engineering and Applied Science, Yale University	2014
National Science Foundation (NSF) Graduate Research Fellow	2012 – 2014
U.S. Environmental Protection Agency (EPA) STAR Fellow	2010 – 2012
Graduate School Community Service Award Finalist, Yale University	2011
ACS Green Chemistry Institute Ciba Travel Award	2010
National Science Foundation Scholar Conference Travel Award	2010
Emerson Electric Company Fellowship, Yale University	2009 – 2011
George Watson's College Teaching Fellowship, Hamilton College	2007
Undergraduate Student Award, NY Section of the Society for Applied Spectroscopy	2007
Levitt Scholar, Hamilton College	2007

Phi Beta Kappa, Hamilton College 2007
Dean's List Honors, Hamilton College 2003 – 2007

PUBLICATIONS

15. Lankone, R. S.; Challis, K.; Bi, Y.; Hanigan, D.; Reed, R. B.; Zaikova, T.; Hutchison, J. E.; Westerhoff, P.; Ranville, J.; Fairbrother, H.; **Gilbertson, L.M.** "Methodology for Quantifying Engineered Nanomaterial Release from Diverse Matrices in Outdoor Weathering Conditions to Inform Life Cycle Assessment." *Environmental Science: Nano,* 2017, DOI: 10.1039/c7en00410a.
14. Gallagher, M. J.; Allen, C; Buchman, J. T.; Qiu, T. A.; Clement, P. L.; Krause, M. O. P.; **Gilbertson, L. M. "**Research highlights: Applications of life-cycle assessment as a tool for characterizing environmental impacts of engineered nanomaterials." *Environmental Science: Nano,* 2017, 4(2), 276-281.
13. Wang, Y.; **Gilbertson, L. M.** "Informing Rational Design of Graphene Oxide through Surface Chemistry Manipulations: Properties Governing Electrochemical and Biological Activities." *Invited Submission to Green Chemistry,* 2017, 19, 2826-2838.
12. **Gilbertson, L. M.** and Ng, C. A. "Evaluating the Use of Alternatives Assessment to Compare Nanomaterial and Bulk Chemical Alternatives to Brominated Flame Retardants." *Invited submission to Sustainable Chemistry and Engineering*, 4(11), 2016, 6019-6030.
11. **Gilbertson, L. M.**; Albalghiti, E. M.; Fishman, Z.; Perreault, F.; Corredor, C.; Posner, J. D.; Elimelech, M.; Pfefferle, L. D.; Zimmerman, J. B. "Shape-Dependent Properties of Nano-Cupric Oxide: Surface Reactivity and Antimicrobial Activity." *Environmental Science and Technology,* 50(7), 2016, 3975-3984.
10. **Gilbertson, L. M.**; Melnikov, F.; Wehmas, L.; Anastas, P. T.; Tanguay R.; Zimmerman, J. B. "Toward Safer Multi-Walled Carbon Nanotube Design: Establishing a Statistical Model that Relates Surface Charge and Embryonic Zebrafish Mortality." *Nanotoxicology,* 2016, 10(1), 10-19.
9. **Gilbertson, L. M.;** Wender, B. A.; Zimmerman, J. B.; Eckelman, M. J. "Coordinating Modeling and Experimental Research of Engineered Nanomaterials to Improve Life Cycle Assessment Studies." *Invited Submission to Environmental Science: Nano,* 2, 2015, 669-682.
8. Hicks, A.; **Gilbertson, L. M.***; Jamila S. Yamani; Zimmerman, J. B.; Theis, T. "Life Cycle Payback Estimates of Nano-Silver Enabled Textiles Under Different Silver Loading, Release, and Laundering Scenarios Informed by Literature Review." *Environmental Science and Technology,* 49 (13), 2015, 7529-7542.
7. Azoz, S.; **Gilbertson, L. M.**; Hashmi, S. M.; Han, P.; Stervinsky, G. E.; Kanaan, S. A.; Zimmerman, J. B.; Pfefferle, L. D. "Enhanced Dispersion and Electronic Performance of Single-Walled Carbon Nanotube Thin Films without Surfactant: A Comprehensive Study of Various Treatment Processes." *Carbon,* 93, 2015, 1008-1020.
6. **Gilbertson, L. M.**; Zimmerman. J. B.; Plata, D. L.; Hutchison, J. E.; Anastas, P. T. "Designing Nanomaterials to Maximize Performance and Minimize Implications Guided by the Principles of Green Chemistry." *Invited Submission to Chemical Society Review,* 44, 2015, 5758-5777. (**Feature cover article)
5. Azoz, S.; Exarhos, A. L.; Marquez, A.; **Gilbertson, L. M.**; Nejati, S.; Cha, J. J.; Zimmerman, J. B.; Kikkawa, J. M.; Pfefferle, L. D. "Highly Conductive Single-Walled Carbon Nanotube Thin Films

Preparation by Direct Alignment on Substrates from Water Dispersions." *Langmuir,* 31 (3), 2015, 1155-1163.

4. **Gilbertson, L. M.**; Busnaina, A. A.; Isaacs, J.; Zimmerman, J. B.; Eckelman, M. J. "Life Cycle Impacts and Benefits of a Carbon Nanotube-Enabled Chemical Gas Sensor." *Environmental Science and Technology*, 48 (19), 2014, 11360-11368.
3. **Gilbertson, L. M.**; Goodwin, D. G.; Taylor, A. D.; Pfefferle, L. D.; Zimmerman, J. B. "Towards Tailored Functional Design of Multi-Walled Carbon Nanotubes (MWNTs): Electrochemical and Antimicrobial Activity Enhancement via Oxidation and Selective Reduction." *Environmental Science and Technology*, 48 (10), 2014, 5938-5945.
2. **Pasquini, L. M.**[†]; Sekol, R. C.; Taylor, A. D.; Pfefferle, L. D.; Zimmerman, J. B. "Realizing Comparable Oxidative and Cytotoxic Potential of Single- and Multiwalled Carbon Nanotubes through Annealing." *Environmental Science and Technology*, 47 (15), 2013, 8775-8783.
1. **Pasquini, L. M.**[†]; Hashmi, S. M.; Sommer, T. J.; Elimelech, M.; Zimmerman, J. B. "Impact of Surface Functionalization on Bacterial Cytotoxicity of Single-Walled Carbon Nanotubes." *Environmental Science and Technology*, 46 (11), 2012, 6297-6305.

* Indicates shared first authorship [†]Prior to July 2013 published as Leanne M. Pasquini

INVITED PRESENTATIONS

6. *Designing for Sustainable Nanotechnology.* March 24, 2017, Carnegie Mellon University, Department of Civil and Environmental Engineering.
5. *Designing for Sustainable Nanotechnology*. February 21, 2016, Arizona State University, School of Sustainable Engineering and the Built Environment.
4. *When to Nano-Enable?: A Life Cycle Approach*. December 2, 2016, St. Francis University, Environmental Engineering Department.
3. *The Influence of Surface Chemistry: Not all Carbon Nanomaterials are Created Equal.* October 31, 2016, Indiana University of Pennsylvania, Chemistry Department Seminar.
2. *What Does 'Sustainable Design' in Nanotechnology Really Mean?* October 20, 2016, University of Pittsburgh Science 2016, Late-Breaking Technologies and Methods session.
1. *Sustainability by Design: Maximizing the Functional Performance and Minimizing the potential for Adverse Consequences of Emerging Materials.* April 8, 2016, Hamilton College, Chemistry Department Seminar.

TEACHING & MENTORING EXPERIENCE

Stanford d-School Teaching and Learning Studio July 2017

National Effective Teaching Institute (NETI-1B) May 2017

Faculty Advisor, The Aquaponics Project, Univ. Pittsburgh 2017 – Present

Courses Taught at the University of Pittsburgh 2015 – Present

Environmental Engineering Chemistry, CEE 2501 (graduate, 10 - 20 students)

Developed curriculum focused around topics related to inorganic water chemistry

Design for the Environment, CEE 1618 (undergraduate, 22 students)

Developed diverse curriculum that integrates traditional lecture and design, utilizes design and MakerSpaces in SSOE (G34, B06) and David Lawrence classroom

Guest Lecturer, University of Pittsburgh
Environmental Engineering Processes, CEE 1513, 1/14/16 (undergraduate, 55 students)
Sustainable Computing, ECE 2195, 1/25/16 (graduate, 15 students)

Teaching Fellow, School of Engineering and Applied Science, Yale University 2011, 2012
Green Engineering and Sustainable Design (mixed grad/undergrad, 30-40 students)
Instructors: Dr. Julie B. Zimmerman, Dr. Mathew J. Eckelman

Teaching Fellow, School of Forestry & Environmental Science, Yale University 2010
Greening Business Operations (graduate, 30 students)
Instructors: Dr. Thomas E. Graedel, Dr. Marian Chertow, Dr. Julie B. Zimmerman

High School Chemistry & AP Chemistry Teacher, Saint James School, MD 2009

Advancement Via Individual Determination (AVID) Mentor 2009
Humble Independent School District, Kingwood, TX

Teaching Fellow, George Watson's College, Edinburgh, Scotland 2007 – 2008

Chemistry Teaching Intern, Northfield Mount Hermon School 2006

PROFESSIONAL SERVICE AND LEADERSHIP ACTIVITIES

Session Moderator, *Advancing Community Health Through Technology Innovation: Physical-Chemical Session,* Association of Environmental Engineering & Science Professors (AEESP) Research and Education Conference, June 20-22, 2017.

Department Graduate Seminar Organizer for the 2017-2018 academic year

Leadership Workshop, two days hosted by the Center for Faculty Excellence with Devora Zack (May 15-16, 2017)

Journal Reviewer for Environmental Science & Technology, Carbon, Nanoscale, Environmental Science: Nano, Journal of American Chemical Society, ACS Applied Materials and Interfaces, Chemical Research in Toxicology, Environmental Pollution, Chemical Engineering Journal

NSF Panel Reviewer for CBET, Environmental Engineering Program, Environmental Sustainability Program

Department Website Committee, lead on graduate education content, Spring 2016 - present

Department point person for new ENG 2900 graduate fellowships workshop course (Fall 2016)

Chair, Environmental Nanotechnology Gordon Research Seminar (GRS), June 17-18, 2017

Session Chair, *Sustainable Materials*, Green Chemistry and Engineering Conference, June 14-16, 2016

NSF-AEESP Grand Challenge Workshop Participant on redefining environmental engineering and science, Rice University, March 31 – April 1, 2016

Session Chair, *Industrial Ecology and Manufacturing*, Sustainable Nanotechnology Organization (SNO) Conference, November 8-10, 2015

NSF Workshop Participant, the Role of Nanotechnology in Achieving Sustainability at the Food-Energy-Water (FEW) Nexus, Carnegie Mellon University, October 19-20, 2015

Session Chair, *LCA at the Technology Nexus: Evaluation Tradeoffs* and *LCA at the Energy Nexus*, Association of Environmental Engineering & Science Professors (AEESP) Research and Education Conference, June 13-16, 2015.

Registration & Communications Manager, Association of Environmental Engineering & Science

Professors (AEESP) Research and Education Conference Committee, fall 2014 – summer 2015

Chair, Professional Development Panel at the Environmental Nanotechnology Gordon Research Seminar (GRS), June 20-21, 2015.

Advanced Graduate Leadership Program K-12 Outreach Fellow, School of Engineering & Applied Science, 2011 – 2014

Pathways to Engineering Day Organizer, Yale University, 2011-2012

Yale Summer SCHOLAR Instructor, Yale University, summer 2012

Recruitment Committee Member, Environmental Engineering, Yale University, 2010 & 2012

Planning Committee Member & Panel Moderator, U.S. EPA STAR Conference, September 2011

Science & Engineering Enrichment Program Volunteer, Yale University, 2010 – 2011

Langer Symposium Committee Member, Yale University, 2009 & 2013

President, American Chemical Society Student Chapter, Hamilton College, 2007

CONFERENCE PRESENTATIONS

30. *Design for Sustainable (nano)Materials.* Poster at the AEESP Research and Education Conference, University of Michigan, June 20–22, 2017.
29. *Leveraging Nanotechnology to Advance Agriculture Sustainability: Life Cycle Considerations and Recommendations.* Presentation at the Engineering Sustainability Conference, Pittsburgh, PA, April 10–11, 2017.
28. *Sustainable Design of Carbon Nanomaterials: Decoupling the Role of Material Structure and Surface Chemistry on Electrochemical and Biological Activities.* Engineering Sustainability Conference, Pittsburgh, PA, April 10–11, 2017. (Student Poster, Yan Wang)
27. *Systems-Level Evaluation of Nano-Enabled Applications for Agriculture and Food Systems: Opportunities to Inform Sustainable Design.* Engineering Sustainability Conference, Pittsburgh, PA, April 10-11, 2017. (Student Poster, Joy Yin)
26. *Coupling Material and Biological Systems to Inform Design of Nano-enabled Antimicrobials.* Engineering Sustainability Conference, Pittsburgh, PA, April 10-11, 2017. (Student Poster, Lisa Stabryla)
25. *Informing Rational Design of Graphene Oxide through Surface Chemistry Manipulations: Properties Governing Electrochemical and Biological Activities.* Graduate Student Research Day, Department of Civil and Environmental Engineering, University of Pittsburgh, April 7th, 2017. (Presented by Yan Wang)
24. *Can We Engineer a Solution to the Antimicrobial Resistance Challenge Using Silver Nanoparticles?* Graduate Student Research Day, Department of Civil and Environmental Engineering, University of Pittsburgh, Pittsburgh, PA, April 7, 2017. (Presented by Lisa Stabryla)
23. *Toward Rational Design of Carbon Nanomaterials: Decoupling the Role of Material Structure and Surface Chemistry on Electrochemical and Antimicrobial Activity.* Carbon Conference, State College, PA, July 10–15, 2016. (Student Poster, Yan Wang)
22. *Effect of Oxygen Functionalization on the Electrochemical and Antimicrobial Activity of Carbon Nanomaterials: Isolating the role of Surface Chemistry*. Presentation at the Carbon Conference, Penn State University, July 10–15, 2016.

21. *Evaluating a Potential Win-Win for Water Quality Management in Pennsylvania.* Poster at the Gordon Research Conference, Environmental Sciences: Water, Holderness, NH, June 26–July 1, 2016.
20. *Systems-Level Evaluation of Nano-Enabled Applications in the Agriculture Sector.* Green Chemistry and Engineering Conference, Portland, OR, June 14–16, 2016. (Student Poster, Joy Yin)
19. *Evaluating Trade-Offs to Maximize the Net Benefit of Emerging (nano)Technologies*. Presentation at the Green Chemistry and Engineering Conference, Portland, OR, June 14–16, 2016.
18. *Engineered Path Towards Innovative and Sustainable Nanotechnology Through the Lens of Manufacturing.* Presentation at the Sustainable Nanotechnology Organization Conference, Portland, OR, November 8–10, 2015.
17. *Sustainability by Design: Development of an Engineered Nanomaterials Selection Framework that Includes Property, Function and Hazard Criteria.* Poster at the Gordon Research Conference in Environmental Nanotechnology, Mount Snow, West Dover, VT, June 21–26, 2015.
16. *Development of a Pre-Screening Tool to Quantify Impact and Benefit Tradeoffs of Emerging Technologies.* Presentation at the Association of Environmental Engineering and Science Professors (AEESP) Conference, Yale University, New Haven, CT, June 13–16, 2015.
15. *Towards the Development of a Model that Informs Safer Carbon Nanotube Design: Using Zebrafish Mortality to Evaluate Carbon Nanotube Ecotoxicity Potential.* Presentation at the Sustainable Nanotechnology Organization Conference, Boston, MA, November 2–4, 2014.
14. *Life Cycle Impacts and Benefits of a Carbon Nanotube-Enabled Chemical Gas Sensor.* Presentation at the Sustainable Nanotechnology Organization Conference, Boston, MA, November 2–4, 2014.
13. *Towards Tailored Functional Design of Multi-Walled Carbon Nanotubes (MWNTs): Electrochemical and Antimicrobial Activity Enhancement via Oxidation and Selective Reduction*. Presentation at the American Chemical Society 248th National Meeting, San Francisco, CA, August 10–14, 2014.
12. *Impact of Oxygen Functional Groups on Multi-Walled Carbon Nanotube (MWNT) Reactivity: Potential Environmental Implications*. Poster at the Gordon Research Conference in Environmental Sciences: Water, Holderness, NH, June 22–27, 2014.
11. *Impact of Annealing Treatment on the Electrochemical Activity of Multi-Walled Carbon Nanotubes: Implications for Bacterial Cytotoxicity*. Poster at the Gordon Research Conference in Environmental Nanotechnology, Stowe, VT, June 2–7, 2013.
10. *Physicochemical Properties that Govern Multi-Walled Carbon Nanotube (MWNT) Bacterial Cytotoxicity*. Presentation at the Robert M. Langer Graduate Student Symposium, Yale University, December 7, 2012.
8. *A New Perspective on Carbon Nanotube Bacterial Cytotoxicity: MWNTs Exhibit Equivalent Loss of Cell Viability as SWNTs*. Poster at the Inaugural Sustainable Nanotechnology Organization Conference, Arlington, VA, November 4–6, 2012.
9. *Towards Green Design of Single-Walled Carbon Nanotubes: Decreased Cytotoxicity via Addition of Surface Functional Groups*. Presentation at the Robert M. Langer Graduate Student Symposium, Yale University, December 9, 2011.
7. *Towards Green Design of Single-Walled Carbon Nanotubes: Decreased Cytotoxicity via Addition of Surface Functional Groups*. Poster at the Environmental Protection Agency STAR Graduate Fellowship Conference, Washington, DC, September 19–20, 2011.

6. *Green Design of Single-Walled Carbon Nanotubes: Decreased Bacterial Cytotoxicity via Addition of Surface Functional Groups*. Poster at the Gordon Research Conference in Environmental Nanotechnology, Waterville Valley, NH, May 29–June 3, 2011.
5. *Green Design of Single-Walled Carbon Nanotubes: Decreased Bacterial Cytotoxicity via Addition of Surface Functional Groups*. Poster at the American Chemical Society 15th Annual Green Chemistry and Engineering Conference, Washington, DC, June 21–23, 2011.
4. *Green Design of Single-Walled Carbon Nanotubes: Decreased Bacterial Cytotoxicity via Addition of Surface Functional Groups*. Presentation at the Robert M. Langer Graduate Student Symposium, Yale University, December 10, 2010.
3. *Safer Design of Single Walled Carbon Nanotubes (SWNTs): A Comparative Bacterial Cytotoxicity Study of Pristine and Functionalized SWNTs*. Poster at the American Chemical Society 14th Annual Green Chemistry and Engineering Conference, Washington, DC, June 21–23, 2010.
2. *Safer Design of Single Walled Carbon Nanotubes (SWNTs): A Comparative Bacterial Cytotoxicity Study of Pristine and Functionalized SWNTs*. Poster at the 5th Annual Greener Nanoscience Conference, Portland, OR, June 16–18, 2010.
1. *Surface Enhanced Raman Spectroscopy Applied to Inorganic Compounds*. Poster at the American Chemical Society 233rd National Meeting, Chicago, March 25–29, 2007.

PROFESSIONAL AFFILIATIONS

Association of Environmental Engineering and Science Professors (AEESP)
American Society for Engineering Education (ASEE)
Sustainable Nanotechnology Organization (SNO)
American Chemical Society (ACS)
Sigma Xi