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# Curriculum Vitae


## KARL G. LINDEN

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## Biography

Karl G. Linden is a Professor of Environmental Engineering, the Mortenson Professor in Sustainable Development, and the Chair of the Department of Civil, Environmental and Architectural Engineering at the University of Colorado Boulder, USA. He has a BS from Cornell University in Agricultural and Biological Engineering and an MS and PhD from University of California at Davis in Environmental Engineering. He teaches classes on Water and Wastewater Treatment, Sustainable Water Reuse, and Water Sanitation and Hygiene. Dr. Linden's research investigates sustainable implementation of water and sanitation technologies in small systems, novel water and wastewater treatment systems, including advanced and innovative UV systems; the efficacy of UV and ozone disinfection for inactivation of pathogens; and the use of UV and advanced oxidation processes for the degradation of organic and other emerging contaminants in water and wastewater.

Dr. Linden is a consultant to the World Health Organization in developing guidelines for small water systems and a member of the WHO Water Quality Technical Advisory Group. He was an associate editor of Journal of the American Water Works Association (AWWA), served as Trustee of the Water Science and Research Division of the AWWA and was a Board member and 2019-2020 President of the Association of Environmental Engineering and Science Professors (AEESP). He was 2013-2015 President of the International Ultraviolet Association (IUVA), was named a 2013-2014 Fellow of the Australian Water Recycling Centre of Excellence, received the 2013 Pioneer Award in Disinfection and Public Health from the Water Environment Federation and was the WateReuse Association's 2014 WateReuse Person of the Year. Dr. Linden is the recipient of both the 2019 AEESP Walter J Weber Jr. Frontier in Research Award and the 2019 Water Research Foundation Dr. Pankaj Parekh Research Innovation Award and in 2020 he was awarded the Borchardt-Glysson Water Treatment Innovation Prize and named the Clarke Water Prize Laureate. He received a Canada Research Chair Fulbright Fellowship in 2022-23 and was recently elected Fellow of both AAAS and AEESP. In 2023 he received the Lifetime Achievement Award from the International UV Association. He currently serves on the US EPA Science Advisory Board.

## Education

Ph.D., Civil and Environmental Engineering, University of California, Davis. March 1997. "UV Disinfection: Estimating Effective Germicidal Dose in Low and Medium Pressure UV Systems", *Advisor: Jeannie L. Darby*.

Master of Science, Civil and Environmental Engineering, University of California, Davis. March 1993. *Advisor: Jeannie L. Darby*.

Bachelor of Science, Agricultural and Biological Engineering, Cornell University, Ithaca, NY, May 1989. *Advisor: William J. Jewell*.

**Areas of Specialization**

***Teaching***

Areas of competence include water and wastewater treatment processes (physical, chemical, and biological), water reuse, UV processes in environmental systems, appropriate treatment technologies, environmental aquatic chemistry, ecological environmental engineering, water treatment process laboratory, water chemistry laboratory. Other teaching interests: bioremediation, environmental toxicology, and natural treatment processes. Experience with students diverse in age, ability, and ethnicity.

***Research***

Research focuses on investigation of alternative disinfectants and advanced oxidation for water and wastewater treatment. Specifically, efficacy of UV irradiation for inactivation of persistent and emerging pathogens*;* and advanced oxidation processes for the degradation of environmental pollutants of concern in clean and reclaimed water for reuse. Household disinfection for developing communities. Other experience in biological treatment processes, environmental toxicology, industrial wastewater treatment, greywater reuse, streambank stabilization and classification, natural treatment technologies, appropriate treatment technologies, bioremediation techniques, and anaerobic treatment processes.

## Honors, Awards, and Distinctions

- Chair, Department of Civil, Environmental and Architectural Engineering, University of Colorado Boulder, 2023-Present
- Appointed, US Environmental Protection Agency Science Advisory Board, 2024-2030
- Mortenson Professor in Sustainable Development, 2015-present
- Lifetime Achievement Award, International UV Association (IUVA) 2023
- Elected 2023 Fellow of the Association of Environmental Engineering and Science Professors (AEESP)
- Fulbright Canada Research Chair, Fulbright Fellow, 2022-23
- Elected 2021 Fellow of the American Association for the Advancement of Science (AAAS). One of 3 elected from CU Boulder (released in January 2022)
- NWRI Clarke Water Prize Laureate, 2020
- Borchardt-Glysson Water Treatment Innovation Prize, 2020
- Best Paper 2020, Small Systems Publication Award from AWWA Water Science for Hull, N., Herold, W., Linden, K.G. (2019) UV LED water disinfection: Validation and small system demonstration study. AWWA Water Science 1 (4), e1148
- President, Association of Environmental Engineering & Science Professors, 2019-2020
- Dr. Pankaj Parekh Research Innovation Award, Water Research Foundation, 2019
- Walter J Weber Jr. Frontier in Research Award, AEESP, 2019

- President-Elect of the Association of Environmental Engineering and Science Professors (AEESP) for 2018-2019.
- AEESP 2016 Volunteer Service Award for Chair on the Lecturers Committee.
- Helen and Huber Croft Endowed Professorship, 2011 – 2015
- Nirit and Michael Shaoul Fellow 2015-6, Tel Aviv University
- August-Wilhelm Scheer Professor, Technical University of Munich 2016
- Peter Wall International Visiting Scholar, University of British Columbia, 2016
- Japan Society for the Promotion of Science Fellow, University of Tokyo 2015-16
- WateReuse Person of the Year Award, 2014
- Australian Water Recycling Center of Excellence Fellow 2013-2014
- Pioneer Award in Disinfection and Public Health, Water Environment Federation, 2013
- University Research Award, Boulder Faculty Assembly, Univ. of Colorado Boulder 2013
- Best Research Paper Award, International UV Association, 2013
- Best Classic UV Paper Award, International UV Association, 2013
- Faculty Research Award, College of Engineering and Applied Science, 2012
- Distinguished Faculty Award, CEAE, Univ of Colorado College of Engineering, 2011
- Liebman Faculty Fellow, University of Colorado School of Engineering, 2008 – 2010
- Best Paper of the Year, Journal AWWA 2010. "Demonstrating 4-log Adenovirus Inactivation in a MP Ultraviolet Disinfection Reactor", *Journal AWWA*, 101 (4) 90+
- Research Development Award, University of Colorado, CEAE Department, 2009
- RMIT International Fellow – Royal Melbourne Institute of Technology, Australia 2007-08
- Klein/Stansell Family Distinguished Research Award, Pratt School of Engineering, 2004
- John-Kelly C. Warren Faculty Scholar, Pratt School of Eng., Duke University 2001-2005
- Switzer Environmental Foundation Leadership Fellow: 2001-2003
- National Science Foundation New Century Scholar: 1998
- UNC-Charlotte Junior Faculty Fellowship - 1998
- Trojan Technologies UV Fellow, 1995-96
- Switzer Foundation Environmental Fellowship recipient, 1993-94
- Chancellors Teaching Fellowship, UC Davis, 1994
- USDOE, Graduate Assistance in Areas of National Need - Civil Engineering, 1993-94
- Malcolm Stacey Fellowship, UC Davis, 1993-94; 1994-95
- Fellow, Professional Studies Program in India, UC Berkeley, 1991-92
- National Science Foundation Research Experience for Undergraduates, 1988

## Student Advisee Honors, Awards, and Distinctions

- Emma Wells, PhD, American Water Works Association - HDR One Water Institute Scholarship. $10,000, invited to AWWA Annual Conference Toronto, 2023

- Emma Payne PhD, American Water Works Association – Philip C. Singer Scholarship, National Competition, $5,000, Invited to the AWWA Annual Conference Toronto, 2023
- Emma Payne PhD, National Water Research Institute Member Agency Fellowship. National Competition, $5,000, invited to the Clarke Prize Award Ceremony, 2023
- Emma Payne 2023 CU Summer Program for Undergraduate Research (SPUR) Outstanding mentor award, 2023
- Emma Payne PhD - GeoSyntec Student Paper Competition 2nd place, 2023
- Corey Trujillo PhD student - Colorado Graduate Grant, 2022
- Emma Payne, PhD, Mortenson Center Graduate Fellowship, 2022
- Christian Ley, Post-doc, ASEE / NSF Post-doctoral Fellowship Award. $259,200 for 2021-2023
- Anthony Pimentel, BS/MS, Student Research Award, CEAE, CU Boulder, 2021
- Anthony Pimentel, BS/MS, Outstanding Senior Award, ASCE Denver Branch, 2021
- Anthony Pimentel, BS/MS, James B. Warner Water Studies Scholarship, RMSAWWA, 2021
- Matthew Bentley: post-doc, AAAS Science Technology and Policy Fellowship, USAID, 2021-2023
- Eliza Fink, MS, 2021 Environmental Engineering and Science Foundation Master's Degree Scholarship in Environmental Engineering.
- Emma Wells, MS/PhD student, Co-advised with Amy Javernick-Will, NSF Graduate Research Fellowship, 2020-2025.
- Kimberley Pugel, PhD student, Co-advised with Amy Javernick-Will, American Society of Civil Engineers New Faces Honoree of 2021, Awarded December 2020.
- Kaitlin Mattos, PhD student, Colorado Rotary WASH scholarship, 2020
- Anthony Pimentel, BS/MS student, 2020 Centennial Denver Water Scholarship (American Water Works Association)
- Matthew Bentley, Post-doc, 1st Place Student Presentation Award, Emerging Contaminants Summit 2020
- Tara Randall, MS student, First Place Paper, AWWA Rocky Mountain Student Conference, May 2019
- Tara Randall MS student, Hazen and Sawyer AWWA Scholarship Recipient, June 2019 ($5000)
- Tara Randall, MS student, Colorado WateReuse Association Scholarship Recipient, November 2019
- Pranav Chintalapati, PhD Student, Natural Sciences and Engineering Research Council (NSERC, Canada) Alexander Graham Bell Canada Graduate Scholarship, 2019-2021
- Katlin Mattos, PhD student, American Water 2019 AWWA Scholarship
- Kaitlin Mattos, PhD student, Beverly Sears Graduate Student Research Grant, 2019
- Kimberley Pugel, PhD student, Co-advised with Amy Javernick-Will, Best Presentation Award at the Engineering Projects and Organizations Conference in June 2018
- Kaitlin Mattos, PhD student, 2018 AWWA Arcadis Scholarship

- Sydney Ulliman, PhD student, Best Student Presentation. International Ultraviolet Association Conference. Austin, TX; Feb. 2017
- Chelsea Cluff, PhD student, NSF Graduate Research Fellowship, 2017-2022 (3 years funding). Moved to University of Nevada Reno in 2019,
- David Miklos, PhD committee member, 1st place, Student Presentation Award at IUVA World Congress September 2017, Dubrovnik, Croatia.
- Kaitlin Mattos, PhD student, NSF Graduate Research Fellowship, 2016-2021.
- Kaitlin Mattos, PhD student, NSF Arctic FROST (Frontiers of Sustainability) early career fellow
- Mattos, Kaitlin, PhD student, MCEDC Research Travel Grant 2018
- Michael Reinisch, MS student, NSF Graduate Research Fellowship, 2016- 2021
- Sara Beck, 2016 Paul V. Roberts/AEESP Outstanding Doctoral Dissertation Award
- Natalie Hull, PhD student, National Water Research Institute Graduate Student fellowship, 2016
- Natalie Hull, PhD student, International UV Association (IUVA) Best Student Presentation Award, 2nd place at the World Congress Feb. 2016 Vancouver, BC Canada.
- Natalie Hull, PhD student, MIT CEE Rising Stars Workshop for top early career women in academia
- Natalie Hull, PhD student, IUVA Americas Best Student Presentation Award, Redondo Beach, CA, 1st place 2016
- Sydney Ulliman, PhD student, Martha Hahn Scholarship from the WateReuse Colorado Association, 2016
- Sydney Ulliman, PhD student, David Caldwell Scholarship, American Water Works Association, 2016
- Will Herod, Undergrad research assistant, CU Presidential Scholarship, 2016
- Will Herod, Undergrad Research Assistant, Mortenson Center for Developing Communities Undergraduate Scholarship, 2015
- Will Herod, Undergrad Research Assistant, current trophy holder for the annual "Moorhead Invitational" Beer Olympics, 2015
- Sara Beck, 2012, P.E.O. Scholar Award
- Sara Beck, 2010-2013, Graduate Fellowship, U.S. Environmental Protection Agency (EPA STAR)
- Austa Parker, PhD student, First Place, Best Student Paper Award International UV Association North American Regional Congress, Washington, DC 2012
- Sarah Bounty, MS student, Best Student Paper Award, International UV Association North American Congress, Toronto, Ontario Canada 2011
- Anne C. Eischeid, PhD student, Best Student Paper Award, Water Quality Technology Conference, AWWA, Cincinnati, OH 2008.
- Erik Rosenfeldt, PhD student, 2$^{nd}$ Place Best Doctoral Dissertation, AWWA 2008

## Professional Experience

### Academic

January 2023 – Present. Department Chair (elected), Department of Civil, Environmental and Architectural Engineering, University of Colorado Boulder, Boulder, CO

June 2015 – Present. Mortenson Professor in Sustainable Development, Department of Civil, Environmental and Architectural Engineering, University of Colorado Boulder, Boulder, CO.

July 2011 – June 2015. Helen and Huber Croft Endowed Full Professor, Department of Civil, Environmental and Architectural Engineering, University of Colorado Boulder, Boulder, CO.

January 2008 – 2011. Professor, Department of Civil, Environmental and Architectural Engineering, University of Colorado Boulder, Boulder, CO.

April 2009 – 2011. Associate Director of Education and Research, Mortensen Center in Engineering for Developing Communities, University of Colorado Boulder, CO.

July 2005 – December 2007. Associate Professor with Tenure, Department of Civil and Environmental Engineering, Pratt School of Engineering, Duke University, Durham, NC

August 2006 – December 2006. Visiting Professor, University of Colorado at Boulder, Boulder CO, (host: Prof. R. Scott Summers)

January 2001 – June 2005. John-Kelly C. Warren Assistant Professor, Department of Civil and Environmental Engineering, Pratt School of Engineering, Duke University, Durham, NC

July 1999 – 2001. Assistant Professor, Department of Civil and Environmental Engineering, School of Engineering, Duke University

September – December 2003. Visiting Professor, EAWAG, Swiss Federal Institute for Environmental Science and Technology, Dübendorf, Switzerland (with Dr. Urs von Gunten)

March – August 2003. Visiting Professor, Clinical Institute for Hygiene and Medical Microbiology, and the Institute for Medical Physics and Biostatistics, University of Vienna, Austria (with Prof. Regina Sommer and Dipl.-Ing. Alexander Cabaj)

February 2001 – Present. Graduate Faculty, Department of Environmental Science and Engineering, School of Public Health, University of North Carolina at Chapel Hill

August 1997 – June 1999. Assistant Professor, Department of Civil Engineering, University of North Carolina at Charlotte

January - August 1997. Lecturer, Department of Civil Engineering, University of North Carolina at Charlotte

June 1990 - June 1991, April 1992 – December 1996. Research Assistant, Department of Civil and Environmental Engineering, UC Davis

September 1992 – March 1995. Teaching Assistant, Department of Civil and Environmental Engineering, UC Davis

September 1991 – February 1992. UC Berkeley Fellow, Peoples Science Institute, Dehra Dun, India

**Consulting**

January 1998 – Present. Engineering Consultant: Black and Veatch, Montgomery Watson Harza, US EPA, Cadmus Group, Malcolm Pirnie, Hazen and Sawyer, Carollo Engineers, Colorado Department of Public Health and Environment, Dow Water, Brown and Caldwell, Tetra Tech.
January 2008-2011. Remote Light Inc. Chair – UV Technology Committee
February – April 1993. Project Engineer, Larry Walker and Associates, Davis, CA
April – September 1990. Project Engineer, Microgen Corporation, Ithaca, NY
Engineer-In-Training Certificate; License XE095615, California; February 1995

## Professional Affiliations

American Society of Civil Engineers

American Water Works Association

Association of Environmental Engineering and Science Professors

International Water Association

International Ultraviolet Association

American Chemical Society

## Teaching Experiences

### *University of Colorado at Boulder (Professor)*

*Professional Issues in Civil Engineering*, CVEN 4897 – Fall 2023, 24
Senior course for exploring professional issues with guest speakers from engineering consulting and government agencies, and FE reviews. Ethics and Accreditation.

*Advanced Physical Chemical processes,* CVEN 6504 – Fall 2021, 23
Upper level graduate course in theory and design of advanced treatment processes for water and water reuse. Co-taught, focus on UV, Ozone and AOP systems.

*Water and Wastewater Treatment*, CVEN 3424 – Spring 2019, 20, 21
Undergraduate course in fundamentals of water and wastewater treatment, from theory to design. Upper level elective. Mentored post-doc instructors in 2022, 23, 24

*Water and Sanitation in Developing Communities*, CVEN 4969 – Spring 2017, 19, 20, 21
Undergraduate course covering appropriate treatment technologies for applications in water and sanitation in rural and developing communities with a hands-on laboratory.

*Fundamentals of Environmental Engineering,* CVEN 3414 - Fall 2008, 2009, 2011
Required undergraduate course on science and design of Environmental Engineering processes including water and wastewater treatment, solids waste, air quality, and hazardous waste treatment.

*Water Reuse*, CVEN 5594 – Spring 2009, 2011, 2014, 2018
Advanced graduate course focusing on the social, political, and technical aspects of implementing water reuse. Taught 1 Cr version on sabbatical at USF in 2022

*UV Processes in Environmental Systems*, CVEN 5604 – Fall 2006, Spring 2010, 2015
Elective course for advanced graduate students interested in photolysis and oxidation in water and wastewater, including disinfection and advanced oxidation processes.

*Water Sanitation and Hygiene (WASH)*, CVEN 5969 – Fall 2008-2010, 2011, 2013-2015
Graduate course in the Engineering for Developing Communities program covering appropriate treatment technologies for applications in water, air and sanitation in rural and developing communities.

*Environmental Engineering Senior Design*, CVEN 4434/5434 – Spring 2013
Senior Capstone Design, focusing on design projects over the complete design process, including entry into national competitions.

### *Duke University (Assistant/Associate Professor)*

*Introduction to Engineering,* EGR 010 – Spring 2001, 2002, 2004
Introduction to environmental engineering for freshmen Pratt School of Engineering Students, Team-taught with Joe Nadeau

*Environmental Engineering,* CEE 124L - Fall 1999
Senior level undergraduate course on science and design of water and wastewater treatment processes, solids waste handling, air quality, and hazardous waste treatment

*Chemistry and Microbiology for Environmental Engineers*, CEE 120L – Fall 2000 - 2002
Required for undergrad environ. eng. majors integrating research and model lab exercises

*Physical and Chemical Treatment Processes*, CEE 241 – Fall 2000, 2002, 2004, Spr 2006
Core graduate level science and design course guided toward open-ended problem solving utilizing fundamentals learned in class

*Advanced Water Treatment Laboratory*, CEE 265.2L - Fall 2001, Fall 2007
Elective graduate laboratory course on treatment of emerging contaminants with advanced treatment technologies (membranes, GAC, UV oxidation, others)

*UV Processes in Environmental Systems*, CEE 265L/269 – Spring 2000, 2004, Fall 2005
Elective course for advanced graduate students interested in photolysis and oxidation

*Ecological Environmental Engineering*, CEE 265L – Spring 2005
Elective course for advanced graduate students interested in natural/alternative treatment systems and water sanitation issues relevant to developing countries

### *University of North Carolina at Charlotte (Assistant Professor)*

*Environmental Engineering Laboratory,* CEGR 3155 - Fall 1997, 1998
Undergraduate course – labs for water and wastewater treatment operations and processes.

*Systems and Design,* CEGR 3201 - Fall 1997, 1998
1/3 semester module on Environmental Systems Optimization emphasizing calculus, graphical and linear programming solutions to environmental systems optimization problems.

*Water/Wastewater Engineering,* CEGR 4142 - Spring 1997, 1998, 1999
Upper level undergraduate elective course on science and design of water and wastewater treatment processes including physical, chemical, and biological treatment.

*Design of Natural Treatment Systems*, CEGR 6892 – Fall 1997
Organized and led independent study class with 4 students on wetlands based treatment systems.

*Physical Hydrology and the Rosgen Method*, CEGR 6892 - Spring 1998
Independent Study on hydrological processes and design of stream restoration based on the methods developed by David Rosgen.

### *Teaching Evaluations*

Consistently ranked at or above the Department and College averages for all evaluation questions in all classes taught.

## Research Funding

**As Principal Investigator**

1. NSF-NFRF: Community water systems: Climate vulnerabilities and resilience opportunities, National Science Foundation, Linden PI. Co-PIs Thomas, Muthike. Consortium with Canada and Norway. Consortium PI: Mohseni at University of British Columbia. $650,920 to CU ($2M total)

2. DOE/National Alliance for Water Innovation, “222 nm KrCl* Driven Advanced Oxidation for Reverse Osmosis Pretreatment: Fouling Control and Chemical/Pathogen Abatement”, NAWI BP3 IFOA. Linden PI, Straub Co-PI. 2023 - 2026. $1,105,186

3. DOE/National Alliance for Water Innovation (NAWI) Grant received (Jan 2024). "Mobile Demonstration DPR: Comparison of RO and non-RO DPR for aerobic and anaerobic effluents" $308K ($150K sponsor/$158K cost share) 2023-2026

4. Water Research Foundation (unsolicited) grant for "Inactivation of biofilm-bound opportunistic pathogens in premise plumbing using UVC LEDs". Total value $272,000; $175K grant/$97K cost share. 2022-2025

5. USEPA P3: Developing the Chemical Health Risk Identification System (CHRIS) for Drinking Water Sources. $25K, PI Linden, 2022-23

6. Air Force Research Laboratory: STTR Phase II (Far-UVC Decontamination Technology Feasibility) “Next Generation Personal Protective Equipment for Real-time Inactivation of Airborne Biological Threats" $218,550, Linden PI. July 2022-Dec 2023

7. NSF ERC Planning Grant. 2021-2022. PI (Partners at U New Mexico, Portland State, Navajo Tech University, University of Alaska Fairbanks) for Engineering Research Center for Integrating Native Solutions to Promote and Inform Resilient Engineering – INSPIRE. $100,000

8. Garver Engineers, 2021-2022. Advanced Water Treatment for Indirect Potable Reuse. PI Linden, $105,000

9. NSF RAPID: Investigating molecular-level responses of coronavirus under UVC irradiation. National Science Foundation, CBET. $200,000. 2020-2022, Linden PI.

10. Industry Collaborations (Between $10,000 and $30,000 in various contracts): Boeing: Far UVC for surface disinfection; WQTS: Advanced oxidation testing for groundwater remediation; Sloan Corporation Far UV-C testing of products; Far UV Technology testing of lamps for disinfection; Population Lights testing of lamps for disinfection; H7 Corp testing of UV Robot for room disinfection

11. ”Defining the emerging pedagogy around global engineering”, Workshop, National Science Foundation Award 2022861 ($49,896 8/2020-8/2022)

12. “UV Advanced Oxidation of Industrial Groundwater Contaminants: The Key Role of Nitrate as •OH Sensitizer and Scavenger” National Science Foundation-BiNational Science Foundation (NSF-BSF) Award 1931168 ($340,000 6/2020-6/2024) Linden PI with Co-PI Y. Lester, Azrieli College of Engineering, Jerusalem, Israel

13. “NAWI: National Alliance for Water Innovation, Support for Road Mapping Process with Master Cartographers” Department of Energy via LBNL Contract 7536002 under prime contract DE-AC02-05CH11231 ($202,000, 6/20-5/21) Linden PI, Ryan and Hernandez Co-PIs.

14. Chevron: ”Concentrated Solar Heating: Soil/Sediment Remediation Tech Development” Award CW1537721 ($185,000, 12/2019-06/2023) Linden PI

15. Chevron: “Firefighting Foam Decontamination and Disposal”. $120,777. Linden PI, with CSM Profs Rosenblum and Bellona.

16. World Health Organization (WHO) International Workshop Coordination on water quality guidance. $34,900. Linden PI.

17. “Application of UV LEDs for control of opportunistic pathogens in building system water utilizing non-traditional harvested water sources”, WaterRA (Water Research Australia). $150,438 AUD. ($80K AUD to CU). Funded 2020-2022, with Melbourne University.

18. “Distributed UV LEDs for combined control of fouling of drip emitters and disinfection during irrigation with reclaimed wastewater effluent”, US-Israeli Binational Agricultural

Research and Development Fund (BARD) Project IS-5130-18 ($310,000, 10/18-9/21) Linden and Friedler PI's

19. "Sustainable WASH Systems Learning Partnership (SWS)" US Agency for International Development (USAID) ($15.3M, 9/16 – 9/21) Linden PI, Javernick-Will, Co-PI. 8 international Partners
20. "Coupled Oxidant and Ceramic Membrane Processes for Decreased Biofouling and Enhanced Flux in Water Reclamation Applications", National Science Foundation IUCRC MAST Center, University of Colorado. ($210,000, 2017-2021) Linden PI.
21. "Effects of ozonation during ceramic microfiltration of water containing natural organic matter" PWN Technologies, Netherlands ($98,000, 2018-2019) Linden PI
22. "Effects Directed Toxico-Analysis of Flowback and Produced Water" AirWaterGas Sustainability Research Network ($60,237 2017-2018) PI: Linden, Co-PI Rosenblum.
23. "Addressing Impacts from Oil and Gas Development: Phase II Research Studies on Wastewater Treatment and Characterization" ($452,948 2016-2018) PIs: Karl Linden, E. Mike Thurman, Kartik Chandran, and Dan Mueller, $~$100K to Linden.
24. "Mitigating the environmental impacts of Natural Gas: Biological Treatment of Hydraulic Fracturing Flowback Water" Environmental Defense Fund and Sloan Foundation, ($100,000 7/16 – 12/18) Linden PI
25. "Biological Treatment of Hydraulic Fracturing Flowback Water" Environmental Defense Fund, Proposal 15-09-0165 ($12,000 7/15 – 12/15) Linden PI
26. "Ultraviolet Light Disinfection of Drinking Water Using Light Emitting Diodes" Zodiac Water & Waste Aero Systems ($200,000, 9/1/15 – 8/31/18) Linden PI
27. "Alaska Water and Sewer Challenge - Phase 3 – Prototype Development and Pilot Testing", University of Alaska Anchorage (prime), Funded by the State of Alaska $120,000, 1/16 – 7/17 Linden PI
28. "Reinvent The Toilet Challenge: Solar Biochar Toilet - Supplement" Bill & Melinda Gates Foundation, ($1,002,642, 10/1/13 – 08/31/15) Linden, K.G. (PI), Weimer, A. and Summers R.S. (Co-I) [Total funding $1,780,351] Grant #OPP1065047
29. Reinvent The Toilet Challenge: Solar Biochar Toilet" Bill & Melinda Gates Foundation, ($777,709, 9/1/12 – 12/31/13) Linden, K.G. (PI), Weimer, A. and Summers R.S. (Co-I)
30. "Demonstrating Advanced Oxidation Technologies/Biofiltration on Pharmaceutical Removal in wastewater" Water Environment Research Foundation U2R11, ($190,000, 3/12 – 4/14) Linden, K.G. (PI)
31. "Development of Validation Factors for Possible Low-Wavelength Biases in Assessing UV Inactivation of Cryptosporidium" Water Research Foundation 4421 ($125,000, 1/12 – 12/13) Linden K.G. (PI)
32. "Guidance Document for Testing Medium Pressure UV Inactivation of Viruses" Water Research Foundation 4376 ($441,500, 10/11 – 6/14) Linden K.G. (PI)

33. "IRES: Toward Sustainable Water and Sanitation Infrastructure" National Science Foundation OISE - 1065050 ($149,384, 4/11 - 9/14) Linden K.G. (PI)
34. "Advanced Oxidation and Transformation of Organic Contaminants" Water Research Foundation 4241, ($785,994, 1/11 – 4/14) Linden K.G. (PI), von Gunten, U. (Co-PI)
35. "Investigating Underlying Mechanisms behind the Extreme Resistance of Adenoviruses to UV Disinfection" National Science Foundation *CBET-0933560* ($397,281 9/09 – 3/13) Linden K.G. (PI), Hernandez, M. (Co-PI)
36. "Sanitation Marketing and Business Opportunities in Developing Countries" Laird Norton Family Foundation, ($9,000, 2011) Linden K.G. (PI)
37. "Ozone Testing for Virus Inactivation at the Eastern Wastewater Treatment Plant", Melbourne Water 1546757, Australia ($207,658 1/10-6/11), Linden K.G. (PI)
38. "Partnerships in Sustainability: Working with Partners in Peru to Enhance Local Water Projects" Office for University Outreach, University of Colorado-Boulder ($10,000, 2009-2011) Linden K.G. (PI)
39. "Photochemical Fate Of Oil Dispersants Used in The Gulf Oil Spill clean -up" National Science Foundation RAPID Program *CBET-1043818* ($82,319 7/10 – 1/12) Linden K.G. (PI), Rosario, F. (Co-PI)
40. "Characterization and Disinfection of Greywater using ozone, UV and Chlorine" Carollo Engineers/San Francisco Public Utilities Commiss. ($25,500 8/10 – 3/11) Linden K.G. (PI)
41. "Water Reuse 2030" WateReuse Foundation ($296,954, 2/09 – 6/11) Linden K.G. (PI), Drewes, J; Khan S. (Co-PIs)
42. "Fundamental Mechanisms behind the Extreme Resistance of Adenoviruses to UV Disinfection" National Science Foundation SGER. ($69,484 9/08 – 8/09) Linden K.G. (PI)
43. "Greywater Treatment Utilizing UV-H2O2 process" Water Legacy ($3,000, 9/08 – 1/09) Linden K.G. (PI)
44. "UV-Based Advanced Oxidation Treatment of Pre- and Post-GAC Contacted Water" American Water Works Association Research Foundation ($100,000, 3/08 – 8/09) Linden, K.G. (PI)
45. "Impact of UV Location and Sequence on Byproduct Formation" American Water Works Association Research Foundation ($436,000, 10/07 – 1/10) Linden K.G. (PI), Weinberg H. (UNC), Mitch W. (Yale) (Co-PIs)
46. "Enhanced Disinfection of Adenoviruses with UV Irradiation" WateReuse Foundation Unsolicited Project ($168,692, 2/07 – 3/09), Linden K.G. (PI), Thurston-Enriquez J. (USDA) (Co-PI)
47. "Presence, Fate, and Treatability of Estro- and Androgenic Contaminants in Wastewater and Biosolids" US EPA Office of WW Management ($100,000, 5/06 – 5/08) Linden K.G. (PI), Kullman, S.W. (Co-PI).
48. "Innovative Technologies for Treatment of Reclaimed Water" WateReuse Foundation ($460,000, 1/06-12/08) Linden K.G. (PI), Salveson, A., Thurston-Enriquez, J. (Co-PIs)

49. “Pulsed UV versus Low to Medium Pressure UV: Evaluation of Drinking Water Treatment Efficiency” US EPA ($200,000, 9/04-3/08) Linden, K.G. (PI)
50. “UV Disinfection Byproduct Testing” CH2M Hill/Greater Cincinnati WaterWorks ($16,555, 5/05 – 9/05) Linden K.G. (PI), Reckhow D. (Co-PI).
51. “Impact of UV and UV Advanced Oxidation Processes on Toxicity of Endocrine Disrupting Compounds in Water” American Water Works Association Research Foundation, ($150,000, 2/03-7/06) Linden, K.G. (PI), Kullman, S.
52. “Impact of UV disinfection on chlorine residuals” University of Toronto (AwwaRF sub agreement) ($30,000, 7/04-6/05), Linden, K.G. (PI)
53. “Advanced Oxidation Processes for the Treatment of Candidate Contaminant List (CCL) Chemicals” US EPA Office of Water, Cooperative Agreement, ($300,000, 9/01 – 8/06) Linden, K.G. (PI), Sharpless, C., Suffet, I.H.
54. “Effectiveness of UV Irradiation for Pathogen Inactivation in Surface Waters” US EPA Science To Achieve Results Program, ($525,000, 9/01 – 10/05) Linden, K.G. (PI), Sobsey, M.D.
55. “Development of an on-line Fluence Meter” KIWA Netherlands, ($80,000, 5/03-5/04) Linden, K.G. (PI), Sharpless, C.
56. “Innovative technologies for long term compliance with microbial water quality standards”, Malcolm Pirnie Inc./Cincinnati Water Works, ($105,000 3/1/01 – 8/31/02) Linden, K.G. (PI) *Note: Received the Engineering Excellence award in the Research category from the American Council of Engineering Companies (ACEC) of Ohio.*
57. "Innovative UV Technologies to Oxidize Organic and Organoleptic Chemicals" American Water Works Association Research Foundation/US Environmental Protection Agency, ($425,000 1/1/00-12/31/03) Linden, K.G. (PI), Andrews, S., Atasi, K., Bolton, J., Suffet,I.H.
58. “Fate and persistence of pathogens subjected to disinfection”, Water Environment Research Foundation, ($576,031 1/4/99 – 12/3/03) Linden, K.G. (PI), Sobsey, M.D., and J.D. Oliver.
59. “Disinfection efficiency and dose measurement for medium pressure and pulsed-UV disinfection systems” American Water Works Association Research Foundation, ($224,780 11/1/98 – 3/31/02) Linden, K.G. (PI), Mofidi, A.A.
60. “UV disinfection of filtered water supplies: Water Quality Impacts on MS2 Dose-Response Curves”, Camp Dresser & McKee Inc, ($86,400, 4/01 – 3/02) Linden, K.G. (PI)
61. “UV Irradiation for Treatment of Taste and Odor Causing Compounds in Water”, Camp Dresser & McKee Inc, ($15,000, 8/01 – 3/02) Linden, K.G. (PI)
62. “Support for Research Assistant Shanshan Jin, Leach fund, Department of Civil and Environmental Engineering, Duke University, ($6,754, 5/01-8/01) Linden, K.G. (PI)
63. “Comparison of performance and operations and maintenance costs of three of biological nutrient removal schemes at a full-scale wastewater treatment facility in Charlotte NC”, North Carolina Water Resources Research Institute – Urban Water Consortium, ($71,989, 9/1/98 – 8/31/00) Linden, K.G. (PI)

64. "Performance and testing of trickling filter and submerged fixed bed at the Frito Lay Packaging Plant in Charlotte, NC" NSW Corporation ($31,000, 11/4/98 – 6/25/99) Linden, K.G., (PI)
65. "Optimization of the NSW biotower at the Coca-Cola Bottling Plant in Charlotte NC", NSW Corporation, ($16,000, 6/15/98 – 12/31/98) Linden, K.G. (PI)
66. "Application of morphologic characterization to urban watersheds for developing stream restoration techniques", City of Charlotte StormWater Services, ($63,929, 9/1/97 – 8/30/00) Linden, K.G. (PI), Bowen, J.D. and C.J. Allan
67. "Investigation of byproduct formation following high intensity UV irradiation for disinfection of water and wastewater", UNC Charlotte Junior Faculty Research Fellowship, ($3,500, 5/15/98 – 8/15/98) Linden, K.G. (PI)
68. "Estimating germicidal UV dose from medium pressure UV disinfection systems using a chemical actinometry approach", UNC Charlotte Faculty Research Support Grant ($5,000, 7/1/97 – 6/30/98) Linden, K.G. (PI)
69. "Support for travel funds to visit two potential industry sponsors" College of Engineering Small Grants Proposal ($1,500, 1997). Linden, K.G. (PI)
70. "Support for travel funds to NSF Regional Grants Conference in Athens, GA" College of Engineering Small Grants Proposal ($450, 1997). Linden, K.G. (PI)
71. "Support for travel to Edmonton Canada to present paper at annual joint ASCE/CSCE environmental engineering conference", International Travel Grant, UNC-Charlotte ($400, 1997) Linden, K.G. (PI)

**As Co-Principal or Senior Investigator** ($ is amount to Linden unless noted)

1. USEPA Unlocking the Nationwide Potential of Water Reuse. Funded through the Water Research Foundation. Co-PI on overall project, PI for CU Boulder. $3,246,000, 2022-2026
2. Water Research Foundation WRF 5173: Feasibility of Full-Scale Implementation of UV-LED Disinfection, Co-PI, PI: Gagnon at Dalhousie University (Canada) $45,286 to CU ($250K total)
3. Deloitte/USAID, "Armenia Improved Water Management for Sustainable Economic Growth Program", PI: Evan Thomas, co-PIs: Amy Javernick-Will and Karl Linden. $645,426, 2023-2027
4. Technical and Administrative Support for the USEPA National Drinking Water Program, Cadmus, 2/1/21 to 1/31/26, $14,149,661, Summers PI, Co-PI: Linden, Rosario-Ortiz, Kasprzyk, Cook, Korak, Mansfeldt, Straub. Each faculty has 15% of the award (~$2.12M)
5. "USAID Accelerating Peri-Urban Water and Sanitation Services in Kasai Oriental and Lomami Provinces" USAID via Chemonics (prime) Award 72066020C00001 (~$3M to UCB, 9/20-9/25) Linden Co-PI with Evan Thomas (UCB PI).

6. "Distributed UV LEDs for combined control of fouling of drip emitters and disinfection during irrigation with reclaimed wastewater effluent" Friedler, Technion, Linden, University of Colorado. BARD: Binational Agricultural Research and Development Fund (US-Israeli) $165,000 to Linden, 10/2018-09/2021

7. Industry Collaborations: CalTex Oil Tools: alternatives to toxic biocides for controlling corrosion inducing bacteria in deep sea pipelines (~$20,000 in service contracts 2019-2020) Amglo: Pulsed UV: UV for COVID Disinfection (~$10,000 in service contracts, 2020) WQTS: Advanced oxidation testing for groundwater remediation ($40,000 in service contracts), Crystal IS: UV LEDs for Disinfection (~$15,000 in service contracts) Hazen: AOP testing of contaminated groundwater for LA County (~$25,000 in service contracts)

8. Translating Alaska WASH Research for Community Action; University of Colorado Community Impact Grant 2019-2020, for Doctoral Student Kaitlin Mattos

9. Mechanisms of UV inactivation of viruses for tailored disinfection applications. National Science Foundation, ($151,100, 1/16-08/18) CBET 1512616: Co-PI, with University of Texas El Paso, PI Rodriguez.

10. Design of Risk Reducing, Innovative Implementable Small System Knowledge (DeRISK) Center", US Environmental Protection Agency, Summers (PI) $4,100,000, 9/1/14-8/30/18 Linden (Co-PI) Share $776,244

11. "SRN: Routes to Sustainability for Natural Gas Development and Water and Air Resources in the Rocky Mountain Region", National Science Foundation, Ryan (PI). $12,000,000, 1/1/13-12/31/18 (Linden Share ~$350,000)

12. "Assessing Odor & Odor Control for the RTTC" Duke University, Prime: Bill & Melinda Gates Foundation ($140,000, 1/15 – 6/17) Linden Co-PI OPP1119852

13. GAANN - Department of Education Senior Faculty PhD Fellowship Program "Toward Engineering Resilience" (2015-2020). Linden Senior Faculty, Total 40 student years of funding, Provides funding for 2 Linden students

14. "Evaluation of cVOC Removal Efficiencies by Various Technologies", Water Research Foundation (ARCADIS, Prime) Cotton (PI), Linden Co-PI. Linden Share $150,000

15. "Enhanced Self Sufficiency for Water with Robust UV LED Disinfection" Office of Naval Research BAA 11-007, Subcontract from Sensor Electronic Technologies (SET) ($125,000, 3/12 – 2/14)

16. "The Science and Technology of Dispersants as Relevant to Deep Sea Oil Releases: Research Consortia" Gulf of Mexico Research Institute (GRI) ($11,400,000 total, $222,000 to Linden, 1/12 – 12/14) Linden, K.G. (Co-PI), John, V. (Tulane-PI)

17. "Demonstrating Advanced Oxidation Technologies on Pharmaceutical Removal Downstream of Biological Treatment" Water Environment Research Foundation INFR 6SG09 ($37,000, 1/10 – 5/11) Linden K.G. (Co-PI)

18. "Constructed Wetlands and UV Disinfection for Wastewater Treatment and Reuse in Small Communities" Multinational Agricultural Research and Development Program, US-Israeli

Bi-National Agricultural Research and Development Fund. BARD FG-9502-09 ($10,000 4/10 – 3/11) Linden K.G. (Co-PI)

19. "Heterogeneous Photocatalytic System for Water Remediation" Eltron Research (NIEHS 1R41ES017575-01), ($30,000, 8/09 – 4/10) Linden (Co-PI).
20. Workshop: "Ensuring the Sustainable Reuse of Wastewater for Agricultural Irrigation in Semi-Arid Regions" U.S.-Israel Binational Science Foundation, Linden (Co-PI), Zoller (PI) ($25,000, 2008)
21. "Fate and Effects of Hormones in Waste From Concentrated Animal Feeding Operations" (CAFOS) US EPA STAR, Linden K.G. (Co-PI), Kullman S.W. (PI), Ferrel G. (USGS) (Co-PI), Meyer M. (USGS) (Co-PI) ($25,000, 6/07 – 5/10)
22. "Superfund Chemicals Impact on Reproduction and Development, Project 7: Microbial and Photolytic Transformations of Superfund Chemicals", Subcontract from Superfund Hazardous Substances Basic Research Center, Dr. DiGiulio, Duke University, ($1,400,000 [Shared equally with A. Schuler], 4/05 – 4/09).
23. "Predicting Gene Flow from Transgenic Pine Pollen", US Department of Agriculture, Linden K.G. (Co-PI), Williams, C. (PI), Katul, G. (Co-PI) ($196,000, 9/05-8/08).
24. "Bioanalytical Analysis and Reproductive Effects of Environmental Endocrine Disruptors at Concentrated Animal Feed Operations Affecting North Carolina River Waters" Linden, K.G. (co-PI) Kullman, S.W. (PI) NC Water Resources Research Institute ($35,000 [Shared with Kullman], 4/05 – 3/06)
25. "DNA repair of UV irradiated Giardia lamblia cysts following low and medium pressure UV disinfection" National Science Foundation, BES - 0302609, Linden, K.G. (Co-PI), Gwy-Am Shin (PI), ($110,355, 7/03 – 8/06)
26. "Characterization of Microbial Populations in a Membrane Bioreactor with Powdered Activated carbon for Drinking Water Treatment", Lord Foundation, ($12,500 5/1/03 – 2/23/04) Linden, K.G. (Co-PI), Schuler, A.J. (PI)
27. "UV Water Treatment with Short Wavelength Surface Discharge Lamps", Phase II Small Business Innovations in Research, National Science Foundation, Subcontract from Phoenix Science and Technology, ($83,500, 1/03-12/06)
28. "UV Water Treatment with a Innovative Sparker Technology", Phase I Small Business Innovations in Research, National Science Foundation, Subcontract from Phoenix Science and Technology, ($28,527, 6/03-5/04)
29. "Superfund Chemicals Impact on Reproduction and Development, Project 5: Biological and chemical transformations and subsequent toxicity implications for contaminants", Subcontract from Superfund Hazardous Substances Basic Research Center, Dr. DiGiulio, Duke University, ($110,000, 2/02 – 3/05)
30. "Hydrodynamic characterization of UV reactors", American Water Works Association Research Foundation, ($123,000 3/1/01 – 2/28/04) Linden, K.G. (Co-PI), Ducoste, J. Civil Engineering, NC State University (PI)

31. “Development of Toxicity Bioassays for Pharmaceuticals in Reclaimed Water”, Water Environment Research Foundation, ($23,000, 10/01 – 10/05) Linden, K.G. (Co-PI), Kullman, S. NSOE, Duke University (PI)
32. "Inactivation of pathogens by innovative UV technologies", American Water Works Association Research Foundation, Subcontract from University of New Hampshire, ($85,000 1/1/00 - 12/31/02) Linden, K.G. (Co-PI), Malley, J. UNH (PI)
33. “UV Water Treatment with a Short Wavelength Surface Discharge Lamps”, Phase I Small Business Innovations in Research, National Science Foundation, Subcontract from Phoenix Science and Technology, ($22,500, 6/01-12/01)
34. “Innovative Ultraviolet Light Source for Disinfection of Drinking Water” Phase II Small Business Innovative Research Program, Topic C. Clean Water, US EPA, Subcontract from Phoenix Science and Technology, ($37,000, 12/01 – 12/02)
35. “Innovative Ultraviolet Light Source for Disinfection of Drinking Water” Phase I Small Business Innovative Research Program, Topic C. Clean Water, US EPA, Subcontract from Phoenix Science and Technology, ($15,000, 12/00 – 3/01)

## Other Funding

1. International Travel Grant to attend and present at IWA 2000, Paris, France. Duke University Office of the Vice Provost, $750
2. International Travel Grant to attend and present at IWA 2002, Melbourne, Australia. Duke University Office of the Vice Provost, $750
3. Seed Travel Grant to meet with NSF and WRF officers in Washington DC, April 2008. Dean’s Office, College of Engineering and Applied Science, CU Boulder. $500

### Peer Reviewed Publications

Notes: Names in **Bold** from Linden’s Lab, * indicates Linden is corresponding author; ^ denotes work published prior to academic appointments. ORCID: 0000-0003-4301-7227. Google Scholar: https://scholar.google.com/citations?user=uAS7KNUAAAAJ&hl=en

1. Gilboa, Y., White, B., Shlomo, I., **Linden, K.G**., Friedler, E. (2024) “UV-LED irradiation for biofouling reduction in drip irrigation emitters fed with wastewater effluent” Environmental Science: Water Research & Technology (accepted)
2. Lian, J.Z., Sai, N. Campos, L.C., **Fisher, R.P., Linden, K.G**., Cucurachi, S. (2024) “Exploring the implementation feasibility of the sol-char sanitation system using machine learning and life cycle assessment” Resources, Conservation and Recycling 209, 107784
3. Pousty, D., **Ma, B., Mathews, C**., Halanur,M., Mamane, H., ***Linden, K.G**. (2024) “Biofilm inactivation using LED systems emitting germicidal UV and antimicrobial blue light” Water Research, 122449

4. **Trujillo, C.M**., Segal, D.C., Lam, C.W., **Ning, J., *Linden, K.G.** (2024). "Solar-driven self-sustaining remediation of petroleum-contaminated soil" Solar Energy 279, 112810
5. MacIsaac, S.A., Reid, B., Ontiveros, C., **Linden, K.G**., Stoddart, A.K., Gagnon, G.A. (2024) "UV LED wastewater disinfection: The future is upon us" Water Research X 24, 100236
6. **Trujillo, C.M., Campos, N.S**., Segal, D.C., ***Linden, K.G.** (2024) "Heat input optimization for the ignition of self-sustained smoldering remediation of contaminated soils using concentrated solar power" Cleaner Waste Systems 8, 100143
7. **Randall, T**., Shlomo, I., **Wells, E., Real, B., Ma, B., Linden, Y., Gamboa, J**., Friedler, E., ***Linden, K.G.** (2024) "Evaluation of UVLED disinfection for biofouling control during distribution of wastewater effluent" Water Reuse 14 (1), 80-94
8. Ao, X., Zhang, X., Sun, W., **Linden, K.G., Payne, E.M**., Mao, T., Li, Z. (2024) "What is the role of nitrate/nitrite in trace organic contaminants degradation and transformation during UV-based advanced oxidation processes? Water Research, 121259
9. **Pimentel, A., *Linden, K.G**. (2024) Optimizing radical yield from free chlorine with tailored UV light emitting diode emission spectra, Water Research 249, 120923
10. Oh, Y., **Sangsanont, J**., Woo, H., Boczek, L.A., **Linden, K.G**., Ryu, H. (2024) "Inactivation efficacy and mechanisms of wavelength-specific UV sources for various strains of Legionella pneumophila serogroup 1" Science of The Total Environment 907, 167781
11. **Liu B, Mullen L, Payne EM, *Linden KG**. (2023) "Accelerated Ultraviolet Treatment of Carbamazepine and NDMA in Water under 222 nm Irradiation." Environmental Science & Technology (May 15, 2023)
12. **Ma B, Burke-Bevis S, Tiefel L**, Rosen J, Feeney B, ***Linden KG**. (2023) "Reflection of UVC wavelengths from common materials during surface UV disinfection: Assessment of human UV exposure and ozone generation." Science of the Total Environment. 869 (January 30, 2023): ARTN 161848.
13. **Seyedi S, Ma B**, Groves M, King H, ***Linden KG**. (2023) "Field Study and Evaluation of KrCl* Far UV-C Device Capability for Inactivation of Phi6 Bacteriophage." Photochemistry and Photobiology. 99 (5) (September 2023): 1293-1298
14. Wang Y, Ma B, Zhao J, Tang Z, Li W, He C, Xia D, **Linden KG**, Yin R. (2023) "Rapid Inactivation of Fungal Spores in Drinking Water by Far-UVC Photolysis of Free Chlorine." Environmental Science & Technology. 57 (51) (November 18, 2023): 21876-21887.
15. Sperle P, Mirlach A, **Linden K**, Huebner U, Drewes JE. (2023) "An actinometric method to characterize performance of reflecting UVC reactors used for water treatment." Water Research. 230 (January 09, 2023): ARTN 119543
16. **Mattos KJ, Hull NM, Linden KG**, Dotson AD. (2023) "A Pilot Household Greywater Treatment and Reuse System Produces High-Quality Water under Simulated Household Illness Test Conditions." ACS ES&T Water. 3 (11) (October 13, 2023): 3593-3601

17. Edri L, **Linden KG**, Ibrahim N, Avisar D, Kaplan A, Hayoune S, Lester Y. (2023) "Prediction of organic groundwater contaminant degradation during medium pressure UV/NO3- treatment." Environmental Science-Water Research & Technology (June 19, 2023)
18. Brown J, Acey CS, Anthonj C, Barrington DJ, Beal CD, Capone D, Cumming O, Fedinick KP,Gibson JM, Hicks B, et. al. (2023) "The effects of racism, social exclusion, and discrimination onachieving universal safe water and sanitation in high-income countries." Lancet Global health. 11 (4) (April 2023): E606-E614
19. Kirsch KJ, Nagel C, Iribagiza C, Ecklu J, Zawadi GA, Ntabaza PM, Barstow C, Lund A, Harper J, Carlton E, et. al. (2023) "Study design and baseline to evaluate water service provision among peri-urban communities in Kasai Oriental, Democratic Republic of the Congo." PLOS One. 18 (4) (April 13, 2023): ARTN e0283019
20. **Payne EM, Liu B, Mullen L, *Linden KG**. (2022) "UV 222 nm Emission from KrCl* Excimer Lamps Greatly Improves Advanced Oxidation Performance in Water Treatment." Environmental Science & Technology Letters (August 15, 2022). 9, 9, 779-785. https://doi.org/10.1021/acs.estlett.2c00472
21. **Ma, B, Seyedi S, Wells E**, McCarthy D, Crosbie N, ***Linden KG**. (2022) "Inactivation of biofilm-bound bacterial cells using irradiation across UVC wavelengths. "Water Research. 217 (April 13, 2022): ARTN 118379.
22. Rodriguez RA, Navar C, **Sangsanont J, Linden KG**. (2022) "UV inactivation of sewage isolated human adenovirus." Water Research. 218 (May 04, 2022) ARTN 118496.
23. **Liu B, Pimentel AL**, Watts MJ, **Murphy JR, *Linden KG**. (2022) "Ozonation greatly improves ceramic membrane microfiltration efficiency during wastewater reuse: mechanisms and performance." Environmental Science-Water Research & Technology. 8 (7) (May 26, 2022): 1535-1546.
24. Najm I, **Linden K, Liu B**, Liles J, Winners S. (2022) "Destruction of 1, 4-Dioxane and VOCs with UV-H 2 O 2 in a high alkalinity groundwater." AWWA Water Science. 4 (4) https://doi.org/10.1002/aws2.1296
25. Henderson J, **Ma B**, Cohen M, Dazey J, Meschke JS, ***Linden KG**. (2022) "Field study of early implementation of UV sources and their relative effectiveness for public health and safety." Journal of Occupational and Environmental Hygiene. 19 (9) (July 26, 2022): 524-537.
26. **Ma, B**, Bright K, Ikner L, **Ley C, Seyedi S**, Gerba CP, Sobsey MD, Piper P, ***Linden KG**. (2022) "UV Inactivation of Common Pathogens and Surrogates Under 222nm Irradiation from KrCl Excimer Lamps." Photochemistry and Photobiology (October 19, 2022) doi: 10.1111/php.13724.
27. **Cord C,** Javernick-Will A, Buhungiro E, Harvey A, Jordan E, Lockwood H, **Linden K**. (2022) "Pathways to consumer demand and payment for professional rural water infrastructure maintenance across low-income contexts." Science of the Total Environment. 815 (April 01, 2022).
28. **Pugel K**, Javernick-Will A, Mussa M, Mekonta L, Dimtse D, Watsisi M, Huston A, **Linden K**. (2022) "Pathways for securing government commitment for activities of

collaborative approaches." Journal of Water Sanitation and Hygiene for Development. 12 (3) (February 09, 2022): 258-270.

29. **Cord C**, Javernick-Will A, Buhungiro E, Harvey A, **Linden K**. (2022) "Institutional influences on local government support for professionalized maintenance of water supply infrastructure in rural Uganda: A qualitative analysis." PLOS Water. 1 (2) (February 15, 2022): e0000003-e0000003. (Published online February 15, 2022)
30. **Randall TE, Linden YS, Gamboa J, Real B**, Friedler E, ***Linden KG.** (2022) "Bacterial repair and recovery after UV LED disinfection: implications for water reuse." Environmental Science-Water Research & Technology. 8 (8) (May 24, 2022): 1700-1708.
31. **Fink EL, Chintalapati P**, Lane A, Wester A, Javernick-Will A, **Linden K**. (2022) "Determinants of rural hand-pump functionality through maintenance provision in the Central African Republic." PLOS Water. 1 (6) (June 09, 2022): e0000024-e0000024. (Published online June 09, 2022)
32. **Cord C, Fink E**, Javernick-Will A, Mukanga J, Bergeron F, Harvey A, **Linden KG.** (2022) "Multimethod Analysis of Factors for Reliable and Sustainable Rural Water Infrastructure Maintenance in Uganda." ACS ES&T Water (July 26, 2022).
33. **Pugel K**, Javernick-Will A, Nyaga C, Mussa ME, Dimtse D, Henry L, **Linden K.** (2022) "Mapping (mis)alignment within a collaborative network using homophily metrics." PLOS Water. 1 (9) (September 21, 2022): e0000044-e0000044. (Published online September 21, 2022)
34. **Chintalapati P**, Nyaga C, Walters JP, Koehler J, Javernick-Will A, Hope R, **Linden KG**. (2022) "Improving the Reliability of Water Service Delivery in Rural Kenya through Professionalized Maintenance: A System Dynamics Perspective." Environmental Science & Technology, 56, 23, 17364–17374, https://doi.org/10.1021/acs.est.2c00939.
35. Walters JP, Valcourt N, Jayernick-Will A, **Linden K.** (2022) "Sector Perspectives on the Attributes of System Approaches to Water, Sanitation, and Hygiene Service Delivery." Journal of Environmental Engineering. 148 (6) (June 01, 2022): ARTN 05022002.
36. Walters J, Valcourt N, **Linden K**, Javernick-Will A, Lockwood H. (2022) "Challenges and solutions to rural water service sustainability in East African countries: A 'systems scaffolding' perspective." Environmental Science & Policy. 136 (July 25, 2022): 564-574.
37. Blatchley ER, Brenner DJ, Claus H, Cowan TE, **Linden KG**, Liu Y, Mao T, Park S-J, Piper PJ, Simons RM, et. al. (2022) "Far UV-C radiation: An emerging tool for pandemic control." Critical Reviews in Environmental Science and Technology (May 31, 2022).
38. **Ma, B**., Gundy, P.M., Gerba, C.P., Sobsey, M.D., ***Linden, K.G.** (2021) UV Inactivation of SARS-CoV-2 across the UVC spectrum: KrCl* excimer, mercury-vapor, and LED sources Applied & Environmental Microbiology, https://doi.org/10.1128/aem.01532-21
39. **Mattos KJ**, Mulhern R, Naughton CC, Anthonj C, Brown J, Brocklehurst C, Brooks C, Desclos A, Escobedo Garcia NE, Gibson JM, et. al. "Reaching those left behind: knowledge gaps, challenges, and approaches to achieving SDG 6 in high-income

countries." Journal of Water Sanitation and Hygiene For Development. 11 (5) (July 30, 2021): 849-858.

40. Nyamutswa LT, Hanson B, Navaratna D, Collins SF, **Linden KG**, Duke MC. "Sunlight-Transmitting Photocatalytic Membrane for Reduced Maintenance Water Treatment." ACS ES&T Water. 1 (9) (September 10, 2021): 2001-2011.

41. **Mattos K**, Warren J, Eichelberger L, Kaminsky J, Linden K. "Pathways to the successful function and use of mid-tech household water and sanitation systems." Journal of Water Sanitation and Hygiene For Development. 11 (6) (September 24, 2021): 994-1005.

42. Meese AF, Kim DJ, Wu X, Le L, Napier C, Hernandez MT, Laroco N, **Linden KG**, Cox J, Kurup P, et. al. "Opportunities and Challenges for Industrial Water Treatment and Reuse." ACS ES&T Engineering (October 08, 2021): acsestengg.1c00282. (Published online October 08, 2021)

43. Miller KD, **Bentley MJ**, Ryan JN, **Linden KG, Larison C**, Kienzle BA, Katz LE, Wilson AM, Cox JT, Kurup P, et. al. "Mine Water Use, Treatment, and Reuse in the United States: A Look at Current Industry Practices and Select Case Studies." ACS ES&T Engineering (October 20, 2021): acsestengg.1c00244. (Published online October 20, 2021)

44. Nelson-Nunez J, **Mostafa S, Mahoney RB, Linden KG**. (2021) "If you Build it, will they come? Use of rural Drinking Water Systems in the Peruvian Amazon." Journal of Development Studies (December 19, 2021).

45. **Ma, B., Linden, Y.S.**, Gundy, P.M., Gerba, C.P., Sobsey, M.D., ***Linden, K.G**. (2021) Inactivation of Coronaviruses and Phage Phi6 from Irradiation across UVC Wavelengths. Environmental Science & Technology Letters 8 (5), 425-430

46. **Sitterley, K.A.,** Silverstein, J.A., **Rosenblum, J., *Linden, K.G.** (2021) Aerobic biological degradation of organic matter and fracturing fluid additives in high salinity hydraulic fracturing wastewaters. Science of The Total Environment 758, 143622

47. **Mattos, K.J.,** Eichelberger, L., Warren, J., Dotson, A., Hawley, M., ***Linden, K.G.** (2021) Household Water, Sanitation, and Hygiene Practices Impact Pathogen Exposure in Remote, Rural, Unpiped Communities. Environmental Engineering Science 38 (5), 355-366

48. Thomas, E., Salvinelli, C., Harper, J., MacDonald, L., Klees, R., Platais, G., Javernick-Will, A., **Linden, K.** (2021) A Body of Knowledge and Pedagogy for Global Engineering. International Journal for Service Learning in Engineering, Humanitarian Engineering and Social Entrepreneurship Vol. 16, No. 1, pp. 37-57

49. **Vinge, S.L., Rosenblum, J.S., Linden, Y.S., Saenz, A., Hull, N.M., *Linden, K.G.** (2021) Assessment of UV Disinfection and Advanced Oxidation Processes for Treatment and Reuse of Hydraulic Fracturing Produced Water. ACS ES&T Engineering 1 (3), 490-500

50. Fisher, R.P., Lewandowski, A., **Yacob, T.W., Ward, B.J., Hafford, L.M., Mahoney, R.B., Oversby, C.J.,** Mejic, D., Hauschulz, D.H., Summers, R.S., ***Linden, K.G.,**

Weimer, A.W. (2021) Solar Thermal Processing to Disinfect Human Waste. Sustainability 13 (9), 4935

51. **Hull, N.M., *Linden, K.G.** (2021) On applicability of a cell proliferation assay to examine DNA concentration of UV-and chlorine-treated organisms–a rebuttal of Molina et al.(2019). Management of Biological Invasions 12 (2), 240-245
52. ***Linden, K.G.** (2020) Striving for a More Diverse and Inclusive Field in Engineering, Environmental Engineering Science, 37 (8) 519-520. DI 10.1089/ees.2020.0261
53. Thomas, E., Jordan, E., **Linden, K**., Mogesse, B., Hailu, T., Jirma, H., Thomson, P., Koehler, J., Collins, G. (2020) Reducing drought emergencies in the Horn of Africa, Science of The Total Environment, 727, 138772
54. **Sitterley, K.A., Linden, K.G**., Ferrer, I., Thurman, E.M. (2020) Desalting and Concentration of Common Hydraulic Fracturing Fluid Additives and their Metabolites with Solid-Phase Extraction. Journal of Chromatography A, 1622, 461094. DI 10.1016/j.chroma.2020.461094
55. **Sitterley, K.A., Rosenblum, J., Ruyle, B., Keliher, R., *Linden, K.G.** (2020) Factors impacting electrocoagulation treatment of hydraulic fracturing fluids and removal of common fluid additives and scaling ions. Journal of Environmental Chemical Engineering, 8 (3) 103728. DI 10.1016/j.jece.2020.103728
56. ***Linden, K.G**. (2020) Let's Talk: "AEESP Tackles Harassment" Environmental Engineering Science, 37 (5) 304-305. DI 10.1089/ees.2020.0057
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## Conference Proceedings/Presentations (Competitive Reviewed Abstracts)

1. Ma, B., Seyadi, S., Pousty, D., Wells, E., Mamane, H., McCarthy, D., Crosbie, N., Linden, K. G.. Biofilm control in water supply systems using UVC devices. WQTC, Dallas, TX, November 2023. - Conference Presentation
2. Ma, B., Seyadi, S., Pousty, D., Wells, E., Mamane, H., McCarthy, D., Crosbie, N., Linden, K. G.. Inactivation of biofilm-bound bacterial cells using irradiation across UVC wavelengths. Gordon Research Seminar and Gordon Research Conference: Water Disinfection, Byproducts and Health, South Hadley, MA, July 2023 - Conference Presentation
3. Ma, B., Linden, Y., Gundy, P., Ikner, L., Bright, K., Seyedi, S., Ley, C., Tiefel, L., Burke-Bevis, S., Gerba, C., Sobsey, M., Linden, K. G.. Far UV-C: A new effective tool for enhanced pathogen inactivation. International Conference on Far-UVC Science and Technology (ICFUST), New York City, NY, June 2023 - Conference Presentation
4. Liu, B.; Thurman, E. M.; Ferrer, I.; Linden, K. G. Low Wavelength Driven Advanced Oxidation and •OH Forgotten Sibling. IUVA World Congress, Dubai, UAE, Sept. 2023 – Conference Presentation - International

5. Liu, B.; Payne, E., Mullen, L.; Linden, K. Evaluating Efficiency of Far UV-C Based Advanced Oxidation Processes for Pharmaceutical Degradation in Water. WateReuse Colorado Conference, May, 2023 - Poster Presentation
6. Payne, E.M., Liu, B., Linden, K.G. "UV 222 nm Emission from KrCl* Excimer Lamps Greatly Improves Advanced Oxidation Performance in Water Treatment." Water Quality Technology Conference, Dallas, TX. November 2023 - Conference Presentation
7. Payne, E.M., Liu, B., Linden, K.G. "Accelerating UV advanced oxidation using KrCl* excimer lamps." Rocky Mountain Water Conference, Loveland, CO. September 2023 – Conference Presentation
8. Payne, E., Liu, B., Mullen, L., Linden K.G. "Nitrate Promoted UV Advanced Oxidation using222 nm KrCl* Excimers." American Chemical Society Spring Meeting, Indianapolis, IN. March2023 - Conference Presentation
9. Payne, E.M., Jordan, B., Langelan, E., Liu, B., Linden, K.G. "Accelerating advanced oxidation with low wavelength Far-UVC technology". RemTEC & Emerging Contaminants Summit, Westminster, CO. October 2023 - Poster Presentation
10. Payne, E.M., Jordan, B., Liu, B., Linden, K.G. "Accelerating UV advanced oxidation: tailoring radical promoters with wavelength." Water Disinfection, Byproducts and Health Gordon Research Conference, South Hadley, MA. July 2023 - Poster Presentation
11. Payne, E.M, Liu, B., Mullen, L., Linden, K.G. "Accelerating contaminant degradation in UV advanced oxidation using KrCl* excimer lamps: the role of nitrate." WateReuse Colorado Conference, Boulder, CO. May 2023 - Poster Presentation
12. Wells, E., Fuller, M., Linden, K. (2023, March 16). From Source to Sink: How are Utility Staff Protecting Water Safety through Risk Management?. Alberta Water and Wastewater Operator Association Annual Seminar, Banff, Alberta - Conference Presentation
13. Wells, E., Fuller, M., Linden, K. (2023, May 4). Evaluating Risk Management Approaches in Drinking Water Utilities. Inclusive Excellence in Water Symposium, Dalhousie University, Halifax Nova Scotia - Conference Presentation
14. Rao, G., Wells, E., De France, J., Linden, K., & Brown, J. (2023, October 23). Systematic Reviews of Microbiological Performance of Household and Community Drinking Water Treatment Technologies. UNC Water and Health Conference, Chapel Hill, North Carolina -Poster Presentation
15. Linden, K.G., Payne, E., Liu, B., Ma, B. (2023) Leveraging AOP Innovations to Accelerate Organic Contaminant Degradation in Water Reuse, Oral presentation at AWWA Water Quality Technology Conference, Dallas TX Nov 5-9 2023
16. Linden, K.G., LED-powered Protective Equipment: The Future of Safe Breathing Oral Presentation, ICULTA: International Conference on Ultraviolet LEDs Technology and Advancement, 2023, Berlin Germany, April 25, 2023. Co-

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17. Invited Keynote: Linden, K.G. Inclusivity in Water and Wastewater Treatment: the Value of UV LED Treatment Technology. Inclusive Excellence in Water Symposium, Dalhousie University, Halifax NS, May 5, 2023
18. Linden, K.G., Dickenson, E., Minton, J., Hacker, M. Unlocking the Nationwide Potential of Water Reuse, Oral Presentation, WateReuse Association Symposium, Atlanta Georgia, March5-8, 2023.
19. Linden, K.G., Gora, S., Ma, B., Simons, R., Biofilm and UV Task Force: Current state of biofilm and UV research. Oral Presentation, IUVA World Congress, Dubai, UAE, September 10-13,2023
20. Ma, B., Seyedi, S., Wells, E., McCarthy, D., Crosbie, N., Linden, K.G. Inactivation of biofilm-bound bacterial cells using irradiation across UVC wavelengths. AEESP Conference, St. Louis, MO, June 2022
21. Ma, B., Linden, Y., Gundy P. M., Seyedi, S., Ley, C., Ikner, L., Bright, K., Gerba, C., Sobsey, M., Piper, P., Linden, K. G.. Far UV-C: A new effective tool for enhanced pathogen inactivation. AEESP Conference, St. Louis, MO, June 2022. [Poster].
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25. Seyedi S., Ley C., Ma B., Linden K. Far UVC disinfection efficiency: Examining wavelength-dependent inactivation, UV-induced biomolecule damage, and photorepair potential. AEESP Conference, St. Louis, MO, June 2022. [Poster].
26. Ley C., Seyedi S., Ma B., Linden K. Far UV-C inactivation of viral surrogates for pathogen control. Gordon Research Conf.: Microbiology of the Built Environment, Waterville Valley, NH. June 2022
27. Corey Trujillo, Carl Lam, Daniel Segal, Karl Linden, 2022, “Concentrated Solar-Powered Soil Remediation”, Battelle Conference on Remediation of Chlorinated and Recalcitrant Compounds, Palm Springs, CA
28. Liu, B., Watts, M., Linden, K., Ceramic Membrane Coupled with Ozone for Alleviation of Fouling and Enhancement of Flux for Water Reuse. AMTA

Membrane Technology Conference and Exposition, Las Vegas, NV, Feb. 2022 [oral]

29. Liu, B., Mullen, L., Linden, K. Evaluating Efficiency of Far UV-C Based Advanced Oxidation Processes for Pharmaceutical Degradation in Water. AWWA Rocky Mountain Student Conference, Albuquerque, NM, May, 2022 [oral] (*Lauren Mullen presented)
30. Liu, B., Payne, E., Mullen, L., Linden, K Evaluating Efficiency of Far UV-C Based Advanced Oxidation Processes for Pharmaceutical Degradation in Water. IUVA Research Symposium, May, 2022 [poster]
31. Liu, B., Payne, E., Mullen, L., Linden, K. Evaluating Efficiency of Far UV-C Based Advanced Oxidation Processes for Pharmaceutical Degradation in Water. WEST Water and Environment Student Talk, Online hosted by University of British Columbia, June, 2022 [oral]
32. Payne, E., Liu, B., Mullen, L., Linden, K Comparison of Hydroxyl Radical Production in Low-Pressure UV and KrCl* Excimer UV Advanced Oxidation Processes. IUVA Research Symposium, May, 2022 [poster]
33. Liu, B., Mullen, L., Linden, K. Evaluating Efficiency of Far UV-C Based Advanced Oxidation Processes for Pharmaceutical Degradation in Water. Rocky Mountain Water Conference Special Session, Keystone, CO, Sept, 2022 [oral]
34. Mattos KJ, Warren J, Heavener M, Linden K. "Rethinking Water and Sanitation in Challenging Environments: Lessons Learned from Installing Portable, Adaptable, Mid- Tech Household Systems." Permafrost 2021 (Regional Conference on Permafrost 2021 and the 19th International Conference on Cold Regions Engineering): American Society of Civil Engineers, October 21, 2021 (Published online October 21, 2021)
35. Mattos, KJ. Eichelberger, LP. Warren, J. Dotson, AD. Hawley, M. Linden, KG. Household water and sanitation practices in remote and rural unpiped communities. Alaska Native Health Research Conference. Anchorage, AK (virtual). June 2021.
36. Mattos, KJ. Eichelberger, LP. Warren, J. Dotson, AD. Linden, KG. Mid-tech water and sanitation systems for challenging environments. Rocky Mountain Water and Environment Association Student Research Conference (virtual). May 2021. 2nd Place Flash Talk Winner.
37. Mattos, KJ. Eichelberger, LP. Warren, J. Dotson, AD. Linden, KG. Mid-tech water and sanitation systems for challenging environments. WIT Water and Society Conference, UK (virtual). May 2021.
38. Pimentel, A, Liu, B, Linden, K 2021 RMSAWWA/RMWEA Student Conference: Catalytic Ozonation for Wastewater Reuse
39. Pimentel, A, Liu, B, Linden, K 2021 RMSAWWA Fresh Ideas Poster Competition (1st Place): Catalytic Ozonation for Wastewater Reuse

40. Ma, B., Linden, K. et al. Far UV-C: A new e]ective tool for enhanced virus inactivation. Water Quality Technology Conference, Tacoma, WA, November 2021.
41. Ma, B., Linden, K. et al. Inactivation of enveloped viruses in aqueous solution and on surfaces using UVC devices. IUVA World Congress. Virtual. June 2021.
42. Linden, K, Vinge, S, Miklos< D 2021. Innovations in advanced oxidation to control emerging contaminants in wastewater ewuent. ACS Paci`chem, Virtual Dec 18, 2021
43. Linden, K., Hull, N., Speight, V. 2021. Thinking outside the treatment plant: UV for water distribution system disinfection, ACS Paci`chem virtual, Dec 19, 2021
44. Cord et al., Presentation at CU WASH Symposium, "Enabling Local Government Support: Institutional Impacts on Policy Shifts for Sustainable Rural Water Services in Uganda" – March 11, 2021
45. Cord et al., Poster at UNC Water and Health – "Pathways to Enabling the Reliability and Scale of Rural Water Infrastructure Maintenance Interventions" – Oct 6, 2021
46. Cord et al., Poster at UNC Water and Health – "Functional Policies, Functional Pumps: Institutional Inquences on Local Government Support for Rural Water Service Sustainability" – Oct 6, 2021
47. Coupled UV – Membrane and Oxidant – Membrane Processes for Decreased Biofouling and Enhanced Flux in Water Reclamation Applications, Membrane Science, Engineering & Technology Center Conference. Liu and Linden. April and October 2021
48. Ma, B., Seyedi, S., Wells, E., Linden, K. (2021). Inactivation and control of bio`lm-bound opportunistic pathogens using UVC devices. Presented at the International Ultraviolet Association (IUVA) 2021 World Congress. Online Conference.
49. Ma, B., Seyedi, S., Wells, E., Linden, K. (2021). Impact of various UVC wavelengths on inactivation and control of bio`lm-bound opportunistic pathogens. Presented at American Water Works Association (AWWA) Water Quality Technology Conference (WQTC) 2021. Tacoma, Washington.
50. Cord et al., Presentation at CU WASH Symposium, "Enabling Local Government Support: Institutional Impacts on Policy Shifts for Sustainable Rural Water Services in Uganda" – March 11, 2021
51. T.E. Randall, I. Shlomo, J. Gamboa, Y. Gilboa, E. Friedler, K.G. Linden (March 2020). UV- LEDs in water scarce settings: Biofouling mitigation during drip irrigation with reclaimed wastewater in Israel. March, 2020 IUVA Americas Conference. Orlando, FL, USA.

52. Across the Pond Water Talks Webinar, June 2020; Systems for maintaining rural water infrastructure: Identifying impacts of service area contexts and pathways enabling success. Cord, C.; Chintalapati, P.; Javernick-Will, A.; Linden, K.

53. Presentation: WASH in Development class taught by Dr. Danielle Wain, Colby College, January 2021; Systems for maintaining rural water infrastructure and COVID impacts on maintenance provision in Uganda (invited, combined talk with Kimmy Pugel) Cord, C.; Pugel, K.; Chintalapati, P.; Javernick-Will, A.; Linden, K.

54. Innovative Ceramic Membrane with Ozonation for Wastewater Reuse, Gulf Coast Undergraduate Research Symposium (Rice University) Pimentel, Liu, Linden. 10/31/2020

55. Water Ways Forward – Community perspectives on water and sanitation options for unpiped areas. Alaska Tribal Conference on Environmental Management Anchorage, AK (virtual) Invited Lecture by Doctoral Student Kaitlin Mattos Dec 2020

56. Getting left behind: Ensuring high-income countries achieve water and sanitation for all by 2030 (SDG6) (side session) UNC Water and Health Conference, Chapel Hill, NC (virtual) October 2020 Doctoral Student Kaitlin Mattos, with Colleen Naughton, UC Merced

57. Unexplored Pathways of pathogen exposure from household water and sanitation practices in remote Arctic communities (poster) Arctic Science Summit Week, Akureyri, Iceland (virtual), Doctoral Student Kaitlin Mattos, April 2020

58. Unexplored pathways of pathogen exposure from household practices in remote and rural unpiped communities, Colorado WASH Symposium Boulder, CO, Doctoral Student Kaitlin Mattos March 2020

59. Water use practices in unserved (unpiped) communities. Alaska Public Health Association Conference, Anchorage, AK, January 2020. Doctoral Student Kaitlin Mattos, Laura Eichelberger, ANTHC

60. Chintalapati, P., Nyaga, C., Walters, J., Javernick-Will, A., Linden, K. (2020). "Functionality and financial implications of professional maintenance services for rural water service delivery in Kenya". 38th International Conference of the System Dynamics Society, Bergen, Norway (Virtual)

61. Chintalapati, P., Libey, A., Amadei, B., Thomas, E. (2020). "Validating regional-scale water service functionality models across East Africa". Oral presentation at the 2020 UNC Water and Health Conference, Chapel Hill, NC (Virtual)

62. Chintalapati, P., Nyaga, C., Walters, J., Javernick-Will, A., Linden, K. (2020). "Professional maintenance effects on rural water services in Kenya". Poster presentation at the 2020 UNC Water and Health Conference, Chapel Hill, NC (Virtual)

63. Ben Ma, Charles P. Gerba, Yarrow S. Linden, Patricia M. Gundy, and Karl G. Linden, 2020. Poster presentation: Inactivation of enveloped viruses under UVC

irradiation across different wavelengths. International Conference on UV Disinfection for Air and Surfaces (ICUDAS, IUVA) October, 2020

64. Pugel, K., Javernick-Will, A., Peabody, S. and K. Linden. (2020, Oct) "Qualitative Comparative Analysis of eleven cases of collaborative approaches for water and sanitation service provision in East Africa," 2020 Engineering Project Organizations Conference, Virtual.
65. Pugel, K., Javernick-Will, A., Peabody, S., Linden, K., and D. Hollander (2020, Oct). Cross- case comparison of eleven collective action approaches in WASH. University of North Carolina Water and Health Conference, Virtual, October 2020.
66. Coupled UV – Membrane and Oxidant – Membrane Processes for Decreased Biofouling and Enhanced Flux in Water Reclamation Applications, Membrane Science, Engineering & Technology Center Conference. Liu and Linden. April and October 2020
67. T.E. Randall, I. Shlomo, J. Gamboa, Y. Gilboa, E. Friedler, K.G. Linden (August 2020). UV- LEDs in water scarce settings: Biofouling mitigation during drip irrigation with reclaimed wastewater in Israel. 2020 Annual WateReuse Symposium, Virtual.
68. Cord, C.; Chintalapati, P.; Lockwood, H.; Nyaga, C.; Harvey, A.; Hollander, D.; Walters, J.; Javernick-Will, A.; Linden, K. Enabling rural WASH systems: mapping rural water maintenance approaches and identifying key support requirements. Proceedings of the African Water Association (AfWA) International Congress and Exhibition 2020
69. Cord, C.; Chintalapati, P.; Lockwood, H.; Nyaga, C.; Harvey, A.; Hollander, D.; Walters, J.; Javernick-Will, A.; Linden, K. Enabling rural WASH systems: mapping rural water maintenance approaches and identifying key support requirements. African Water Association (AfWA) International Congress and Exhibition 2020, Kampala, Uganda, February 2020 Poster/
70. Valcourt N, Walters J, Javernick-Will A, Linden K. "Understanding Complexity in WASH Systems." (All systems go!, March 12, 2019 - March 14, 2019), 2019
71. Presentation and discussion: Community experiences and perspectives on water and sanitation, and ways to move forward, Alaska Tribal Conf. on Environ. Management, Anchorage, AK, November 2019. Kaitlin Mattos Presenter
72. Household water and sanitation strategies in rural Alaska serve as opportunities for WASH interventions - Poster Presentation, UNC Water and Health Conference, Chapel Hill, NC, October 2019; Kaitlin Mattos, presenter
73. Use, maintenance and sustainability of a "middle-tech" water and sanitation system (poster), Engineering Sustainability 2019, Pittsburgh, PA, April 2019, Kaitlin Mattos, Presenter
74. Use, maintenance and sustainability of a "middle-tech" water and sanitation system (poster), Alaska Water and Wastewater Management Association annual meeting, Anchorage, Alaska, May 2019, Kaitlin Mattos, Presenter

75. Chintalapati P, Walters J, Javernick-Will A, Linden K. "System dynamics modelling as a tool for assessing rural water sustainability." (All Systems Go!, March 12, 2019 - March 14, 2019), 2019

76. Chintalapati, P., Cord, C., Lockwood, H., Javernick-Will, A., Linden, K. (2019). "Assessing Maintenance Interventions to Improve the Sustainability of Rural Water Services". Poster presentation at the 2019 Water and Health Conference, Chapel Hill, NC.

77. Chintalapati, P., Cord, C., Lockwood, H., Javernick-Will, A., Linden, K. (2019). "Assessing Maintenance Interventions to Improve the Sustainability of Rural Water Services". Poster presentation at the 2019 OU International Water Symposium, Norman, OK

78. Pugel K, Javernick-Will A, Linden K. "What is a collective action approach and what makes it effective? : a desk review." (All Systems Go!, March 12, 2019 - March 14, 2019), 2019

79. Pugel K, Javernick-Will A, Linden K. "Collective action approaches for sustaining water and sanitation services- a systematic literature review." (2019 Engineering Organizations Project Conference, June 25, 2019 - June 27, 2019), 2019

80. Ulliman SL, Sharples CM, Shaheen SW, Linden KG (podium, Feb. 2019). Nitrate: Friend or Foe of UV Advanced Oxidation Processes? International Ultraviolet Association World Congress, Sydney, Australia.

81. Chintalapati, P., Walters, J., Javernick-Will, A., Linden, K. (2019). "System dynamics modelling as a tool for assessing rural water sustainability". Oral presentation at the 2019 IRC WASH Symposium, The Hague, The Netherlands.

82. Valcourt, N., Walters, J. P., Javernick-Will, A., & Linden, K. (2019, March 12). Embracing Complexity: Thinking in systems and what it means for WASH. All Systems Go - WASH Systems Symposium, The Hague, Netherlands. https://www.ircwash.org/all-systems-go-presentations

83. Ulliman SL, Rosenblum JS, Linden Y, Linden KG (poster, Nov. 2019). UV and Advanced Oxidation Treatment of Organics and Microbes Present in Hydraulic Fracturing Wastewater. Society for Petroleum Engineers Workshop, Golden, CO

84. Ulliman SL, Shaheen SA., Sharpless, CM., Linden, KG (poster, May 2019). Optimizing UV photolysis of Nitrate for Improved Water Treatment. Association of Environmental Engineering and Science Professors Bi-Annual Conference, Tempe, AZ.

85. Cord, C.; Walters, J.; Lockwood, H.; Chintalapati, P.; Javernick-Will, A.; Linden, K. Shifting our minds toward prevention: models for rural water maintenance and sustained service delivery. IRC All Systems Go! Conference, Den Haag, The Netherlands, March 2019

86. Pugel, K., Javernick-Will, A., and Linden, K. (2019). "Factors that Contribute to Successful Collective Action for Sustainable Water and Sanitation Development". 2019 Engineering Project Organizations Conference, Vail, CO.

87. T.E. Randall, J. Gamboa, I. Shlomo, Y. Gilboa, E. Friedler, K.G. Linden (May 2019). Distributed UV LEDs for disinfection and control of drip emitter fouling during irrigation with reclaimed wastewater effluent. Rocky Mountain AWWA Student Conference, Boulder, CO, USA.

88. T.E. Randall, J. Gamboa, I. Shlomo, Y. Gilboa, E. Friedler, K.G. Linden (June 2019). Distributed UV LEDs for combined control of fouling of drip emitters and disinfection during irrigation with reclaimed wastewater effluent. AWWA Annual Conference and Exposition. Denver, CO, USA.

89. T.E. Randall, J. Gamboa, I. Shlomo, Y. Gilboa, E. Friedler, K.G. Linden (October 2019). UV-LED disinfection and biofouling mitigation during drip irrigation with reclaimed wastewater (poster). UNC Water & Health Conference. Chapel Hill, North Carolina, USA.

90. Hull NM, Herold W, and Linden KG (Oct 2019). Small water system UV-C LED disinfection: year-long demonstration of a novel technology to fight waterborne infectious disease. Appalachian Translational Research Network Health Summit - Working Toward Health Equity in Appalachia: Exploring Solutions. Columbus, OH, USA.

91. Hull NM, Pace NR, and Linden KG (May 2019). UV-C LEDs for decentralized water disinfection. AEESP Research and Education Conference, Arizona State University, Tempe, AZ, USA.

92. Hull NM, Herold W, and Linden KG (Sep 2019). UV LED Water Disinfection: Validation and Small System Demonstration (Poster). 16th Annual EPA Drinking Water Workshop: Small Systems Challenges and Solutions. Cincinnati, OH, USA.

93. Linden, Hull 2019: Yearlong Disinfection Performance of a UV-C LED Reactor at a Small Drinking Water Treatment Plant. International UV Association International Conference, Sydney Australia, Feb 2019.

94. Linden: POSTER: UV LED Water Disinfection: Validation and Small System Demonstration. International Water Association, Health Related Water Microbiology Conference, Vienna Austria, September 2019

95. Cord C, Walters J, Lockwood H, Chintalapati P, Javernick-Will A, Linden K. "Moving toward prevention : rural water maintenance and sustained service delivery." (All Systems Go!, March 12, 2019 - March 14, 2019), 2019

96. Valcourt, N., Hollander, D., Pugel, K., Javernick-Will, A., Linden, K., (2018). Using Systems Analysis to Understand and Strengthen WASH Systems. Verbal presentation at the Colorado WASH Symposium, University of Colorado Boulder.

97. K. Sholtes , J. Pagan , O. Lawal , K. Linden, (2018) "Standardization of Measurement of UV- LED Lamp Output, Feasibility, and Tolerance to Error" IUVA ICULTA Joint International Conference on UV LED Technologies and Applications, April 2018, Berlin, Germany

98. Hull NM and Linden KG (2018). "Performance of a UV-LED disinfection system year-long trial at a small drinking water plant" AWWA Water Quality Technology Conference, Toronto, Ontario, Canada.

99. Hull NM and Linden KG (2018). Sequential LED and excimer lamp exposures for viral UV disinfection. IUVA Americas, Redondo Beach, CA, USA.
100. Hull NM, Rosenblum JA, Robertson CE, Harris JK, and Linden KG (2018). Fracking flowback long-term succession of microbial communities and toxicity. 15th Annual RMSAWWA/ RMWEA Student Conference. Colorado School of Mines, Golden, CO, USA.
101. Valcourt, N., Walters, J., Javernick-Will, A., Linden, K., (2018). Evaluating Dynamic Processes of Rural Water Service Delivery Schemes in Sub-Saharan African Communities. Verbal presentation at the 36th International Conference of the System Dynamics Society, Reykjavik, Iceland.
102. Rodríguez, R.A.; Navar, C.A.; Sangsanont, J.; Linden, K., 2018. Comparative UV resistance of environmental isolates and lab strain adenovirus after monochromatic and polychromatic exposure. UNC Water Microbiology Conference, Chapel Hill, NC, May 22-24th,2018
103. Sitterley, Kurban A.; Linden, Karl G.; Ferrer, Imma; Thurman, E. Michael. "Discovery of Proprietary Amino Ethoxylates in Hydraulic Fracturing Wastewater Using LC/Q- TOF/MS with Solid Phase Extraction" 2018, March 18-22; 255th ACS National Meeting, New Orleans, LA
104. Joanna R. Murphy, Dr. Karl G. Linden. "Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". MAST IAB Meeting. November 4, 2018. Boulder CO.
105. Joanna R. Murphy, Dr. Karl G. Linden. "Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". MAST IAB Meeting. May, 22 2018. State College, PA.
106. Mattos, Katilin. Colorado WASH Symposium (March), Arctic FROST (Sept), Arctic Research and Informal Science Education conference (Oct), Alaska Tribal Conference on Environmental Mangement (Nov). Presentations on PhD research with Karl Linden
107. Ulliman SL, Rosario-Ortiz, FL, Linden KG, Korak, JA (Aug. 2018). Assessment of optically-based measurements of organic matter for differentiation of source waters and treated wastewaters. Environmental Protection Agency Technical Information Exchange, Denver, CO.
108. Ulliman SL, Rosario-Ortiz, FL, Linden KG, Korak, JA (podium, June 2018). Assessment of optically-based measurements of organic matter for differentiation of source waters and treated wastewaters. Gordon Research Seminar, Holderness, New Hampshire.
109. Ulliman SL, Miklos DB, Hübner U, Drewes JE, Linden KG (podium, May 2018). Improving UV/H2O2 performance following tertiary and advanced treatment of municipal wastewater. 15th annual RMSAWWA/RMWEA Student Conference, Golden, CO.
110. Pugel, K., Javernick-Will, A., Walters, J., Valcourt, N., and Linden, K. (2018). "(F)actors of Water Projects: Sustaining Services through Collaborative Systems Approaches". 2018 Engineering Project Organizations Conference, Croatia.

111. Pugel, K., Javernick-Will, A., Linden, K. (2018). “Complexity aware decision making for water projects.” International Forum on Engineering Decision Making, Lake Louise, Canada.

112. Pugel, K., Javernick-Will, A., Kiamba, P., Linden, K. (2018). “Using network analysis to map alignment toward collective action.” Water and Health Policy Conference, Chapel Hill, NC

113. Linden, K., Hull, N.M., Sholtes, K., Beck, S. "UV LEDs for small systems: a revolution in robust and effective disinfection? " IWA SWWS2018 Conference on Small Water & Wastewater Systems and Resources Oriented Sanitation, Technion, Haifa, Israel

114. Linden, K., Hull, N.M., Sholtes, K., Beck, S. "UV LEDs for small drinking water systems: a revolution in robust and effective disinfection?" Lead Speaker, IUVA / ICULTA LED Conference, Berlin Germany, April 2018

115. Sitterley, Kurban A.; Linden, Karl G.; Ferrer, Imma; Thurman, E. Michael; “Identified Fingerprinting Compounds in Hydraulic Fracturing Fluids Using Solid Phase Extraction and LC/Q-TOF/MS”, 253rd ACS National Meeting, San Francisco, CA; April 2-6, 2017.

116. Rodriguez, Roberto A;l Navar, Cesar A; Sangsanont Jatuwat; Linden, Karl; Determining Inactivation Rates of Adenoviruses Isolated from Sewage, IWA Health Related Water Microbiology Conference, May 15-19, 2017, Chapel Hill, NC, USA

117. Sangsanont Jatuwat; Navar, Cesar A; Rodriguez, Roberto A; Linden, Karl; UV inactivation of environmental isolates of adenovirus and its impact on capsid integrity, IUVA World Congress, September 17-21, 2017, Dubrovnik, Croatia

118. Rosenblum J., Dane J., Thurman E.M., Ferrer I, Linden K. Utilization of soft and hard ionization techniques with 2-dimensional gas chromatography and high-resolution mass spectrometry for unknown identification in hydraulic fracturing fluid, flowback, and produced water samples. ACS, San Francisco, April 2017

119. Rosenblum J., Hull N., Sitterley K., Ruyle B., Linden K. Biodegradation challenges of dissolved organic carbon in hydraulic fracturing flowback and the identification of its recalcitrant fraction. ACS, San Francisco, April 2017

120. Kaitlin Mattos, Aaron Dotson, Cara Lucas, Greg Michaelson, Liz Hodges-Snyder, Karl Linden, Household water reuse, on-site treatment and alternative water resources for use in remote Arctic communities, OU WaTER Conference, Norman, Oklahoma, September 18-19, 2017

121. Kaitlin Mattos, Aaron Dotson, Greg Michaelson, Cara Lucas, Karl Linden, Household Water Reuse and On-site Treatment for Rural Alaska, Colorado WASH Symposium, Boulder, Colorado, March 8, 2017

122. Ulliman, S; Linden, K; “Enhancing Efficiency of UV Advanced Oxidation Processes via Iron Addition.” International Ultraviolet Association Conference. Austin, TX. Feb. 2017

123. Linden KG, Hull NM, Sholtes KA, and Beck SE (October 2017). UV LEDs for small systems: a revolution in robust and effective disinfection? International IWA S2Small Conference on Sustainable Solutions for Small Water and Wastewater Treatment Systems, Nantes, France.
124. Hull NM and Linden KG (September 2017). Longitudinal Disinfection Performance of a UV LED Reactor Piloted at a Drinking Water Plant. IUVA World Congress, Dubrovnik, Croatia.
125. Hull NM, Isola MR, Petri B, Chan P (Feb 2017). Algal DNA Damage Repair Kinetics Support MPN Evaluation of UV-Disinfected Ballast Water. IUVA Americas, Austin, Texas, USA.
126. Linden, K (2017) Exploring advantages and disadvantages of polychromatic Uv sources in water Treatment IUVA World Congress, Dubrovnik, Croatia.
127. Miklos, D., Hartl, R., Michel, P., Linden, KG, Drewes, jE, Hubner, U (2017) UV/H2O2 Pilot-scale Process Validation And Process Stability Evaluation For Trace Organic Chemical Removal From WWTP Effluents. IUVA World Congress, September 17-21, 2017, Dubrovnik, Croatia
128. Linden, KG, Javernick-Will, AJ, Hollander, D., Perez, E (2017) "Sustainable WASH Systems for Sustainable WASH Services" UNC Water and Health Conference October 2017
129. Linden, von Gunten, Mestankova, Parker, Canonica, Schirmer, K., Advanced oxidation-driven transformation of Contaminant Candidate List (CCL3) compounds in drinking water, ACS San Francisco, April 2017, Symposium in honor of Mel Suffet
130. Lauren M. Hafford, Barbara J. Ward, William W. McNeary, Moritz Gold, and Karl Linden. Fecal Sludge as a Fuel: characterization, co-fire limits, and two methods to improve its quality. SludgeTech, IWQ Specialist conference on Sludge Management, Imperial College, London England July 9-13, 2017
131. Sholtes, Kari; Lawal, Oliver; Pagan, Jennifer; Linden, Karl. Testing Protocol for Measurement of UV-C LED Lamp Output: Round Robin Report and Next Steps. IUVA World Congress. Dubrovnik, Croatia. September 18, 2017.
132. Sholtes, Kari; Lawal, Oliver; Pagan, Jennifer; Laga, Ian; Altus, Sabina; Linden, Karl. Results: Round Robin Testing Protocol for Measurement of UV-C LED Lamp Output. IUVA America Conference. Austin, Texas USA. February 2, 2017.
133. Wang, Wen-Long; Miklos, David B.; Hu, Hong-Ying; Linden, Karl G.; Drewes, Jörg. E.; Hübner, Uwe (2017). Degradation of trace organic chemicals by LED-UV/chlorine: synergistic effects. IUVA World Congress September 18.-20. 2017, Dubrovnik, Croatia.
134. Linden K, Javernick-Will A, Amadei B, Klees R, Sandekian R. (2016) "Engineering in developing communities: Curriculum development around graduate certificate and professional MS programs." Proc. 8th Conference on Engineering Education for Sustainable Development

135. Linden, K, Water Sustainability in Oil and Gas Exploration: Treating Frack Water for Reuse. Ecology and Environment Conference June 21-23, 2016, Tel Aviv, Israel.
136. Linden, K. Characterization and Treatment of Hydraulic Fracturing Wastewater Over Time from Northeast Colorado. EmCon (Emerging Contaminants), Sydney Australia Sept 20-23, 2016. Co-Authors: James Rosenblum, E. Michael Thurman, Imma Ferrer, George Aiken, Karl Linden
137. Linden, K. Demonstrating Organic Contaminant Removal in an Ozone-based Water Reuse Process at Full Scale. International Water Association World Water Congress, Brisbane Australia Oct 9-13, 2016. Co-Authors: Judy Blackbeard, James Lloyd, Mirela Magyar, John Mieog, Yaal Lester
138. The MPN Method and Ultraviolet (UV) Radiation Treatment: Assessing disinfection using culturing methods vs. inclusion/exclusion dyes. GEF-UNDP- IMO GloBallast R&D Forum and Exhibition on Ballast Water Management ICAO HQ, Montreal, Canada, 16-18 March 2016.
139. Optimizing Pathogen Inactivation at Low Energy Cost with a Tailored, Multiple-Wavelength UV LED Unit. 2016 World Congress Feb 2, 2016. Vancouver, Canada.
140. Kari Sholtes and Karl Linden; Proposed Testing Protocol for Measurement of UV-LED Lamp Output; IUVA World Congress, Vancouver, BC, Feb 3, 2016, Presentation.
141. Linden KG, Rosenblum JR, Hull N, thurman EM, ferrer I. "Characterization and treatment of hydraulic fracturing wastewater over time from northeast Colorado." American Chemical Society, 2016
142. Kate Stetina, Tesfayohanes Yacob, Karl Linden, Stewart Farling, Siddharth Kawadiya, Kathy Jooss, Marc Deshusses Poster: Odors in Fecal Sludge Management: Sources, Impacts, and Control using Adsorption and Biofiltration. UNC Water and Health Conference October 2016.
143. Kari Sholtes and Karl Linden; Proposed Testing Protocol for Measurement of UV-LED Lamp Output; IUVA World Congress, Vancouver, BC, Feb 3, 2016, Presentation
144. Water Reuse Alaska, at Water Innovations for Healthy Arctic Homes (WIHAH), Anchorage AK, Sept 19-21, Presented by student Kaity Mattos with Aaron Dotson.
145. Linden KG, Hull N. (2016) "Ultraviolet Wavelength- and Dose-Dependent Inactivation and Molecular Damage of MS2 Coliphage." Water Quality and Technology Conference (WQTC), November 13, 2016
146. Linden KG, Beck SE, Hull N. "Ultraviolet Wavelength- and Dose-Dependent Damage of Adenovirus Proteins." International UV Association World Congress (International UV Association World Congress, January 31, 2016-February 03, 2016), January 31, 2016
147. Linden KG, Ulliman S, Rosenblum JR. "Application of Advanced Oxidation Processes in the Treatment and Reuse of Hydraulic Fracturing Wastewater." International Ultraviolet Association World Congress (International Ultraviolet Association World Congress, January 31, 2016-February 03, 2016), January 31, 2016

148. Linden KG, Ulliman S. "Enhancing Efficiency of UV Advanced Oxidation Processes via Iron Addition." WateReuse Association 20th Annual WateReuse Conference (WateReuse Association 20th Annual WateReuse Conference, May 22, 2016-May 24, 2016), May 22, 2016
149. Linden KG, Ulliman S, Rosenblum J. "Application of Advanced Oxidation Processes in the Treatment and Reuse of Hydraulic Fracturing Wastewater." WateReuse Association 20th Annual WateReuse Conference (WateReuse Association 20th Annual WateReuse Conference, May 22, 2016-May 24, 2016), May 22, 2016
150. Hull, N., Rosenblum, J., Linden, K.G. (2015) "Toxicity Assessments of Frack Flowback Water Pre- and Post-Treatment During Initial Development of a Gas Well" American Water Works Association (AWWA) Water Quality Technology Conference (WQTC); Salt Lake City, UT, November 14, 2015
151. Ulliman, S., Linden, K.G. (2015) "Enhancing Efficiency of UV/AOP Processes via Iron Addition" American Water Works Association (AWWA) Water Quality Technology Conference (WQTC); Salt Lake City, UT, November 14, 2015
152. Rosenblum J.S., Nelson A., Thurman E.M., Ferrer I., Linden, K.G. (2015) "Chemical Characterization of a Hydraulic Fracturing Wells Wastewater Over Time" AWWA Water Quality Technology Conference, Salt Lake City, UT, November 2015
153. Sitterley K., Rosenblum J.S., Linden K. (2015) "Evaluating Chemical Coagulation and Electrocoagulation as Pretreatment for Hydraulic Fracturing Wastewater" American Water Works Association (AWWA) Water Quality Technology Conference (WQTC); Salt Lake City, UT, November 16, 2015
154. Ulliman, S., Rosenblum, J., Linden, K.G. (2015) "Application of Advanced Oxidation Processes in the Treatment and Reuse of Hydraulic Fracturing Wastewater." 30th Annual WateReuse Symposium, Seattle, WA. September 14, 2015.
155. Ulliman, S., Linden, K.G. (2015) "Efficacy of UV/AOP Processes via Iron Addition." International Ultraviolet Association Research Frontiers Conference, Leeuwarden, The Netherlands. May 20, 2015.
156. Sitterley K., Rosenblum J.S., Linden K. (2015) "Electrocoagulation as Pretreatment for On-site Reuse of Hydraulic Fracturing Wastewater" Water Sustainability in Oil and Gas Exploration: Treatment Issues, American Chemical Society, Denver CO, March 25, 2015
157. Rosenblum J.S., Sitterley K., Linden K. (2015) "Biological treatment of hydraulic fracturing wastewaters" Water Sustainability in Oil and Gas Exploration: Treatment Issues, American Chemical Society, Denver CO, March 25, 2015
158. Sitterley K., Rosenblum J.S., Linden K (2015) "Electrocoagulation as Pretreatment for On-site Reuse of Hydraulic Fracturing Wastewater" Anadarko offices in Denver, CO March 31, 2015.
159. Rosenblum J.S., Ruyle, B., Thurman E.M., Ferrer I., Linden K. (2015) "Chemical Characterization of a Hydraulic Fracturing Wells Wastewater Over Time" Association of Environmental Engineering and Science Professors Conference, Yale University New Haven CT. June 14, 2015

160. Wright, H.B., Linden, K.G. (2014) “Action Spectra Correction Factors for Cryptosporidium and Adenovirus Inactivation Credit with Medium Pressure UV Disinfection” AWWA Water Quality Technology Conference, New Orleans, LA. November 16-19, 2014.
161. Ward, B.J., Fisher, R., Yacob, T., Mahoney, R., Weimer, A.W., Linden, K.G. (2014) "Energy From Waste: Evaluation of Char from Human Fecal Sludge As A Supplement for Coal" AIChE Annual Meeting. Atlanta, Georgia. Nov 16-21, 2014.
162. Bolton, J.R., Mayor-Smith, I., Linden, K.G., Beck, S.E., Stefan, M.I. (2014) “Fundamental Aspects Concerning Data Analysis from Polychromatic UV Experiments” Americas Regional Conference; International UV Association, White Plains, NY, October 26-29, 2014.
163. Parker, A.M.; Hawkinson, R.M., von Gunten, U.; Linden, K.G.; “Impact of UV and UV AOP Treatment on Assimilable Organic Carbon (AOC) Formation.” Water Quality Technology Conference, Long Beach, CA – November 5, 2013.
164. Parker, A.M.; von Gunten, U.; Linden, K.G.; “Evaluating the toxicity of emerging contaminants post UV and ozone based AOP treatment.” International Ultraviolet Light Association/International Ozone Association World Congress – Las Vegas, NV – September 24, 2013.
165. Parker, A.M.; Hawkinson, R.; von Gunten, U.; Linden, K.G.; “Impact of UV and Advanced Oxidation Treatment on AOC Formation.” International Ultraviolet Light Association/International Ozone Association World Congress – Las Vegas, NV – September 23, 2013.
166. Parker, A.M.; Spangler, E.; von Gunten, U.; Linden, K.G.; “Evaluating Toxicity of Organophosphate Contaminants on the US EPA Candidate Contaminant List Following UV and Ozone AOP Treatment.” – Micropollutants and Ecohazard conference – Zurich, Switzerland – June 18, 2013.
167. Parker, A.M.; Spangler, E.; von Gunten, U.; Linden, K.G.; “Evaluating the Toxicity of Organophosphate CCL3 Contaminants Post UV and Ozone Based AOP Treatment.” Rocky Mountain Student Conference for American Water Works Association – May 14, 2013.
168. Parker, A.M; Spangler, E.; von Gunten, U.; Linden, K.G.; “Evaluating the toxicity of Organophosphate CCL3 Contaminants Post UV and Ozone Based AOP Treatment.” American Chemical Society (ACS) Spring National Meeting. New Orleans, LA – April 10, 2013.
169. Mestankova, H., Bramaz, N., Canonica, S., Linden, K.G, Von Gunten, U., Schirmer, K., (2013) “Advanced oxidation processes for the degradation of CCL3 compounds: Assessment of the toxicity of transformation products” American Chemical Society (ACS) Spring National Meeting. New Orleans, LA – April 10, 2013
170. Nelson-Nunez, J.; Mahoney, R.; Mostafa. S.; Linden, K. “If you build it, will they come? Individual uptake of rural water services.” 71st Annual Midwest Political Science Meeting, Chicago, IL, April 7-11, 2013.

171. Lester, Y.; Sharpless, C. M.; Mamane, H.; Linden, K.G. "Photo-production of reactive oxidative species during UV treatment of water" The IOA/IUVA World Congress & Exhibition, Las Vegas, NV, September 22-26, 2013
172. Lester, Y.; Sharpless, C. M.; Mamane, H.; Linden, K.G. "Photo-production of reactive species during UV treatment of water" American Chemical Society (ACS) Spring National Meeting. New Orleans, LA – April 10, 2013
173. Beck, S.; Rodriguez, R.; Poepping, C.; Bounty, S.; Linden, K.G. "Wavelength-Specific Inactivation of Viruses. Measuring Nucleic Acid and Protein Damage." ReNUWIt Sunlight Symposium, Stanford University, April 2, 2013.
174. Keen, O. and Linden, K. (2013) Re-engineering the artificial sweetener: sucralose transformation by hydroxyl radicals and its suitability as probe. IUVA World Congress, Las Vegas, NV, September 22-26, 2013
175. Keen, O. and Linden, K. (2013) Re-engineering the artificial sweetener: Oxidation of sucralose residuals by UV/$H_2O_2$ advanced oxidation. ACS annual meeting, New Orleans, LA, April 7-11, 2013
176. Keen, O.S., McKay, G., Mezyk, S.P., Linden, K.G. and Rosario-Ortiz, F. (2013) Identifying the factors that influence the reactivity of effluent organic matter with hydroxyl radicals. ACS annual meeting, New Orleans, LA, April 7-11, 2013
177. Oversby, C.; Linden, K.; Weimer, A.; Summers, S; Klees, R.; Lewandowski, A.; Fisher, R.; Mahoney, R.; Yacob, T.; Mejic, D.; Hauschulz, D.; Kearns, J.; Beck, S.; Ward, B. J.; Hafford, L.; Ruiz, A. "Sol-Char Toilet Project Overview" University of Oklahoma International WaTER Conference, Norman, OK, Sept 23-25, 2013
178. Fisher, R.; Linden, K.; Weimer, A.; Summers, S; Oversby, C.; Klees, R.; Lewandowski, A.; Mahoney, R.; Yacob, T.; Mejic, D.; Hauschulz, D.; Kearns, J.; Beck, S.; Ward, B. J.; Hafford, L.; Ruiz, A. "The Sol-Char Toilet: Concentrated Solar Power Delivered Via Fiber Optics to Pyrolyze Human Waste to Biochar" AIChE, San Francisco, CA Nov 2-8 2013
179. Yacob, T.; Oversby, C.; Fisher., R.; Lewandowski, A.; Mahoney, R.; Mejic, D.; Beck, S.; Ward, B.; Kearns J.; Summers RS.; Weimer AW.; Linden, K. Sol-Char Toilet. Entrepreneurship Under the Microscope Symposium, University of Colorado, Boulder, CO. April 1, 2013.
180. Linden, K.G.; Beck, S., Poepping, C., Wright, H., Hargy, T. Cotton, C. (2013) "Results and implication from generating the best action spectra data possible" American Water Works Association Annual Conference and Exposition, June 9-12, 2013.
181. Hargy, T.; Wright, H.; Beck, S.; Linden, K.; Larason ,T.; McCuin, R. "UV Action Spectra of Pathogens and Surrogates" AWWA Water Technology Conference, Long Beach, CA, Nov. 3-7, 2013
182. Cotton, C., Wright, H., Linden, K.G. (2013) "After The Low Wavelength Research: Guidance For Operating UV Facilities And UV Facilities Under Design" Water Quality Technology Conference, Long Beach, CA – November 4, 2013

183. Wright, H., Linden, K.G., Beck, S., Hargy, T. (2013) "Impact of Microbial Action Spectra on RED Predicted Using CFD-Based UV Dose Models" IUVA World Congress, Las Vegas, NV, September 22-26, 2013
184. Linden, K.G., Poepping, C., Beck, S. (2013) "Potential for Unintended DNA Damage Reversal Resulting from Multiple Wavelength Irradiation from Polychromatic UV Light Sources" IUVA World Congress, Las Vegas, NV, September 22-26, 2013
185. Poepping, C., Beck, S., Linden, K.G. (2013) "Potential for Unintended DNA Damage Reversal Resulting from Multiple Wavelength Irradiation from Polychromatic UV Light Sources" Rocky Mountain Student Conference for American Water Works Association – May 14, 2013
186. Linden, K.; Beck, S.; Hargy, T.; Wright, H.; Larason ,T.; McCuin, R. "Measuring Action Spectra of Pathogens and Surrogates" IUVA World Congress, Las Vegas, NV, September 22-26, 2013
187. Lester, Y., Ferrer I., Thurman, E.M., and Linden, K.G. (2013) "Using Sucralose as a Surrogate for UV/H2O2 Degradation of Trace Organic Contaminants" IUVA World Congress, Las Vegas, NV, September 22-26, 2013
188. Wright, H., Cotton, C., Linden, K.G. (2013) "After The Low Wavelength Research: Guidance For Operating UV Facilities And UV Facilities Under Design" IUVA World Congress, Las Vegas, NV, September 22-26, 2013
189. Kover, S., Rosario-Ortiz, F., Linden, K. "*Photoinduced Degradation of Corexit Constituents"* Gulf of Mexico Research Initiative Conference. January 21, 2013. New Orleans, LA.
190. Glover, C. M.; *Parker, A. M.; Linden, K.; Rosario-Ortiz, F. L. "Organic matter in ocean water as a proxy for indirect degradation of the dispersants used in the Deepwater Horizon oil spill" 245th ACS National Meeting, New Orleans, LA, April 7-11, 2013
191. Wright, H., Linden, K.G. (2012) "Using Computational Fluid Dynamics to Determine Action Spectra Correction Factors" AWWA Water Quality Technology Conference, Toronto, ON Canada, November 4-7, 2012
192. Beck, S., Rodriguez, R., Jeanis, K., Hargy, T., McCuin, R., Larason, T., Linden, K. (2012) "Wavelength-Specific Inactivation of Viruses: Measuring Nucleic Acid Damage." International Ultraviolet Association. Washington, D.C., Aug 12-14
193. Beck, S., Rodriguez, R., Jeanis, K., Hargy, T., Linden, K. (2012) "Wavelength-Specific Inactivation of Viruses: Measuring Nucleic Acid Damage at UV-C Wavelengths." Water Quality and Technology Conference, Toronto Canada. November 4-7, 2012
194. Linden, K.G. (2012) "Key Factors for Evaluating Medium Pressure UV Disinfection Systems" AWWA Water Quality Technology Conference, Toronto, ON Canada, November 4-7, 2012
195. Keen, O., Love, N. and Linden, K. (2012) The role of effluent nitrate in trace organic contaminant oxidation during UV disinfection. ACS annual meeting, Philadelphia, PA, Aug 17-21

196. Keen, O. and Linden, K. (2012) Degradation of antibacterial activity of antibiotics during UV/$H_2O_2$ advanced oxidation. AWRA Emerging Contaminants, Denver, CO, June 25-27
197. Linden, K.G., Summers, S., Weimer, A., Lewandowski, A., Klees, R., Mahoney, R., Fisher, R., Yacob, T., Kearns, J., Beck, S., Oversby, C. (2012) "Solar-Driven Thermal Toilet with Biochar Production" Second Fecal Sludge Management (FSM2) Conference, Durban, South Africa, October 29-Nov 1, 2012
198. Keen, O., Love, N. and Linden, K. (2012) The role of effluent nitrate in trace organic contaminant oxidation during UV disinfection. IUVA North American Congress, Washington, DC, Aug 12-14
199. Azaizeh, H., Linden, K., Kalbouneh, S., Tellawi, A., Gerchman, Y. (2012) "Constructed Wetlands and UV Systems for Removal of Enteric Pathogens and Wastewater Contaminants" IWA Wastewater Purification and Reuse March 28-30, 2012, Crete, Greece.
200. Linden, K., Scheible, K., Posy, P. (2011) "Regulatory implications of new findings on UV disinfection of Adenovirus in drinking water" AWWA Water Quality Technology Conference, Phoenix, AZ, November 13-16, 2011
201. Brooks, T., Dotson, A.D., Linden, K. (2011) "Nitrate Sensitized Degradation of Free Chlorine during Ultraviolet Irradiation", Water Quality Technology Conference, November 13-16, 2011.
202. Parker, A.M., Mestankova, H., von Gunten, U., Linden, K. G. (2011) "Evaluating the use of AOPs for Treating CCL3 Contaminants." Water Quality Technology Conference, Phoenix, Arizona – November 13-16, 2011.
203. Thomas, E., Zumr, Z., Barstow, C., Linden, K., (2011) *Proving Sustainability: The International Development Monitoring Initiative* IEEE Global Humanitarian Technology Conference, Technology for the Benefit of Humanity, Seattle WA, October 30-November 1, 2011
204. Keen, O., Baik, S., Linden, K., Aga, D. and Love, N. (2011) "Enhanced biodegradation of carbamazepine after UV/$H_2O_2$ advanced oxidation." WEFTEC, Los Angeles, CA, October 16-19, 2011
205. Chatterley, C., Linden, K., Javernick-Will, A. (2011) "Raising the Grade for WASH in Belizean Schools." Water and Health: Where Science Meets Policy, Chapel Hill NC, Oct 3-7, 2011
206. McClelland, C.J., Linden, K.G. (2011) "Identifying Key Factors that Contribute to Water Reuse Feasibility Using a Hybridized Decision and Scenario Tool", IWA Reuse Conference, Barcelona Spain, September 26, 2011
207. Beck, S., Salveson, A., Linden, K. (2011) "Assessment of Disinfection Processes for Reuse of Graywater Generated in a Commercial Office Building," 8th Annual IWA Conference on Water Reclamation and Reuse. Barcelona, Spain. Sept 27, 2011.

208. Keen, O., Baik, S., Linden, K., Aga, D. and Love, N. (2011) "Enhanced biodegradation of carbamazepine after UV/$H_2O_2$ advanced oxidation." International UV Association Conference, Toronto, Canada, September 18-21, 2011
209. Linden, K., (2011) "When Dose is not Dose: The Case of UV Disinfection of Adenovirus" International UV Association North American Congress, Toronto, Canada, Sept.18-21, 2011
210. Parker, A.M.,Glover, C. M., Rosario-Ortiz, F. L., Linden, K. G. (2011) "Photochemical degradation of oil dispersants in ocean waters". IOA/IUVA North American Conference, Toronto, Canada, September 18-21, 2011.
211. Bounty, S., Martin, L., Rodriguez, R., Linden, K.G. (2011) "Inactivation of Adenovirus using Low Dose UV/H2O2 Advanced Oxidation", IUVA North American Conference, September 21, 2011 (First Place Student Paper Award)
212. Parker, A.M., Bracken, C., Dotson, A., Linden, K. G. (2011) "A New Approach to Evaluating UV/$H_2O_2$ Scavenging Demand." American Chemical Society (ACS) – Fall National Meeting – Denver, CO, August 29, 2011.
213. Keen, O., Baik, S., Linden, K., Aga, D. and Love, N. (2011) "Enhanced biodegradation of pharmaceuticals after UV/$H_2O_2$ advanced oxidation." American Chemical Society annual meeting, Denver, CO, Aug.28-Sept.1, 2011
214. Keen, O. and Linden, K. (2011) "Degradation of antibacterial activity of erythromycin in wastewater by UV/$H_2O_2$ advanced oxidation." International Water Association Micropol and Ecohazard Conference, Sydney, Australia, July 11-13, 2011
215. Collins, J., Cotton, C., Dotson, A.D., Linden, K. (2011) "Advanced Treatment for Impaired Water Supplies: When Advanced Oxidation Systems are the Best Option", AWWA Annual Conference and Exhibition, Washington D.C., June 12-15, 2011
216. Linden, K.G., Scheible, K., Chen, C., Shin, G-A., Lee, J-K., Posy, P. (2011) "Demonstrating 4-log Adenovirus Inactivation in a Medium Pressure UV Reactor" International UV Association World Congress and Exhibition, Paris, France, May 22-25, 2011
217. Salveson, A., Goel, N., Mackey, E., Kehoe, P., Rhodes, S., Kothari, M., Beck, S., Rodriguez, R., Linden, K.G. (2011) "Characterization of Graywater and Analysis of Treatment Requirements to bring to Title 22 Reuse Standards" 15th Annual Water Reuse and Desalination Conference, Water Reuse Foundation, Las Vegas, NV. May 16-17, 2011
218. Bounty, S., Martin, L., Linden, K.G. (2011) "Inactivation of Adenovirus using Low Dose UV/H2O2 Advanced Oxidation", AWWA Rocky Mountain Section Student Conference, May 17, 2011 (Third Place Student Paper Award)
219. Dotson, A.D., Linden, K.G. (2011) "Drinking Water Treatment: Applications of UV", Alaska Water and Wastewater Association, Anchorage, AK April 26, 2011
220. Linden, K. Posy, P. (2011) "Can UV Protect the Public from Adenovirus in Drinking Water?" Disinfection 2011, Water Environment Federation, Cincinnati Ohio, April 10-12, 2011

221. Keen, O., Baik, S., Stadler, L., Linden, K., Aga, D. and Love, N. (2011) "Assessing the use of advanced oxidation and biofiltration to remove recalcitrant pharmaceuticals downstream of biological treatment." The 22nd Triennial Symposium on Advancements in Water & Wastewater 2011 Borchardt Conference, Ann Arbor, MI, Feb.23-24, 2011
222. Barstow, C., Dotson, A., Linden, K.G. (2010) "POU UV Disinfection: Shedding Light on Appropriate Technologies for Developing Communities" Proceedings Water Quality Technology Conference, Savannah, GA, November 14-17, 2010. American Water Works Association, Denver, CO.
223. Dotson, A., Rowley, C., Downs, M., Corwin, C. Linden, K.G. (2010) "UV/$H_2O_2$: Dynamics of quenching hydrogen peroxide by GAC" Proceedings Water Quality Technology Conference, Savannah, GA, November 14-17, 2010. American Water Works Association, Denver, CO.
224. Lyon, B., Weinberg, H., Dotson, A., Linden, K.G. (2010) "Surrogate Measures for Evaluating Combined UV-Chlorine/Chloramine Drinking Water Treatment", Proceedings Water Quality Technology Conference, Savannah, GA, November 14-17, 2010. American Water Works Association, Denver, CO.
225. Cotton, C., Dotson, A., Jousset, S., Linden, K. Collins, J. (2010) "Applying UV AOP at an Existing WTP: Effects on Disinfection Strategy and DBP Formation" Proceedings Water Quality Technology Conference, Savannah, GA, November 14-17, 2010. American Water Works Association, Denver, CO.
226. Linden, K.G., Eischeid, A., Thurston, J. (2010) "Enhancing the UV Inactivation of Adenoviruses in Reclaimed Water" WateReuse Research Conference, WateReuse Research Foundation, Tampa, FL, May 25, 2010
227. McClelland, C.J., Linden, K.G., Drewes, J., Khan, S., Smith, J., Raucher, B. (2010) "Water Reuse 2030: Identifying Challenges" WateReuse Research Conference, WateReuse Research Foundation, Tampa, FL, May 25, 2010
228. Dotson, AD; Linden, KG, (2009) "Effect of advanced oxidation (UV/$H_2O_2$) followed by chlorination on the formation of disinfection by-products", Proceedings Water Quality Technology Conference, Seattle, WA, November, 2009. American Water Works Association, Denver, CO.
229. Bohrerova, Z; Linden, KG, (2009) "*E. coli* Repair under Water Treatment Conditions after Ultraviolet Light Disinfection", Proceedings IOA-IUVA North American Joint Conference, May, 2009, Cambridge, MA, International Ultraviolet Association
230. Eischeid, AC; Linden, KG, (2009) "Protein Damage in UV Treated Adenovirus", Proceedings Water Quality Technology Conference, Seattle, WA, November, 2009. American Water Works Association, Denver, CO.
231. Petri, B; Linden, K; Thurston, J, (2009) "UV Reactor Challenges with Adenovirus: A Comparison of Adenovirus and MS2 Inactivation in Low Pressure and Medium Pressure UV Reactors", Proceedings 5$^{th}$ UV World Congress, Amsterdam, The Netherlands, September, 2009, International Ultraviolet Association.

232. Shin, G-A; Lee, J-K; Linden, KG, (2009) "Enhanced Effectiveness of Medium-Pressure UV Lamps on Human Adenovirus and its Possible Mechanism", Proceedings 5th UV World Congress, Amsterdam, The Netherlands, September, 2009, International Ultraviolet Association.

233. Lyon, B; Weinberg, H; Dotson, A; Shah, A; Mitch, W; Linden, K, (2009) "Influence of Precursors on Byproducts Produced from UV-Chlorine/Chloramine Treatment of Natural Waters", Proceedings Water Quality Technology Conference, Seattle, WA, November, 2009. American Water Works Association, Denver, CO.

234. Shah, A; Dotson, AD; Linden, KG; Weinberg, H; Mitch, W, (2009) "Impact of UV Disinfection Combined with Chlorination/Chloramination on the Formation of Nitrogenous Disinfection Byproducts in Drinking Water", Proceedings IOA-IUVA North American Joint Conference, May, 2009, Cambridge, MA, International Ultraviolet Association.

235. McClelland, CJ; Linden, KG: Drewes, JE and Khan, S, (2009) "Water Reuse 2030: Identifying global challenges Australia and United States" REUSE 09, International Water Association, September 20-25, 2009 Brisbane Australia

236. Linden, K; Ruiz-Haas, P.; Bandy, J; Cho, K-D; Salveson, A; Thurston, J, (2009) Abstract: "Advanced treatment technologies for removal of pathogens and chemical pollutants for water reuse" 237th ACS NATIONAL MEETING & EXPOSITION – Salt Lake City, UT Environmental Chemistry Section, March 2009.

237. Petri, B; Linden, K; Thurston, J, (2009) "UV Reactor Challenges with Adenovirus: A Comparison of Adenovirus and MS2 Inactivation in Low Pressure and Medium Pressure UV Reactors" Proceedings, Water Environment Foundation, Disinfection 2009: Addressing the Full Spectrum of Global Disinfection Challenges 2/28-3/3, 2009, Atlanta, Georgia

238. Chatterley, C; Linden, KG, (2009) "UV-LED Irradiation Technology for Point-of-Use Water Disinfection" Proceedings, Water Environment Foundation, Disinfection 2009: Addressing the Full Spectrum of Global Disinfection Challenges 2/28-3/3, 2009, Atlanta, Georgia

239. Linden, K.G., Scheible, O.K., Shen, C., Shin, G-A., Lee, J-K., Posy, P. (2009) "Demonstrating 4-log Adenovirus Inactivation in a Medium Pressure UV Reactor" Proceedings, Water Environment Foundation, Disinfection 2009: Addressing the Full Spectrum of Global Disinfection Challenges 2/28-3/3, 2009, Atlanta, Georgia

240. Linden, K., Ruiz-Haas, R., Cho, K-D., Kulman, S. (2009) Presence, Fate and Treatability of Estro- and Androgenic Contaminants in Wastewater and Biosolids, Micropol and Ecohazard 2009, June 8-10, 2009, San Francisco, CA

241. Linden, K. Bandy, J., Thurston, J., Salveson, A. (2009) Advanced Disinfection Processes for Pathogen Control in Reuse Waters, WateReuse Foundation Research Conference, Huntington Beach, CA May 18-19, 2009

242. Linden, K.G., Scheible, K., Chen, C., Shin, G-A., Lee, J-K., Posy, P. (2008) "Demonstrating 4-log Adenovirus Inactivation in a Medium Pressure UV Reactor" AWWA Annual Conference and Exhibition, Atlanta, GA June 8-11.

243. Eischeid, A.C., Meyer, J., Linden, K. (2008) "Fundamental Mechanisms in the Extreme UV Resistance of Adenoviruses" AWWA Water Quality Technology Conference, Cincinnati, OH Nov. 16-19.
244. Linden, K., Bandy, J., Thurston, J., Salveson, A. (2008) "Advanced Treatment Technologies and Processes for Removal of Pathogens and Chemical Pollutants for Water Reuse" 12th Annual Water Reuse and Desalination Research Conference, Denver, CO May 5-6, 2008.
245. Wade, T., Bandy, J., Linden, K., Salveson, A. (2008) "TiO2 Photocatalysis for Trace Organics & Pathogen Destruction in Recycled Water" 12th Annual Water Reuse and Desalination Research Conference, Denver, CO May 5-6, 2008.
246. Thurston, J., Linden, K., and Salveson, A. (2008) "Occurrence and Disinfection of Adenoviruses in Reclaimed Waters" 12th Annual Water Reuse and Desalination Research Conference, Denver, CO May 5-6, 2008.
247. Barstow, C., Chatterley, C., Ashwood, W., Linden, K. (2008) University of Colorado Rwanda Project; EWB International Conference, March 27-30, 2008, Seattle, Washington.
248. Chatterley, C., Linden, K. (2008) "UV-LEDs for point-of-use water disinfection in developing communities", UCI/UNESCO Conference on Water Scarcity, Global Changes, and Groundwater Management Responses, December 1-5, 2008, Irvine, California.
249. Chatterley, C., Linden, K., (2008) "UV-LEDs for Point-of-Use Water Disinfection in Developing Communities; Energy Initiative Research Symposium, University of Colorado, Boulder, CO, November 17, 2008, presenter: Christie Chatterley
250. Eischeid, A., Linden K., (2008) "Direct Assessment of DNA Damage in UV-Treated Adenovirus Using PCR" Presented at the National Water Research Institute (NWRI) Graduate Student Research Fellowship Conference, Washington DC, April 2008.
251. Bandy, J.C., Linden, K.G. (2007) "Microbial Inactivation Using Current and Emerging Reuse Water Treatment Technologies" *Proceedings AWWA Water Quality Technology Conference*, Nov 4-8, Charlotte, NC
252. Ruiz-Haas, P., Cho, K-D., Linden, K.G. (2007) "Assessment of Advanced Treatment Technologies and Processes for Removal of Chemical Pollutants for Water Reuse" *Proceedings AWWA Water Quality Technology Conference*, Nov 4-8, Charlotte, NC
253. Cho, K-D., Ruiz-Haas, P., Linden, K.G., (2007) "Utilization of Estrogenic Screening Assays for Evaluating Innovative Technologies for Reuse Water Treatment" *Proceedings AWWA Water Quality Technology Conference*, Nov 4-8, Charlotte, NC
254. Dani, D., Summers, R.S., Linden, K.G., (2007) "Evaluating UV/H2O2 Performance for MIB and Geosmin Control" *Proceedings AWWA Water Quality Technology Conference*, Nov 4-8, Charlotte, NC
255. Eischeid, A.C., Meyer, J., Linden, K.G. (2007) "Fundamental Mechanisms in the Extreme UV Resistance of Adenovirus" *Proceedings AWWA Water Quality Technology Conference*, Nov 4-8, Charlotte, NC

256. Watts, M.J., Linden, K.G. (2007) "Photodegradation and Dehalogenation of Aqueous Flame Retardants and Plasticizers" *Proceedings AWWA Water Quality Technology Conference*, Nov 4-8, Charlotte, NC

257. Rosenfeldt, E.J., Linden, K.G. (2007) "Modeling UV/H2O2 Advanced Oxidation Processes in Water: The New ROH,UV Concept" *Proceedings AWWA Water Quality Technology Conference*, Nov 4-8, Charlotte, NC

258. Bandy, J.C., Ruiz-Haas, P., Cho, K-D., Salveson, A., Linden, K.G. (2007) "A Comparative Study of the Germicidal Effect of Current and Emerging Reuse Water Treatment Technologies" Proceedings 22nd Annual WateReuse Symposium, Tampa, FL, Sept 9-12, 2007

259. Salveson, A., Atapattu, K., Linden, K.G., Robinson, K., Bowman, R., Thurston, J., Cooper, R. (2007) "Innovative Treatment Technologies for Reclaimed Water: Ozone.Hydrogen Peroxide Pilot Test Report at DSRSD" Proceedings 22nd Annual WateReuse Symposium, Tampa, FL, Sept 9-12, 2007

260. Jain, S., Brown, J.C., Thurston, J., Linden, K.G., Pryor, M.A., Wade, T., Salveson, A.T. (2007) "Pilot Testing of UV and UV/Peroxide for Innovative Treatment of Reclaimed Water" Proceedings 22nd Annual WateReuse Symposium, Tampa, FL, Sept 9-12, 2007

261. Ruiz-Haas, P., Bandy, J.C., Cho, K-D., Salveson, A., Linden, K.G. (2007) "Advanced treatment technologies and processes for removal of chemical pollutants for water reuse: A comparative evaluation" WateReuse Foundation Research Conference, El Paso TX, June 2007

262. Rosenfeldt, E.J., Linden, K.G., Canonica, S., von Gunten, U. (2007) "Comparison of the efficiency of OH radical formation during ozonation and the Advanced Oxidation Processes O3/H2O2 and UV/H2O2" Proceedings 4th International Congress on Ultraviolet Technologies (IUVA), Los Angeles, CA, August 26-29, 2007

263. Ruiz-Haas, P., Cho, K.D. , Bandy, J., Salveson, A., Linden, K.G. (2007) "UV and advanced oxidation treatment based technologies for removal of chemical pollutants for water reuse" Proceedings 4th International Congress on Ultraviolet Technologies (IUVA), Los Angeles, CA, August 26-29, 2007

264. Cho, K.D., Ruiz-Haas, P., Bandy, J., Linden, K.G. "Degradation of estrogenic disrupting compounds using UV and advanced oxidation processes" Proceedings 4th International Congress on Ultraviolet Technologies (IUVA), Los Angeles, CA, August 26-29, 2007

265. Wu, C., Linden, K.G. (2007) "Photodegradation of Parathion: The role of carbonate radicals and hydroxyl radicals" Proceedings 4th International Congress on Ultraviolet Technologies (IUVA), Los Angeles, CA, August 26-29, 2007

266. Mamane, H., Shemer, H., Linden, K.G. (2007) "Inactivation of *E. coli*, *B. subtilis* spores, and MS2, T4, and T7 phage using UV/H2O2 Advanced Oxidation" 4th International Congress on Ultraviolet Technologies (IUVA), Los Angeles, CA, August 26-29, 2007

267. Schaefer, R.B., Grapperhaus, M., Linden, K.G. (207) "Status report on the development and use of pulsed UV technologies for treating water" Proceedings 4th International Congress on Ultraviolet Technologies (IUVA), Los Angeles, CA, August 26-29, 2007
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9. Laboratory News Oct 7, 2021. "This UV Light Wavelength is Harmless to Humans, But Inactivates SARS-CoV-2" Article highlighting recent research on coronaviruses

10. PR Newswire, March 2, 2021. "World's First Urban Sun Cleans Public Space Of Coronavirus For Better Human Gatherings" Linden interviewed and quoted

11. Patch.com, Oct 5, 2021. "World's First Urban Sun Cleans Public Space Of Coronavirus For Better Human Gatherings" highlighting recent research on Coronavirus disinfection

12. News Medical, Oct 4, 2021. "Specific wavelength of UV light is safe and effective way to kill SARS-CoV-2 virus" highlighting recent research findings
13. Novus Light. Oct 6, 2021. "Specific UV Wavelength Could Curb Spread of COVID-19" highlighting recent research findings
14. The Conversation: Type of ultraviolet light most effective at killing coronavirus is also the safest to use around people. October 26, 2021. Over 27,000 reads, hundreds of Facebook shares. Picked up by 9 news outlets
15. "Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". Membrane Science, Engineering & Technology Center Research Project Progress Report, April 2021 and October 2021. Liu and Linden.
16. USAID Sustainable WASH Systems. Dozens of products including reports, briefs, blogs, videos from 5 years of research co-authored with Amy Javernick-Will and other research partners. All published on globalwaters.org/sws
17. Saba Seyedi, Emma Payne, Karl Linden. Advanced Water Treatment for Indirect Potable Reuse, Norman Water Reclamation Facility (WRF), Norman, OK. Garver Engineering, October 2021.
18. Saba Seyedi, Karl Linden. UV-C dose determination for green algae (Chlorella) cell disinfection & bleaching under 2 di]erent solid concentrations & 2 di]erent temperatures. GW Nutrition company, July 2021.
19. Saba Seyedi, Karl Linden. Testing protocol for inactivation of Staphylococcus aureus using UV hand sanitizer. Sloan Corporation. August 2021.
20. Ben Ma and Karl Linden, 11/2021. Inactivation of common pathogens under 222 nm irradiation from Far UV Technologies UV Devices. Report for Far UV Technologies.
21. Ben Ma and Karl Linden, 10/2021. Far UV-C (222 nm) light exposure surface egcacy test method study. Report for Boeing Corporation
22. Ben Ma, Saba Seyedi, and Karl Linden, 06/2021 Inactivation of Phi-6 Coliphage, E. coli and SARS-CoV-2 under 222 nm irradiation from Population Light UV Devices. Report for Population Lights.
23. Bill Nye The Science Guy: Science Rules! Coronavirus Edition. Killing COVID-91 at the Speed of (UV) Light. 45 minute Podcast Interview with Linden. Oct 12, 2020
24. Wall Street Journal, featured in: Boeing and Airbus Study How Coronavirus Behaves During Air Travel, Andrew Tangel Alison Sider, May 26, 2020
25. Business Insider, Featured in A Columbia scientist's 'new and powerful weapon' against the coronavirus destroys particles using UV light without harming people. Aria Bendix, July 11, 2020
26. NIST News. Featured in Shrinking Ultraviolet: NIST researchers describe unique system for testing how well narrow wavebands of UV light kill germs, Ben P. Stein, July 21, 2020

27. Michigan Waterworks, Featured in 2020 Borchardt Conference a Success. David Schendel, Summer 2020.
28. Daily Camera. Featured in CU Boulder professor wins top water research prize, Katie Langford, Nov 14, 2020
29. Discover magazine. Featured in "Are Ultraviolet Sanitizing Lights Safe for Humans?" by Leslie Nemo, May 29, 2020
30. ABC Australia Sunday Morning radio show. New Developments in Toilet Innovation – interview live on air, Aug 9 2020
31. Fast Company, The Weather Network, GovTech, Medical Xpress, InnerSelf, Engineering for Change, Architecture and Design, Flipboard, Kiowa County Press, News Karnataka, The Hour, Idaho Press tribune, Le Enterprises, Newsify, Inoreader, Newscycle Mobile, Seattle Post-Intelligencer, Albany Times Union, Huston Chronical, Menafn, Inkl, Fairfield Citizen, Newsblur, Greenwich times, Others "Ultraviolet light can make indoor spaces safer during the pandemic – if it's used the right way" news piece distributed through dozens of these news channels. September 2020
32. "Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". Membrane Science, Engineering & Technology Center Research Project Progress Report, April 2020. Liu and Linden.
33. "Coupled UV – Membrane and Oxidant – Membrane Processes for Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". Membrane Science, Engineering & Technology Center Research Project Progress Report, October 2020. Liu and Linden
34. ANTHC Water Infrastructure Brief: "Opportunities and challenges in unpiped Alaska Native communities." August 2020. (Tatiana Blanco-Quiroga, Kaitlin Mattos, Karl Linden)
35. Ben Ma, Karl Linden, Jennifer Henderson, Scott Meschke, and Martin Cohen, Oct., 2020. Space Needle UV Source Field Evaluation Study. Report to Joel Dazy at The Space Needle to evaluate their COVID-19 intervention strategies using UV light technology.
36. Ben Ma, Jasmine Gamboa, and Karl Linden, 2020. CalTex Oil: Seawater water quality and bacterial community analysis. Report on Research for industry client.
37. USAID Sustainable WASH Systems Research Brief (May 2020): Adapting Collaborative Approaches for Service Provision to Development Contexts: Expert Panel Results, accessible at https://www.globalwaters.org/resources/assets/sws/adapting-collaborative- approaches-for-service-provision (Pugel, Linden, Javernick-Will)
38. USAID Sustainable WASH Systems Research Brief (April 2020): Defining collective action approaches in WASH, accessible at https://www.globalwaters.org/resources/assets /sws/defining-collective-action-approaches-wash

39. Hydroxyl Radical Steady-State Levels and Scavenging Demand During UV/H2O2 Advanced Oxidation: WQTS Water Testing report. July 2020. Liu and Linden
40. 1,4-Dioxane & VOC degradation by UV-H2O2 AOP. July 2020. Technical Report for Hazen Engineering. Liu and Linden
41. National Academies of Science Engineering and Medicine (NASEM). Based on Science Does Ultraviolet (UV) Light kill the coronavirus. Re-wrote, updated section for NASEM 2020
42. Cord et al., Poster at UNC Water and Health – "Pathways to Enabling the Reliability and Scale of Rural Water Infrastructure Maintenance Interventions" – Oct 6, 2021
43. Household alternatives for water and sanitation in remote and rural areas Mariana Islands Water Operators Association training. Invited Lecture by Doctoral Student Kaitlin Mattos. Dec 15, 2020
44. Approaches to Water and Sanitation Infrastructure for Underserved Areas CU Boulder STEMinar, Invited Lecture by Doctoral Student Kaitlin Mattos. October 13, 2020
45. WASH in remote, rural and underserved communities: the case of the Arctic. Colorado Rotary Club WASH Group, Invited Lecture by Doctoral Student Kaitlin Mattos. March 9, 2020
46. WASH in remote, rural and underserved communities: Case studies in rural Alaska. UVIC, BC Canada Invited Lecture by Doctoral Student Kaitlin Mattos January 24, 2020
47. "Engineering a world of safer water" published November 11, 2019: https://www.colorado.edu/today/2019/11/11/engineering-world-safer-water
48. Tara Randall Colorado WateReuse Association Scholarship announcement published October 7th, 2019: https://www.colorado.edu/even/2019/10/07 /scholarship-will-support-students-water-reuse-research-israel-and-uganda
49. Natalie Hull-Ohio State and Sustainability news coverage of Jamestown research with Linden, original article here: https://news.osu.edu/a-sustainable-solution-for- safer-drinking-water/
50. Natalie Hull-Super Awesome Science Show podcast interviewee, coverage of PhD research with Linden. Aug 2019. https://globalnews.ca/news/5731629/super- awesome-science-show-water-worries/
51. "Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". Kaitlyn Jeanis, Dr. Karl G. Linden. October 2019. MAST Center Report.
52. Final Report - Development of UV LED Technology for Small Systems. NWRI Fellowship Grant. Hull, N. and Linden, K. Valcourt, N., Walters, J., Javernick-Will, A., & Hollander, D., Linden, K., (2018). Summary Report of Baseline Iterative Factor Mapping and Learning (IFML) Analyses In Ethiopia And Uganda. Washington, DC: Sustainable WASH Systems Learning Partnership: United States Agency for

International Development. Valcourt, N., Walters, J., Javernick-Will, A., & Hollander, D., Linden, K., (2018). Summary Report of Iterative Factor Mapping and Learning (IFML): Kampong Speu, Cambodia. Washington, DC: Sustainable WASH Systems Learning Partnership: United States Agency for International Development.

53. Cord, C; Analysis on IRC's use of Pay as You Fetch: Kabarole District, Uganda; 2018, PhD Advisor Linden

54. "Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". Joanna R. Murphy, Dr. Karl G. Linden. October 2018. MAST Center Report.

55. K. Sholtes , J. Pagan , O. Lawal , K. Linden 2018. UV-C LED Device Round Robin Results, Tolerance to Error, and Protocol. IUVA Newsletter. Spring 2018

56. Getting onto the right wavelength with UV water disinfection. Global Water Intelligence Interview, UV Disinfection. October 2017, P44-49

57. K. Linden, H. Wright, J. Collins, C. Cotton, S. Beck. 2015. Guidance for Implementing Action Spectra Correction with Medium Pressure UV Disinfection. Water Research Foundation.

58. Bolton, J., Beck, S., Linden, K. 2015. Protocol for the Determination of Fluence (UV Dose) Using a Low- Pressure or Low-Pressure High-Output UV Lamp in Bench-Scale Collimated Beam Ultraviolet Experiments. IUVA News. 17(1), 11-16.5

59. Invited *Book Chapter*: Linden, K.G., Mamane, H. (2015) Ultraviolet Disinfection Process Concepts and Equipment Systems: in Ultraviolet Disinfection for Wastewater—Low-Dose Application Guidance for Secondary and Tertiary Discharges. Water Environment Federation (WEF) Alexandria, VA.

60. Invited *Book Chapter*: Linden, K.G., Mohseni, M. (2013) Advanced Oxidation Processes: Applications in Drinking Water Treatment. International Water Association (IWA) Elsevier, London.

61. Invited *Book Chapter:* Swaim, P.D., Cotton, C.A., Linden, K.G. (2013) Ultraviolet Disinfection. AWWA Water Treatment Plant Design, McGraw Hill

*62.* Linden, K. and Dotson, A. *UV-Based Advanced Oxidation Treatment of Pre- and Post-GAC Contacted Water.* Water Research Foundation Report, July 2012

*63.* Linden, K., Dotson, A., Weinberg, H., Lyon, B., Mitch, W., and Shah, A. *Impact of UV Location and Sequence on Byproduct Formation*. Water Research Foundation Report, June 2012

*64.* Linden K.G., Keen, O.S., Love, N.G. and Aga, D. S. (2011) Demonstrating advanced oxidation coupled with biodegradation for removal of carbamazepine. WERF Final Report for project INFR6SG09

*65.* Invited *Book Chapter:* Chapter 9. Ultraviolet and Pulsed White Light Treatment (2011) Vicente Gomez, Tatiana Kouchma and Karl Linden. In Novel and Non-Thermal Technologies for Fluid Foods Food Science and Technology International

*66.* Invited *Book Chapter:* Chapter 18. UV Water Treatment Technologies (2012) Karl Linden and Erik Rosenfeldt. In Water Quality and Treatment AWWA.

67. "New Water Plant will use Ultraviolet Light" (2010) as quoted in Cincinnati Enquirer, Dec 31, 2010

68. "Water System Adding UV Disinfection" (2010) as quoted in Cincinnati.com, Dec 30, 2010

*69.* "Chemists are taking to web tools to fulfill 'broader impact' requirement in NSF grants" (2010) Featured in *Chemical and Engineering News,* Nov. 29, 2010.

*70.* "CU-Boulder team to study Gulf of Mexico spill chemicals" Featured in the *Denver Business Journal* and picked up by other newspapers in the area, July 22, 2010.

*71.* "CU scientists to study fate of oil dispersants in the Gulf" Featured in the *Boulder Daily Camera,* July 22, 2010.

*72.* KGNU Environmental News story: Interviewed together with Dr. Fernando Rosario to discuss work with chemical dispersants, August 2010

*73.* Invited *Book Chapter:* Chapter 1.Ozonation, UV and Advanced Oxidation Processes (AOPs) (2009) Karl Linden. In Emerging Problems: Organic Byproducts of Potential Health Concern Produced During Drinking Water Treatment; AwwaRF and Suez-Environnement

74. Shah, Amisha D; Dotson, Aaron A; Linden, Karl G; Weinberg, Howard S; Mitch, William A, "Impact of UV Disinfection Combined with Chlorination/Chloramination on the Formation of Nitrogenous Disinfection Byproducts in Drinking Water", IUVA News. 2009, v.11, n.3, 20–26.

*75.* "Portable UV treatment of water" (2007) as quoted in *National Geographic Traveler,* October 2007.

*76.* "Water Treatment Revolution" (2007) Guest Editorial in *ASCE Journal of Environmental Engineering,* Feb 2007.

77. US EPA (2006) "UV Disinfection Guidance Manual" Contributing Author. http://www.epa.gov/safewater/disinfection/lt2/compliance.html

78. Linden, K.G. (2005) "Hazard from New Orleans Floodwaters Could Spread Widely", Op-Ed published in the News & Observer Sept. 9, 2005

79. Interviewed by Elizabeth Shogren National Public Radio for a Hurricane Flood Waters Story (Sept. 9, 2005)

80. Interviewed by the New York Times, Felicity Barringer for a Hurricane Flood Waters Story (Sept. 13, 2005)

81. Interviewed live on WBT News Talk 1110 AM, Charlotte's Morning News Weekend, With Don Russell (Sept. 18, 2005)

82. Featured in "Environmental Impact on Texas Unknown" By Scott Streater Ft. Worth Star Telegram (Sept 20, 2005)

83. Featured in “Natural Buffers Took a Beating” By Juliet Eilperin The Washington Post, (Sept 21, 2005)
84. Featured in “Latest Flood Makes Cleanup Even Harder” By Scott Streater Ft. Worth Star Telegram (Sept 28, 2005)
85. Featured in “Clean Water on Tap: Tool Improves Treatment”, By Sharon Lem, The Toronto Sun (Nov 14, 2005)
86. Featured in “New Method for Validating UV Disinfection Systems Shows Promise” by Jay Landers, Civil Engineering Magazine (Jan. 2006, Vol. 76 No. 1).
87. Linden, K.G. (2005) "Water supply engineering " in McGraw-Hill Encyclopedia of Science & Technology. Revised existing article for 2006-7 version.
88. Linden, K.G. (2005) "Water treatment" in McGraw-Hill Encyclopedia of Science & Technology. Revised existing article for 2006-7 version.
89. Rosenfeldt, E.J. and Linden, K.G. (2004) “Removing Endocrine Disruptors from Drinking Water – An Alternative Treatment Scheme Using Ultraviolet Light” in Environmental Contaminants: Assessment and Control by Daniel A. Vallero, Elsevier, Boston, MA.
90. Linden, K.G., Sharpless, C.M., Andrews, S.A., Atasi, K., Stefan, M., Suffet, I.H. (2004) “Innovative UV Technologies to Oxidize Organic and Organoleptic Chemicals” Final Report: Awwa Research Foundation, Denver, CO
91. Malley, J.P., Linden, K.G., Mofidi, A.A. (2004) “Inactivation of Pathogens with Innovative UV Technologies” Final Report: Awwa Research Foundation, Denver, CO
92. Linden, K.G., Oliver, J.D., Sobsey, M.D., Shin, G-A (2004) “Fate and Persistence of Pathogens Subjected to Ultraviolet Light and Chlorine Disinfection” Final Report: Water Environment Research Foundation, Alexandria, VA
93. Risinit, M. 2004. “An Ultraviolet Defense”, The Journal News, Featured expert in news article [http://www.thejournalnews.com/newsroom/021004/a0110ultraviolet.html]
94. “Higher Math Watered Down”, The News and Observer, Featured expert in news article. Jan 27, 2003.
95. Linden, K.G. and Mofidi, A.A. (2003) “Disinfection Efficiency and Dose Measurement of Polychromatic UV Light” Final Report: Awwa Research Foundation, Denver, CO
96. Rochelle, P.A.; Mofidi, A.A.; Linden, K.G.; & De Leon, R. (2003) "Measuring Inactivation of Cryptosporidium parvum by In-Vitro Cell Culture." In Cryptosporidium: From Molecules to Disease. Elsevier. Thompson, R.C.A; Armson, A.; & Ryan, U.M., Eds. P. 225 - 231
97. Linden, K.G., Bonislawsky, M., and Hawkins, J. “Evaluation of Performance and Operational Costs of Three Biological Nutrient Removal Schemes at a Full Scale Wastewater Treatment Plant”, North Carolina Water Resources Research Institute (WRRI), Final Report. 2001.

98. Bonislawsky, M. and K.G. Linden "Costs and performance for 3 BNR schemes at a full scale wastewater treatment plant" Proceedings, *North Carolina AWWA/WEA Annual Meeting*, Asheville, NC, November 13-15, 1999.
99. Linden, K.G. “Benchmarking UV disinfection for wastewater”, UV News, Vol 1, No. 2, 1999.
100. Linden, K.G. "UV disinfection for wastewater: state of the technology," *Civil Engineering*, invited, March 1998.
101. Linden, K.G. "UV disinfection for wastewater" *UV Wavelength*, invited, Spring 1998.
102. Linden(auer), K.G., S. Kullman, and M. E. Fuller. *Bioremediation Principles: Laboratory Manual*. UC Davis/US Department of Defense, Mare Island Naval Base personnel retraining program, July 1995.
103. Kayhanian, M., K.G. Linden(auer), S. Hardy, and G. Tchobanoglous. “Two stage process combines anaerobic and aerobic composting,” *Biocycle*, March 1991.
104. Final Report - Development of UV LED Technology for Small Systems. USEPA DeRISK Center. Hull, N. and Linden, K.
105. Featured in Global Water Intelligence, Chief Technology Officer column on UV LEDs in water treatment

## Major Conference Presentations

1. Linden, K., Hull, N.M., Sholtes, K., Beck, S. "UV LEDs for small systems: a revolution in robust and effective disinfection? " IWA SWWS2018 Conference on Small Water & Wastewater Systems and Resources Oriented Sanitation, Technion, Haifa, Israel
2. Linden, K., Hull, N.M., Sholtes, K., Beck, S. "UV LEDs for small drinking water systems: a revolution in robust and effective disinfection?" Lead Speaker, IUVA / ICULTA LED Conference, Berlin Germany, April 2018
3. Linden, K (2017) Exploring advantages and disadvantages of polychromatic Uv sources in water Treatment IUVA World Congress, Dubrovnik, Croatia.
4. Linden, KG, Javernick-Will, AJ, Hollander, D., Perez, E (2017) “Sustainable WASH Systems for Sustainable WASH Services” UNC Water and Health Conference October 2017
5. Linden, von Gunten, Mestankova, Parker, Canonica, Schirmer, K., Advanced oxidation-driven transformation of Contaminant Candidate List (CCL3) compounds in drinking water, ACS San Francisco, April 2017, Symposium in honor of Mel Suffet
6. Linden K, Javernick-Will A, Amadei B, Klees R, Sandekian R. (2016) "Engineering in developing communities: Curriculum development around graduate certificate and professional MS programs." Proc. 8th Conference on Engineering Education for Sustainable Development

7. Linden KG, Rosenblum JR, Hull N, thurman EM, ferrer I. "Characterization and treatment of hydraulic fracturing wastewater over time from northeast Colorado." American Chemical Society, 2016
8. Linden KG, Hull N. (2016) "Ultraviolet Wavelength- and Dose-Dependent Inactivation and Molecular Damage of MS2 Coliphage." Water Quality and Technology Conference (WQTC), November 13, 2016
9. Linden KG, Beck SE, Hull N. "Ultraviolet Wavelength- and Dose-Dependent Damage of Adenovirus Proteins." International UV Association World Congress, January 31, 2016-February 03, 2016
10. Linden KG, Ulliman S, Rosenblum JR. "Application of Advanced Oxidation Processes in the Treatment and Reuse of Hydraulic Fracturing Wastewater." International Ultraviolet Association World Congress, January 31, 2016-February 03, 2016
11. Linden KG, Ulliman S. "Enhancing Efficiency of UV Advanced Oxidation Processes via Iron Addition." WateReuse Association 20th Annual WateReuse Conference, May 22, 2016-May 24, 2016
12. Linden KG, Ulliman S, Rosenblum J. "Application of Advanced Oxidation Processes in the Treatment and Reuse of Hydraulic Fracturing Wastewater." WateReuse Association 20th Annual WateReuse Conference, May 22, 2016-May 24, 2016
13. Linden, K.G. Beck, S.E., Jeanis, K.M., Ryu, H., Boczek, L., Cashdollar, J. Lawal, O.R. "Optimizing Pathogen Inactivation with a Tailored, Multiple-Wavelength UV LED Unit" Pacifichem 2015: UV Photochemistry for Water Honolulu, Hawaii. December 16th, 2015
14. Linden, K.G., Collins, J., Wright, H., "Action Spectra for pathogens and surrogates: engineering implications for polychromatic UV systems" Pacifichem 2015: UV Photochemistry for Water Honolulu, Hawaii. December 15th, 2015
15. Linden, K.G., Collins, J., Wright, H., "Testing and documenting medium pressure UV inactivation" Association of State Drinking Water Administrators Conference, October 21, 2015 Ft. Worth, Tx
16. Linden, K.G. "Applications of Concentrated Solar-Energy in Innovative Sanitation Solutions" Fecal Sludge Management 3 Hanoi, Vietnam, January 19-22, 2015
17. Linden, K.G., Deshusses, M. "Odors in Fecal Sludge Management: A Roundtable Discussion" Fecal Sludge Management 3, Hanoi, Vietnam, January 19-22, 2015
18. Linden, K.G., Klees, R.C., Summers, R.S., Bielefeldt, A. "Integrated academic programs: courses, research, and in-field experience Successes and challenges for faculty" Association of Environmental Engineering and Science Professors Conference, Yale University. June 14, 2015
19. Linden, K.G. (2015) "Applications of Concentrated Solar Energy in Innovative Sanitation Solutions" Fecal Sludge Management 3 (FSM3), Hanoi Vietnam, January 19-22, 2015.

20. Linden, K.G. (2014) "Point of use UV systems: The good, the bad and the ugly" UV Disinfection in Developing Countries UNESCO-IHE and IUVA November 6, 2014 Delft, Netherlands, Invited
21. Lester, Y., Love, N.G., Aga, D., Singh, R., Linden, K.G. (2014) "Demonstrating and Monitoring Advanced Oxidation – Biofiltration to Remove Emerging Contaminants from Wastewater". Americas Regional Conference; International UV Association, White Plains, NY, October 26-29, 2014.
22. Lester, Y., Ferrer, I., Thurman, E.M., Linden, K.G. (2014) "Demonstrating sucralose as a monitor of full-scale UV/AOP treatment of trace organic compounds" Water Environment Federation Technology Exhibition Conference (WEFTEC), New Orleans, LA September 28-October 1, 2014.
23. Rosenblum, J., Sitterley, K.A., Lester, Y., Linden, K., (2014) "Coupling Suspended Biological and Advanced Oxidation Processes in the Treatment of Produced Water" Rocky Mountain Water Reuse Workshop, August 14, 2014
24. Linden, K.G. (2014) "21st Century Water Treatment: The Case of Ultraviolet Light" Water Research Australia Symposium - Science Talks to Industry. Melbourne, Australia July 16, 2014. Invited Keynote
25. Sitterley, K.A., Linden, K.G. (2014) "Coagulation of Produced Water" Rocky Mountain AWWA/WEA Student Conference May 22, 2014
26. Lester, Y., Yacob, T., Morrissey, I., Linden, K.G. (2014) "Treating fracturing flowback by biological and advanced oxidation processes" 247th American Chemical Society National Meeting & Exposition, Dallas, TX March 16-20, 2014.
27. Linden, K.G., Love, N.G., Aga, D.A., (2014) "Demonstrating Advanced Oxidation/ Biofiltration For Pharmaceutical Removal In Wastewater" Managing Trace Organics, WERF 9th Annual Research Forum New Orleans LA, Jan 28-30, 2014. Invited Talk.
28. Linden, K., Beck, S., Hargy, T., Wright, H., Larason ,T., McCuin, R. "Measuring Action Spectra of Pathogens and Surrogates" IUVA World Congress, Las Vegas, NV, September 22-26, 2013
29. Linden, K.G., Poepping, C., Beck, S. (2013) "Potential for Unintended DNA Damage Reversal Resulting from Multiple Wavelength Irradiation from Polychromatic UV Light Sources" IUVA World Congress, Las Vegas, NV, September 22-26, 2013
30. Linden, K.G.; Beck, S., Poepping, C., Wright, H., Hargy, T. Cotton, C. (2013) "Results and implication from generating the best action spectra data possible" American Water Works Association Annual Conference and Exposition, June 9-12, 2013.
31. Linden, K.; Weimer, A.; Summers, S; Oversby, C.; Klees, R.; Lewandowski, A.; Fisher, R.; Mahoney, R.; Yacob, T.; Mejic, D.; Hauschulz, D.; Kearns, J.; Beck, S.; Ward, B. J.; Hafford, L.; Ruiz, A. "Solar Driven Thermal Toilet with Biochar Production" Water and Health Conference, University of North-Carolina, Chapel Hill, NC. October 14-18, 2013.

32. Linden, K.G., Beck, S.; Rodriguez, R.; Poepping, C.; Bounty, S.; "Wavelength-Specific Inactivation of Viruses. Measuring Nucleic Acid and Protein Damage." ReNUWIt Sunlight Symposium, Stanford University, April 2, 2013.
33. Linden, K.G. (2012) "And What If…. Rethinking Disinfection in Drinking Water" Association of State Drinking Water Administrators (ASDWA) Annual Conference, Little Rock, AK Oct 16-18, 2012.
34. Linden, K.G. (2012) "Key Factors for Evaluating Medium Pressure UV Disinfection Systems" AWWA Water Quality Technology Conference, Toronto, ON Canada, November 4-7, 2012
35. Linden, K., (2011) "Regulatory implications of new findings on UV disinfection of Adenovirus in drinking water." AWWA Water Quality Technology Conference, Phoenix, AZ, November 13-16, 2011
36. Linden, K., (2011) "When Dose is not Dose: The Case of UV Disinfection of Adenovirus" International UV Association North American Congress, Toronto, Canada, Sept.18-21, 2011
37. Linden, K., Keen, O., Baik, S., Aga, D. and Love, N. (2011) "Enhanced biodegradation of carbamazepine after UV/$H_2O_2$ advanced oxidation." International UV Association North American Congress, Toronto, Canada, Sept.18-21, 2011
38. Linden, K., Barstow, C., Dotson, A. (2011) "UV POU Device for Piped Water Supplies in Developing Communities", International UV Association North American Congress, Toronto, Canada, Sept.18-21, 2011
39. Linden, K.G., Scheible, K., Chen, C., Shin, G-A., Lee, J-K., Posy, P. (2011) "Demonstrating 4-log Adenovirus Inactivation in a Medium Pressure UV Reactor" International UV Association World Congress and Exhibition, Paris, France, May 22-25, 2011
40. Linden, K.G., Posy, P., Scheible, K., (2011) "Can UV Protect the Public from Adenovirus in Drinking Water?" Water Environment Federation Disinfection 2011 - Addressing the Full Spectrum of Global Disinfection Challenges, Cincinnati, OH April 10-12, 2011
41. Linden, K.G., Posy, P., Scheible, K., Shin, G-A, Thurston, J., Eischeid, A. (2010) "How Research is Determining Drinking Water & Public Health Policy: Can UV Protect the Public from Adenovirus in Drinking Water?" Association of State Drinking Water Administrators Annual Conference, Pittsburgh, PA, October 18-20, 2010
42. Linden, K.G., Eischeid, A., Thurston, J. (2010) "Enhancing the UV Inactivation of Adenoviruses in Reclaimed Water" WateReuse Research Conference, WateReuse Research Foundation, Tampa, FL, May 25, 2010
43. Linden, K., Ruiz-Haas, R., Cho, K-D., Kulman, S. (2009) "Presence, Fate and Treatability of Estro- and Androgenic Contaminants in Wastewater and Biosolids" Micropol and Ecohazard 2009, June 8-10, 2009, San Francisco, CA

44. Linden, K. Bandy, J., Thurston, J., Salveson, A. (2009) "Advanced Disinfection Processes for Pathogen Control in Reuse Waters", WateReuse Foundation Research Conference, Huntington Beach, CA May 18-19, 2009
45. Linden, Karl G, Eischeid, Anne C; "Protein Damage in UV Treated Adenovirus", Water Quality Technology Conference, Seattle, WA, November 17, 2009. American Water Works Association
46. Linden, K.G.; Karl Scheible, Chengyue Shen, Gwy-Am Shin, Jung-Keun Lee, Phyllis Posy. "Demonstrating 4-log Adenovirus Inactivation in a Medium Pressure UV Reactor" Water Environment Foundation, Disinfection 2009: Addressing the Full Spectrum of Global Disinfection Challenges 2/28-3/3, 2009, Atlanta, Georgia
47. Linden, K.G., Scheible, K., Chen, C., Shin, G-A., Lee, J-K., Posy, P. (2008) "Demonstrating 4-log Adenovirus Inactivation in a Medium Pressure UV Reactor" AWWA Annual Conference and Exhibition, Atlanta, GA June 8-11.
48. Linden, K., Bandy, J., Thurston, J., Salveson, A. (2008) "Advanced Treatment Technologies and Processes for Removal of Pathogens and Chemical Pollutants for Water Reuse" 12th Annual Water Reuse and Desalination Research Conference, Denver, CO May 5-6, 2008.
49. Linden, K.G., Bohrerova, Z., Bohrer, G., Cho, K-D., Bolch, A., Katul, G., Avissar, R. (2007) "Viability of Pine Pollen under Atmospheric Conditions during Long Distance Dispersal" 2nd USDA Symposium for Agricultural Biotechnology Risk Analysis Research, College Park, MD Dec 5-6, 2007
50. Linden, K.G., Mamane, H., Shemer, H (2007) "Inactivation of *E. coli*, *B. subtilis* spores, and MS2, T4, and T7 phage using UV/H2O2 Advanced Oxidation" 4th International Congress on Ultraviolet Technologies (IUVA), Los Angeles, CA, August 26-29, 2007
51. Linden, K.G., Thurston, J., Schaefer, R.B. (2007) "Enhanced UV disinfection of Adenoviruses with polychromatic UV irradiation" Proceedings 4th International Congress on Ultraviolet Technologies (IUVA), Los Angeles, CA, August 26-29, 2007
52. Linden, K.G,. Scheible, K., Shen, C., Shin, G-A., Posy, P. (2007) "Full-scale validation of 4-log Adenovirus inactivation in medium pressure UV reactors" Proceedings 4th International Congress on Ultraviolet Technologies (IUVA), Los Angeles, CA, August 26-29, 2007
53. Linden, K.G., Shemer, H., Reckhow, D.A., Makdissy, G. (2007) "Ultraviolet Light Induced Disinfection Byproducts: Realities and Challenges" *Disinfection 2007*, WEF, AWWA, WRF, Feb 5-7, Pittsburgh, PA, USA
54. Linden, K., Simmons, O., Sobsey, M.D., Dubey, J.P. (2006) "UV Disinfection of *Toxoplasma gondii* oocysts in water", Awwa WQTC, Nov 5-9, Denver CO.
55. Linden, K.G., Rosenfeldt, E.J., Kullman, S.W., (2006) "UV/$H_2O_2$ Degradation of EDCs in Water Evaluated via Toxicity Assays" 4th IWA Specialist Conference Oxidation Technologies for Water and Wastewater Treatment May 15-17, 2006, Goslar Germany

56. Linden, K.G., Rosenfeldt, E.J., Chen, P.J., Kullman, S.W., (2006) "UV and UV/$H_2O_2$ degradation and subsequent toxicity of endocrine disrupting chemicals in water" Symposium: Safe Drinking Water: Where Science Meets Policy, UNC Chapel Hill, March 16-17, 2006.
57. Linden, K.G., Rosenfeldt, E.J., Chen, P.J., Kullman, S.W. (2005) "Assessment of estrogenic activity following UV and UV/H2O2 degradation of endocrine disrupting chemicals in water" *Pacifichem: Environmental and Green Chemistry Free Radical Chemistry in the Environment*, Honolulu, Hawaii, December 2005.
58. Pereira, V.J., Linden, K.G., Weinberg, H.S. (2005) "Photodegradation of pharmaceutical and contrast media agents in surface water by direct photolysis and UV advanced oxidation processes" *AWWA Water Quality Technology Conference*, Quebec City, Quebec Canada, November 2005
59. Bohrerova, Z., Bohrer, G., Mohan, M., Ducoste, J.J., Linden, K.G. (2005) "Experimental Measurements of Fluence Distribution in a UV Reactor Using Fluorescent Dyed Microspheres" *AWWA Water Quality Technology Conference*, Quebec City, Quebec Canada, November 2005
60. Shemer, H., Sharpless, C.M., Suffet, I.H., Linden, K.G. (2005) "Relative reactivity of Contaminant Candidate List pesticides to OH radical oxidation" *AWWA Water Quality Technology Conference*, Quebec City, Quebec Canada, November 2005
61. Pereira, V.J., Linden, K.G., Weinberg, H.S. (2005) "Direct photolysis and UV advanced oxidation processes of pharmaceuticals in surface water" 3rd International Congress on Ultraviolet Technologies (IUVA). Whistler, BC, Canada, May 2005
62. Linden, K.G. Johnson, S. Moore, A. and Malley, J.P. (2005). " Importance of wavelength for UV inactivation of adenovirus in water", 3rd International Congress on Ultraviolet Technologies (IUVA). Whistler, BC, Canada, May 2005
63. Linden, K.G., Eischeid, A. (2004) "Effect of Wavelength on Efficiency of DNA Damage During UV Disinfection of E. coli" *AWWA Water Quality Technology Conference*, San Antonio TX, November 14-17, 2004
64. Linden, K.G., Rosenfeldt, E.J., Chen, P.J., Kullman, S.W. (2004) "UV and UV/$H_2O_2$ degradation and subsequent toxicity of endocrine disrupting chemicals in water" *European Conference on UV Radiation*, Karlsruhe, Germany Sept 22-24, 2004
65. Linden, K.G., Bolton, J.R., Malley, J.P., Mofidi, A.A., Stefan, M.I. (2003) "Benchmarking UV collimated beam testing: Inter-laboratory comparison of the UV sensitivity of MS2 coliphage", Proceedings, *AWWA Water Quality Technology Conference*, Philadelphia, PA, November 2-6, 2003
66. Linden, K.G., Sharpless, C.M, Chen, W.R., Suffet, I.H. (2003) "Processes for the treatment of Candidate Contaminant List (CCL) chemicals", Proceedings, *AWWA Water Quality Technology Conference*, Philadelphia, PA, November 2-6, 2003.
67. Linden, K.G. (2003) Symposium: Treatment Methods for Inactivation of Pathogens in Juice, "UV Light Basics for Treatment of Juice", National Center for Food Safety &Technology, Orlando Fl, Feb 20-21, 2003 – Invited Speaker

68. Linden, K.G. (2003) "UV and UV-advanced Oxidation processes for removal of EDC in water", IWA First Leading Edge Conference: Drinking Water and Wastewater Treatment Technologies, Noordwijk, The Netherlands, May 26-28, 2003. Invited
69. Linden, K.G., Rosenfeldt, E.J., Johnson, S., Melcher, B. "Direct UV and UV Oxidation Processes for Treatment of Taste and Odor Causing Compounds in Water" *AWWA Water Quality Technology Conference*, Seattle, WA, November 10-14, 2002.
70. Linden, K.G. "Teaching Through Research: New Technologies and Emerging Contaminants for Water" Association of Environmental Engineering and Science Professors (AEESP) Research and Teaching Conference Toronto, ON, Canada, 2002
71. Linden, K.G., Batch, L., Schulz, C. "UV disinfection of filtered water supplies: Water Quality Impacts on MS2 Dose-Response Curves" *AWWA Annual Conference and Exhibition*, New Orleans, LA, June 16-20, 2002.
72. Linden, K.G. and Ormeci, B. "Comparison of UV and Chlorine Inactivation of Particle and Non-Particle-Associated Coliform", *IWA Enviro 2002 – World Water Congress*, Melbourne, Australia, April 7-12, 2002
73. Linden, K.G. and Ormeci, B. "Comparative Effectiveness of UV and Chlorine for Inactivation of Particle Associated Coliform", *WEF Disinfection 2002*, St. Petersburg FL, February 17-20, 2002
74. Linden, K.G., Shin, G.A., and Sobsey, M.D. "Comparison of monochromatic and polychromatic UV light for disinfection efficacy" *Water Quality Technology Conference*, *AWWA*, Salt Lake City, UT. November 4-8, 2000
75. Linden, K.G. "Application of UV disinfection for water treatment" Proceedings, *2000 Annual Conference of the North Carolina Section of AWWA/WEA*, Charlotte, North Carolina, November 12-14, 2000.
76. Linden, K.G. "Evaluating germicidal dose from UV sources with actinometry – theoretical considerations" *International Conference on Applications of Ozone, International Ozone Association, at Wasser Berlin*, Berlin Germany, October 23-26, 2000.
77. Linden, K.G., Krupa, K. and Harden, C. "Optimization and performance of a trickling filter for treatment of snack food processing plant wastewater" *WEFTEC 2000, 73rd Annual Conference and Exposition on Water Quality and Wastewater Treatment*, Anaheim, CA, October 14-18, 2000.
78. Linden, K.G. Shin, G.A., and Sobsey, M.D. "Relative efficacy of UV wavelengths for the inactivation of *Cryptosporidium parvum*" *Disinfection 2000, WEF Specialty Conference*, New Orleans, LA. March 15-17, 2000.
79. Bonislawsky, M. and K.G. Linden "Costs and performance for 3 BNR schemes at a full scale wastewater treatment plant" " *North Carolina AWWA/WEA Annual Meeting*, Asheville, NC, November 15, 1999.
80. Linden, K.G. and A.A. Mofidi "Measurement of UV irradiance: tools and considerations" *Water Quality Technology Conference, American Water Works Association*, Tampa Bay, FL, November 3, 1999.

81. Linden, K.G. “UV Disinfection: Process and Design Considerations” *North Carolina AWWA/WEA Annual Meeting*, Research Triangle Park, NC, November 10, 1998.
82. Linden, K.G. et al. “Investigation of disinfection byproduct formation following low and medium pressure UV irradiation of wastewater” *WEF Disinfection Specialty Conference*, Baltimore, MD. April, 1998.
83. Linden, K.G. and Darby, J.L. “Measuring UV absorbance of marginal effluents: Impact on UV dose estimation”. Presented at *Water Environmental Federation 70th Ann. Conf. and Exhib*, Chicago, IL. Oct., 1997.
84. Linden, K.G. and Darby, J.L. “Estimating effective germicidal UV dose from medium pressure UV lamps using mathematical, bioassay, and chemical actinometry approaches”. Presented at *Joint ASCE/CSCE Environmental Engineering Conference*, Edmonton, Canada. July, 1997.
85. Linden, K.G. “UV disinfection efficiency: effect of particulate matter”. *California Water Environment Association Annual Conference*, Sacramento, CA. April, 1996
86. Linden, K.G. “Wastewater reuse for organic farmers”. *Ecological Farming Conference*, Asilomar CA. January, 1994.
87. Linden(auer), K.G. and J.L. Darby. “Evaluation of ultraviolet light disinfection: significance of photoreactivation”, *WEF Disinfection Specialty Conference*, Whippany, NJ. May, 1993.

## Invited Lectures/Presentations/Workshops

1. Invited Awards Banquet Address: Linden, K., IUVA Beginnings, Middles and Currents. Short address to 250 person Awards Banquet in receiving the International Ultraviolet Association (IUVA) Lifetime Achievement Award. IUVA World Congress, Dubai, UAE, September 10-13,2023
2. Invited Seminar: Linden, K.G. Protecting Public Health at the SPEED OF (UV) LIGHT. Urban Water Systems Engineering, Technical University of Munich, Garching Germany. April 27, 2023
3. Invited Talk: Linden, K.G., Inactivation of Biofilm-bound Opportunistic Pathogens in Premise Plumbing Using UVC LEDs. WRF Research Advisory Council (RAC) Web Meeting: Unsolicited Research Program (URP) Update. December 4, 2023
4. Invited Seminar: Linden, K.G. Protecting Public Health at the SPEED OF (UV) LIGHT. University at Buffalo, Department of Civil and Environmental Engineering Seminar Series. Buffalo NY, March 31, 2023
5. Invited Talk: Fulbright Canada Research Seminar, University of British Columbia, Canada, "Protecting Public Health at the Speed of UV Light". 11/22/22
6. Invited Talk: WASH Nerds - University of Washington, School of Public Health. WASH Systems -Understanding Preventive Maintenance. 4/25/22

7. Invited Talk: University of Washington Seminar Series. 4/11/22; "Thinking Outside the Treatment Plant: UV LEDs for distributed disinfection applications"

8. Invited Talk: Fulbright Canada Research Seminar, University of Toronto, Canada, "Protecting Public Health at the Speed of UV Light". 11/2/22

9. Invited Talk: Fulbright Canada Research Seminar, Polytechnique Montreal, Canada, "Low wavelength UV Applications for Air and Water Purification".11/4/22

10. Invited speaker: National Academy of Engineering, Water Science and Technology Board: WSTB Fall 2022 Meeting - Long-term Solutions to Improve vU.S. Drinking Water Services. 11/1/22 (in Wash DC)

11. Invited Panelist: UNC Water and Health Conference - State of the World's Drinking Water Joint session convened by WHO, UNICEF and the World Bank. 10/27/22

12. Invited Workshop Participant, Presenter. Department of Energy (DOE) Solid-State Lighting (SSL) Program: Germicidal UV State of the Science, 8/11/22

13. Invited Talk: #WASH Canada Talks University of Victoria, Canada. "Thinking outside the treatment plant: UV disinfection for small and distributed systems" 9/21/22

14. Invited Talk, Center for Water Resources Studies, Dalhousie University: "Protecting Public Health at the SPEED OF (UV) LIGHT" 9/9/22

15. Invited Talk - 2022 Burges Endowed Visiting Professorship Lecture, University of Washington, "Protecting public health at the speed of (UV) light",5/6/22

16. Invited Talk: University of South Florida, Civil/Environmental Engineering Seminar Series. "Far UV-C: A new effective tool for enhanced virus inactivation" 2/11/22

17. Invited Seminar, Dalhousie University (Virtual). Linden, K. 2021. Thinking Outside the Treatment Plant. UV LEDs for distributed disinfection applications. May 20, 2021

18. Workshop Leader, UNC Water and Health Conference: Importance of collective action for professionalizing maintenance services, Oct 2021 Virtual (Speakers from US and East Africa)

19. Food Service and Air Purification Roundtable by FSCI: "The importance of improving restaurant air purification systems in a time of Covid" Virtual, March 30, 2021

20. Linden, K. (2020) HALO: Water Disinfection: New Research in UV-C LED Technology - New Research In UV LED Disinfection: Tailored Wavelengths and Performance Validation. Chicago Water Week, Sept 28, 2020 Virtual INVITED

21. Salveson, A., Trussell, S., Linden, K., (2020) Water Research Foundation Webinar: WRF 4997 Tier 1 and Tier 2 MBR Validation Protocols. October 15, 2020

22. Linden, K. (2020) UV Treatment for Inactivation of Coronavirus, EVEN Seminar. April 10, 2020

23. Linden, K., Miklos, D., Ulliman, S. Drewes, J. (2020) Innovations in Advanced Oxidation to Control Emerging Contaminants in Wastewater Effluent. Emerging Contaminants Summit, Broomfield, CO March 10-11, 2020 INVITED Keynote

24. Linden, K. (2020) Mixing electricity and water: The evolving role of UV Light in water treatment. Borchardt-Glysson Water Treatment Innovation Prize Keynote Lecture, Triennial Borchardt Conference, University of Michigan, Ann Arbor, February 25-26, 2020.

25. Thinking outside the treatment plant: UV for water distribution system disinfection, Linden, Hull, Speight, ACS Conference. San Diego CA, 2020

26. Invited Keynote (UV Treatment - A Brief History) Award Presentation for receiving the Water Research Foundation Dr. Pankaj Parekh Research Innovation Award, At the WRF Subscriber Breakfast, at the AWWA Annual Conference and Exhibition, Denver Colorado. June 2019

27. Invited Presenter - International Institute for Sustainable Laboratories' Annual Conference and Technology Fair - on Faculty Perspective on setting up shared laboratories space. SEEC, Boulder CO, Oct 2019

28. Invited talk: Linden, The ABCs and XYZs of AOPs, International UV Association, World Congress, Sydney Australia, Feb 2019

29. Invited: Linden Inaugural President Address to the Association of Environmental Engineering and Science Professors (AEESP) Biannual Conference, Tempe AZ (ASU) May 2019.

30. Linden: UV LED Water Disinfection: Validation and Small System Demonstration. POP talk, International Water Association, Health Related Water Microbiology Conference, Vienna Austria, September 2019

31. Workshop Coordinator. World Health Organization Revision to the Guidelines for Drinking Water Quality - Determining LRVs. At the UNC Water and Health Conference, Chapel Hill NC, Oct 2019.

32. Linden: Invited - Thinking outside the treatment plant: UV for water distribution system disinfection, at the American Chemical Society Annual Conference in San Diego CA, Aug 2019

33. Invited Keynote - Retirement Symposium for Dr. Mark Sobsey, "The Sobsey Bump: Tales from the Personal to the Professional" UNC Chapel Hill. Nov 30, 2018.

34. Convenor of Workshop: "Assessing log reduction values for drinking-water treatment technologies" World Health Organization, IWA World Water Congress, Tokyo, Japan, September 2018

35. Invited Seminar: "WHO Revision of Log Removal Values for Drinking Water Treatment Processes" Urban Water Sustainability Group. Technical University Munich December 2018
36. Invited Seminar: "The Wavelength Dependence of UV Water Treatment: …….are UV LEDs the Future?" Clemson University, Department of Environmental Engineering and Earth Science, April 2018.
37. Invited Seminar: "The Wavelength Dependence of UV Water Treatment: …….are UV LEDs the Future?" University of British Columbia, Chemical and Biological Engineering, May 2018
38. Discussion Leader, Invited: Oxidative Processes and Contaminant Transformations. Gordon Research Conference, Environmental Sciences: Water. June 2018
39. Webinar: Implementing Ozone Disinfection for Wastewater, Water Environment Federation, March 2018
40. Valcourt, N., Hollander, D., Pugel, K., Javernick-Will, A., Linden, K., (2018). Using Systems Analysis to Understand and Strengthen WASH Systems. Verbal presentation at the Colorado WASH Symposium, University of Colorado Boulder.
41. Joanna R. Murphy, Dr. Karl G. Linden. "Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". MAST IAB Meeting. November 4, 2018. Boulder CO.
42. Joanna R. Murphy, Dr. Karl G. Linden. "Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". MAST IAB Meeting. May, 22 2018. State College, PA.
43. Ulliman SL, Rosario-Ortiz, FL, Linden KG, Korak, JA (Aug. 2018). Assessment of optically-based measurements of organic matter for differentiation of source waters and treated wastewaters. Environmental Protection Agency Technical Information Exchange, Denver, CO.
44. Ulliman SL, Miklos DB, Hü bner U, Drewes JE, Linden KG (podium, April 2018). Improving UV/H2O2 performance following tertiary and advanced treatment of municipal wastewater. Consortium for Research and Education on Emerging Contaminants, Golden CO.
45. Hull NM, Sholtes KA (co-first authors), Linden, KG (Feb 2017). UVC LEDs and Disinfection. UVC LED Review Workshop for IUVA Americas, Austin, TX, USA.
46. Linden, K (2017) Fundamentals and Basics: How does UV work (disinfection and AOP) and methods of delivering UV irradiation. IUVA World Congress, September 17-21, 2017, Dubrovnik, Croatia
47. Linden, K, Sholtes, K (2017) Testing Protocol for Measurement of UV-C LED Lamp Output: Round Robin Report & Next Steps. IUVA World Congress, September 17-21, 2017, Dubrovnik, Croatia
48. Keynote: Linden KG, UV-AOP: Emerging Trends in Reuse of Impaired Waters. Busan Global Water Forum, September 7, 2017

49. Murphy, J.R., Linden, K.G. (2017). "Coupled UV-Membrane and Oxidant Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". Presented to: MAST Center Symposium. Fayetteville AK. 2017 Apr 22-24.
50. Murphy, J.R., Linden, K.G. (2017). "Coupled UV-Membrane and Oxidant Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". Presented to: MAST Center Symposium. Newark, NJ. 2017. Oct 22-24.
51. Linden, K., Walters, J., Prestación de Servicios Sostenibles de Agua Saneamiento e Higiene Mediante el Fortalecimiento de Sistemas Locales. SWS Symposium, UDP, Santiago Chile, May 19, 2017
52. Rosenblum, Linden, UC, Irvine. Hydraulic Fracturing: Impacts to California's Water Supply. 11/4/2017 (Panel Member)
53. Hull NM and Linden KG (October 2017). Mechanisms and Sustainability of Wavelength- Tailored Ultraviolet Drinking Water Disinfection for Small Systems. CU Boulder Environmental Engineering Seminar Series, Boulder, CO, USA.
54. Webinar: Hull, NM and Linden KG (Jan 2017). UV Wavelength-Specific Damage and Inactivation of MS2. DeRISK Drinking Water Webinar, Boulder, CO, USA.
55. Webinar: Linden, Karl (2017) Peracetic Acid (PAA) Fundamentals: Peracetic Acid for Disinfection of Municipal Wastewater Effluent , Water Environment Association of Texas
56. Moderator: Onsite Nonpotable Water Systems, Session, International Water Association Water Reuse conference, Long Beach CA, July 2017.
57. Ulliman and Linden, Guest lecturer at Boulder High School, Environmental Science class. "The Water (Re)cycle." Boulder, CO. Sept. 2017
58. Invited Presentation: "Innovations in Sanitation: Resource Recovery and Water Reuse in Developing Countries" EU FRAME Workshop, Koblenz, Germany, March 2018
59. Webinar: NSF NEWT ERC - Sustainable WASH Systems and Sustainable WASH Services. January 2018
60. Linden K , Mini-Symposium on Emerging Contaminants. RMIT University, Melbourne Australia, October 6, 2016. "The Role of UV and AOP Processes in Mitigating Emerging Contaminants in Wastewater Reuse", KEYNOTE
61. Linden, K, Water Sustainability in Oil and Gas Exploration: Treating Frack Water for Reuse. Ecology and Environment Conference June 21-23, 2016, Tel Aviv, Israel.
62. Linden, K. The Role of UV Disinfection and Advanced Oxidation Treatment in Acceptance of Direct Potable Reuse in USA, at Water Reuse in Israel: Where we are and where can we go?, Porter School of Environmental Studies, Tel Aviv University, Israel July 11, 2016, KEYNOTE

63. Linden, K. Characterization and Treatment of Hydraulic Fracturing Wastewater Over Time from Northeast Colorado. EmCon (Emerging Contaminants), Sydney Australia Sept 20-23, 2016. Co-Authors: James Rosenblum, E. Michael Thurman, Imma Ferrer, George Aiken, Karl Linden
64. Linden, K. The Role of UV Disinfection and Advanced Oxidation Treatment in Acceptance of Direct Potable Reuse in USA. at The Second Asian Symposium on Water Reuse, Kyoto, Japan, April 25, 2016. KEYNOTE
65. Linden, K. Demonstrating Organic Contaminant Removal in an Ozone-based Water Reuse Process at Full Scale. International Water Association World Water Congress, Brisbane Australia Oct 9-13, 2016. Co-Authors: Judy Blackbeard, James Lloyd, Mirela Magyar, John Mieog, Yaal Lester
66. Linden, K. UV Applications and Trends in drinking water. Second Japan International Ultraviolet Technologies Symposium, University of Tokyo (UT) Tokyo Japan, April 22, 2016. Theme: "UV Innovations: Towards Sustainable Water Use". KEYNOTE
67. The MPN Method and Ultraviolet (UV) Radiation Treatment: Assessing disinfection using culturing methods vs. inclusion/exclusion dyes. GEF-UNDP- IMO GloBallast R&D Forum and Exhibition on Ballast Water Management ICAO HQ, Montreal, Canada, 16-18 March 2016.
68. 21st Century water treatment, The case of ultraviolet light International UV Association, 2016 World Congress Feb 1, 2016. Vancouver, Canada. KEYNOTE
69. Optimizing Pathogen Inactivation at Low Energy Cost with a Tailored, Multiple-Wavelength UV LED Unit. 2016 World Congress Feb 2, 2016. Vancouver, Canada
70. Linden K. Eawag, Department Water Resources & Drinking Water Dubendorf, Switzerland, Thursday, December 8, 2016 "MP or not MP, that is the question……Exploring advantages and disadvantages of polychromatic UV sources in water treatment" INVITED
71. Linden K , Chair in Urban Water Systems Engineering PhD Seminar, TU Munich, Nov 28, 2016 "The Wavelength dependence of UV disinfection: are UV LEDs the future?" INVITED
72. Linden K , Oskar von Miller Forum Workshop. Munich, Germany, November 30, 2016 "Water Management and Reuse in Buildings"
73. Linden K , Melbourne Water. Melbourne, Australia, October 2, 2016 "Ultraviolet Light Technology: Low vs Medium Pressure Mercury lamps" INVITED
74. Linden K , Melbourne Water. Melbourne, Australia, October 2, 2016 "Emerging Contaminants: State of the Art World-wide" INVITED
75. Linden K , Gut Marienhof Wastewater Treatment Plant Munich. Meeting on UV-AOP, October 21, 2016 "Perspective on trends, issues and costs for UV disinfection and AOP technologies" INVITED
76. 21st Century Water Treatment: The Case for Ultraviolet Light Zuckerberg Institute for Water Research, Ben-Gurion University of the Negev, June 29, 2016. Sde Boker, Israel INVITED

77. The Emerging Role of Advanced Oxidation Processes in Water Reclamation, Hokkaido University, April 19, 2016 INVITED
78. 21st Century Water Treatment: The Case for Ultraviolet Light National Institute of Public Health, Saitama, Japan, April 6, 2016. This lecture was a special invited lecture that included attendance by high ranking administrators at NIPH to discuss the role of UV technology in public health protection in Japan. INVITED
79. …And What IF …? Rethinking Disinfection in Drinking Water Systems University of Tokyo, April 7, 2016 Special lecture in Environmental Engineering at the University of Tokyo. Japan INVITED
80. Validation of UV Disinfection Systems: RED Bias Concept University of Tokyo, April 12, 2016. INVITED
81. 21st CENTURY water treatment: The case of ultraviolet light Tsinghua University, Environmental Forum, June 7, 2016 Beijing, China. INVITED
82. The Role of UV Disinfection and Advanced Oxidation Treatment in Acceptance of Direct Potable Reuse in USA. Chinese Academy of Sciences, Beijing China, June 3, 2016. INVITED
83. Advanced Technology and Innovations for Sanitation: Solar Toilets and Safe Effluent Reuse by UV. Asian Institute of Technology Bangkok, Thailand. March 10, 2016 INVITED
84. …And What IF …? Rethinking Disinfection in Drinking Water Systems. University of British Columbia, Vancouver, BC January 28, 2016
85. Water Sustainability in Oil and Gas Exploration: Treating Fracturing Flowback Water for Reuse. Jan 27, 2016. Peter Wall Institute for Advanced Studies, University of British Columbia, Vancouver BC Canada.
86. "Water Quality and Contamination" National Water Security: Workshop Program for Mexican Government, Tel Aviv, Israel, October 13, 2015. Invited
87. "Regulations and Guidelines for Drinking Water Quality" National Water Security: Workshop Program for Mexican Government, Tel Aviv, Israel, October 15, 2015. Invited
88. "21st CENTURY water treatment: The case of ultraviolet light past, present and future" Ajou University South Korea, April 10, 2015. Invited
89. "UV Application and Trends in Drinking Water Treatment" Kwater Institute, South Korea, April 7, 2015. Invited
90. "UV and UV-AOP for Water Treatment and Reuse" GIST: Gwang-Ju South Korea, April 6, 2015. Invited
91. University of California Riverside, "The ABC's and XYZ's of AOPs" Riverside, CA, March 6, 2015. Invited
92. "Guidance for Implementing Action Spectra Correction with Medium Pressure UV Disinfection" Karl Linden, James Collins, Harold Wright. Webcast: Water Research Foundation, June 23, 2015

93. CalTech University, “Solchar: Solar driven thermal toilet with biochar production – an update” Pasadena CA, March 5, 2015.
94. NREL: Water-Energy Summit, Denver, September 22, 2015 Invited Participant.
95. NOAA: State of Science for Dispersant Use in Arctic Waters Workshop, January 5-9, 2015 Seattle WA. Invited Participant.
96. NSF-ESPRC Clean Water for All Workshop, London UK, October 20-21, 2014. Invited Participant.
97. First Nations Cultural Training - Workshop on Hydraulic Fracturing issues in Canadian First Nations Communities, Elsipogtog New Brunswick October 5-8, 2014. Invited Participant.
98. Rosenblum, J., Linden, K., (2014) “Impacts of natural gas development on water and air resources: Treatment of produced waters” 2nd Sino-US Workshop on: The Challenges Ahead: Sustainability Issues at the Nexus of Energy, Water, Climate, and Air Pollution. Pasadena, CA, September 8-9, 2014. Invited
99. “Water Sustainability in Oil and Gas Exploration: Treating Frack Water for Reuse” School of Civil, Environmental and Chemical Engineering, RMIT University. July 25, 2014. Invited
100. “Application of ultraviolet light technologies for disinfection and oxidation in reuse waters” Symposium on Urban Scale Water Reuse, University of Sheffield, UK June 17, 2014 Invited
101. Rethinking Disinfection in Drinking Water Systems” University of Queensland, Brisbane, Australia. May 5, 2014, Invited
102. Workshop - Australian Water Recycling Centre of Excellence: Toward National Validation Guidelines For Water Recycling In Australia. Facilitator: Karl G. Linden, University of Colorado, Boulder. OZWater, Brisbane Australia, April 29-May 1, 2014
103. Yacob, T., Linden, K.G. "Sol-Char Toilet" Invited presentation. April 15, 2014. Addis Ababa Institute of Technology, Addis Ababa, Ethiopia.
104. “Sol-Char Toilet: Sanitation issues in developing countries: new toilet technologies”, AP Environmental Science class, Boulder High School April 8, 2014, Invited
105. Sol-Char Toilet Exhibit, Reinventing the Toilet Fair, Bill & Melinda Gates Foundation, New Delhi, India. March 20-22, 2014.
106. “And What If.… Rethinking Disinfection in Drinking Water Systems”, Australian Water Association, RMIT University, Melbourne Australia, February 19, 2014 Invited public lecture
107. “Reinventing the Toilet: The Sol-Char Toilet” Department of Civil and Environmental Engineering, University of California, Berkeley, Berkeley, CA, Sept 27, 2013. Invited
108. “Solar-driven thermal toilet with biochar production” Department of Biological and Environmental Engineering, Cornell University, Ithaca, NY, Nov. 8, 2013. Invited
109. “Reinventing the Toilet: The Sol-Char Toilet” 2013 Colorado WASH Symposium, Boulder, CO, March 20, 2013

110. "Reinventing the Toilet: The Sol-Char Toilet" 2013 Colorado Global Health Symposium, Denver, CO, Sept 28, 2013
111. "UV-Based Advanced Oxidation and Transformation of Organic Contaminants" Department of Civil and Environmental Engineering, Northeastern University, Boston, MA, October 9, 2013, Invited
112. "If you build it, will they come? Predicting Individual Uptake of Rural Water Services in the Peruvian Amazon" RES'EAU IMPACT: Putting rural community water systems first, Vancouver British Columbia, Canada, October 3, 2013.
113. "Environmental Engineering Water Research". Colorado Water Innovation Exposition, University of Colorado Boulder, Jan 10, 2013.
114. "Linden Research Group – Research Update" Melbourne Water and RMIT University, September 4, 2013.
115. "Pioneer award: Insights on Ultraviolet Light Disinfection In Public Health Protection" Disinfection and Public Health 2013, Water Environment Federation, Feb 25, 2013. Luncheon Award speech.
116. "Advanced Oxidation Processes in Water Treatment". Rocky Mountain Water & Wastewater Plant Operators School, March 13, 2013
117. "WASH activities at the University of Colorado" Colorado Higher Education WASH Summit, January 18, 2013
118. "Evaluating the toxicity of organophosphate CCL3 contaminants post UV and Ozone based AOP Treatment" The Consortium for Research and Education on Emerging Contaminants (CREEC) Meeting presentation. Denver, CO – September 12, 2013.
119. "Terms of Endearment: The Bolton Impact Factor" Invited Keynote, Symposium in Honor of James R. Bolton, IUVA World Congress, Las Vegas, NV, September 22-26, 2013
120. "Beyond Conventional: Illuminating the Future of Water Treatment", Columbia University, Department of Earth and Environmental Engineering, New York, NY, November 20, 2012
121. "Action Spectra of validation microorganisms for UV disinfection" AWWA Low Wavelength Working Group Public Meeting, Toronto, ON Canada, November 6, 2012
122. "Water Treatment Basics" GEEN 1400, Freshman Design Class, University of Colorado Boulder, October 30, 2012
123. "Evaluating Transformation Products during Advanced Oxidation of Organic Contaminants in Water" Consortium for Research and Education on Emerging Contaminants (CREEC) USGS National Water Quality Laboratory, Lakewood CO, October 11, 2012
124. "UV Disinfection: New Developments for Small Systems" 9th Annual US EPA Drinking Water Workshop, Small Drinking Water Systems: Compliance Strategies. Cincinnati, OH September 12, 2012

125. "Beyond Conventional: Illuminating the Future of Water Treatment" Lectures at the Leading Edge, University of Toronto, Department of Chemical Engineering, Toronto Ontario, Canada, March 21, 2012
126. "Expert Workshop on Toxicity Testing of Water Undergoing Advanced Oxidation Processes Prior to Discharge", US EPA National Homeland Security Research Center, Water Environment Research Foundation, Alexandria, VA December 2, 2011
127. Low Wavelength UV Disinfection Issues Expert Workshop III, AWWA Water Quality Technology Conference, Phoenix, AZ, November 13, 2011
128. "Environmental Engineering FE Exam Review", CEAE Department, October 13, 2011
129. "Water Reuse Realities", Guest Lecture in EVEN 1000, October 13, 2011
130. "RES'EAU Knowledge Transfer Workshop –Panel on International Issues in Water", University of British Columbia, Vancouver, B.C. Canada, October 6, 2011.
131. Low Wavelength UV Disinfection Issues Expert Workshop II, IUVA North American Regional Conference, Toronto, Canada, September 21, 2011
132. "Ozone for virus inactivation at Melbourne Water Eastern Treatment Plant" Victoria Department of Health, Melbourne Australia, August 17, 2011
133. Low Wavelength UV Disinfection Issues Expert Workshop I, AWWA Annual Conference and Exhibition, Washington D.C., June 13, 2011
134. "Ultraviolet Light: What's Next?" UV Disinfection for the Real World: Back to Basics Workshop, AWWA Annual Conference and Exhibition, Washington D.C., June 12, 2011
135. "Advanced Oxidation Processes in Water Treatment: Monitoring Possibilities" HACH Corporation, Loveland, CO, June 9, 2011
136. "Investigations on the Extreme Resistance of Adenovirus to UV Disinfection" Environmental Engineering and Science Department, Tsinghua University, Beijing, China, June 1, 2011
137. "21st Century Water Treatment: The Case for Ultraviolet Light" Keynote Invited speaker, TEDA UV Workshop, Tianjin, China, May 30, 2011
138. "How Research is Determining Policy: Can UV Protect the Public from Adenovirus in Drinking Water?" Keynote Speaker, International UV Association World Congress and Exhibition, Paris, France, May 22-25, 2011
139. Expert Panel, Impacts of low wavelengths on disinfection credits for Cryptosporidium workshop. International Ultraviolet Association World Congress, Paris, France May 22-25, 2011
140. "Treatment Information Gaps and Research Needs – Identification and Prioritization: Contaminant Groups Treatment Research Prioritization Workshop." Water Research Foundation, Boulder, CO, April 26-27, 2011
141. "UV Disinfection Basics- Mechanisms and Effectiveness " UV Disinfection: Fundamentals, Regulations, and Applications Webcast. American Water Works Association, March 23, 2011

142. "Advanced Oxidation Processes in Water and Wastewater Treatment" Rocky Mountain Water and Wastewater Plant Operators School, Broomfield, CO, March 15, 2011.
143. "Ultraviolet Light Water Purification" Guest Lecture, CVEN 5524 Water Treatment, February 23, 2011
144. "Investigations on the Extreme Resistance of Adenoviruses to UV Disinfection" Keynote Speaker: Symposium on Interfacial and Disinfection Chemistry: Fate, Transport, and Adsorption of Pathogens, Nanoparticles, Biocolloids, and Trace Organics in Aquatic Systems, PACIFICHEM 2010, Honolulu Hawaii Dec. 10-15, 2010.
145. "Comparative roles of photolysis and OH radical in the UV AOP process" Symposium on Chemistry of Ultraviolet Treatment for Water, PACIFICHEM 2010, Honolulu Hawaii Dec. 10-15, 2010.
146. "UV-Based Technology for Point-of-Use Water Disinfection in Developing Communities" University of California at Davis, Department of Civil and Environmental Engineering. Oct. 13, 2010
147. "Investigations on the Extreme Resistance of Adenoviruses to UV Disinfection" Department of Civil and Environmental Engineering, University of Alberta, Edmonton, Canada, Oct. 7, 2010
148. Science and Technology of Dispersants Relevant to Deep Sea Floor Oil Releases, Participant, National Science Foundation Workshop Washington DC Sept. 22, 2010
149. "Water Reuse 2030: Identifying Challenges" Closing International Panel, 25$^{th}$ Annual WateReuse Symposium, WateReuse Research Foundation, Washington DC, Sept. 15, 2010.
150. "Investigations on the Extreme Resistance of Adenoviruses to UV Disinfection" Department of Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder, Sept. 8 2010
151. National Academy of Engineering, Frontiers in Engineering First US-EU Workshop, Invited Attendee. Poster Presented, Cambridge, England, Sept. 1-3, 2010
152. "Emerging Issues in Medium Pressure UV Applications in Water: Pathogens, Organic Matter, and Emerging Contaminants", Hanovia/Halma Group Inc., Slough UK Aug. 30, 2010.
153. "Environmental Sustainability and Water Reuse – applications in Peru", Prosul: VI Workshop Latinamericano; Universidad Catolica, San Pablo, Arequipa, Peru, Aug. 11-12, 2010.
154. "UV Disinfection: an Emerging Technology for Safe Water" Mini-Course. Prosul: VI Workshop Latinamericano; Universidad Catolica, San Pablo, Arequipa, Peru, Aug. 11-12, 2010.
155. "Advanced Issues in UV Water Treatment" Atlantium Technologies Industry, Bet Shemesh Israel, July 7, 2010

156. "UV Disinfection: a technology review for applications to wetlands effluent", Regional Research & Development Center, the Galilee Society, Shefa-Amr, Israel. July 6, 2010
157. "UV Disinfection Differences Between LPHO and MP: the curious case of adenoviruses and disinfection byproduct implications", UV Today – Ten Years Post-*Cryptosporidium*– Myths and Reality. American Water Works Association Annual Conference and Exhibition, Chicago, IL, June 20, 2010
158. "Environmental Sustainability: The Water (Re)Cycle" NSF REU Program Students, Department of Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder, June 14 2010
159. "Training: UV Disinfection of Wastewater – Fundamentals and Emerging Issues" City of Boise, Boise, ID, June 2, 2010
160. "Training: UV Advanced Oxidation for Contaminant Destruction" City of Aurora, CO Training Seminar for start up of the Prairie Waters Water Purification Plant, Aurora, CO, May 7, 2010
161. "Communicating Science: Tools for Scientists and Engineers" Workshop, American Association for the Advancement of Science and the National Science Foundation, Invited Attendee, April 29, 2010
162. "Advanced Oxidation Processes in Water and Wastewater Treatment" Rocky Mountain Water and Wastewater Plant Operators School, Broomfield, CO, March 16, 2010.
163. "Investigations on the Extreme Resistance of Adenoviruses to UV Disinfection" Eawag - Swiss Federal Institute of Aquatic Science and Technology, Dübendorf, Switzerland, Feb. 18, 2010
164. US EPA Water Reuse Research Needs Workshop, Invited Attendee, UNC-Chapel Hill Feb 3-4, 2010
165. "Investigations on the Extreme Resistance of Adenoviruses to UV Disinfection" Department of Civil and Environmental Engineering, University of Michigan, Ann arbor, Jan. 6, 2010
166. WateReuse Foundation Research Needs Workshop, Invited Attendee, San Diego, CA Dec 1-3, 2009
167. " Application of recent advances in process technology: Progress in Advanced Oxidation". AWA Australian Water Association Technical Event, Rendevous hotel, Melbourne, Australia, Sept. 29, 2009,
168. "Water Reuse 2030: Identifying Challenges". Invited Keynote plenary talk: WateReuse Foundation Research Needs Workshop, San Diego, CA Dec. 1-3, 2009
169. "Meeting the Millennium Development Goals: Safe Water and Sanitation" AWWA Water Quality Technology Conference Sunday Workshop: "*Creating Sustainable Water Quality in International Development* ", Nov. 15, 2009
170. "Innovative Treatment Technologies for Water Reuse" CH2MHill Company-wide webcast, Oct. 20, 2009.

171. "UV-Advanced Oxidation for Contaminant Destruction" Black and Veatch Company-wide Web-cast. Sept. 1, 2009.
172. "UV AOP Performance and Evaluation for Contaminant Destruction", Sunday Workshop: UV and Ozone Advanced Oxidation Processes – Practical Information on an Emerging Treatment Approach, AWWA Annual Conference and Exhibition, June 14, 2009, San Diego, CA
173. From PAHs to Organophosphates: Photolytic Fate in Engineered and Natural Systems, Soil and Crop Science Seminar Series, Colorado State University, May 7, 2009
174. "Advanced treatment technologies for removal of pathogens and chemical pollutants for water reuse" Environmental Chemistry Section, 237th ACS National Meeting and Exhibition – Salt Lake City, UT, March 23, 2009
175. "UV-Advanced Oxidation: Principles UV Advanced Oxidation and UV New Applications" International UV Association 1-day Workshop, Long Beach, CA, March 12, 2009
176. "Directions in Water Treatment Technology - Implementation of improved and expanded treatment technology and management options that enhance reliability and performance of water and wastewater systems, including those in small and remote communities" Keynote Speaker, Canadian Water Network Researchers Retreat, Victoria, Vancouver Island, BC, Canada. June 24-26, 2008.
177. "Advancements in UV/Hydrogen Peroxide AOP", Keynote Speaker, Leading Edge Technologies Conference, International Water Association, Zurich, Switzerland, June 1-4, 2008.
178. "Formation of Byproducts During Water Treatment by UV-AOP", Disinfection Byproducts Workshop, Leading Edge Technology Conference, Zurich, Switzerland, June 1-4, 2008
179. "From Polycyclic Aromatic Hydrocarbons to Organophosphates: Photolytic Fate in Engineered and Natural Systems" June 11, 2008, Superfund Basic Research Program Special Seminar Series presented at NCEH/ATSDR Atlanta, Georgia.
180. "Validation Implications Adenoviruses and the Ground Water Rule" Special Workshop on the UV Disinfection Guidance Manual at the AWWA Water Quality Technology Conference, Cincinnati, OH Nov. 16-19, 2008 Linden, K. et al.
181. "What's Happening in Water Reuse Research at CU Boulder?" Presentation to Front Range Drinking Water Consortium, CO, May 14, 2008.
182. "UV-Advanced Oxidation Process: Treatment of EDCs and PPCPs in Drinking Water" Presented to the Michigan, AWWA section, Lansing, MI May 20, 2008
183. "UV-Based Advanced Treatment Technology for Water Reuse" Sustainable reuse of WW in Agriculture – US-Israeli Binational Science Foundation, Haifa, Israel. Nov. 2008
184. "UV-Advanced Oxidation Process: Treatment of EDCs and PPCPs in Drinking Water" Presented at Center for Water Science, Cranfield University, UK May 28, 2008

185. "Fundamentals of UV-Based Advanced Oxidation Processes", Special Workshop at Veolia Environment, Brisbane, Australia, October 26, 2007
186. "Validation of UV Disinfection Systems: Lessons from the US EPA UV Disinfection Guidance Manual" Workshop with engineering consultants, water utilities and government regulators, Brisbane, Australia, October 26, 2007
187. "Validation of UV Disinfection Systems: Lessons from the US EPA UV Disinfection Guidance Manual" Workshop with engineering consultants, water utilities and government regulators, Sydney, Australia, October 25, 2007
188. "Ultraviolet Light: Beyond Water Disinfection", University of New South Wales, Sydney, Australia, October 24, 2007.
189. "Validation of UV Disinfection Systems: Lessons from the US EPA UV Disinfection Guidance Manual" Workshop with engineering consultants, water utilities and government regulators, Melbourne, Australia, October 23, 2007
190. "Applications of Advanced Oxidation Processes to Water Pollutants" and "Treatment of Chemical Contaminants with UV-AOP: The Pros and the Cons" Advanced Oxidation Workshop, Royal Melbourne Institute of Technology, Melbourne, Australia, October, 22, 2007
191. "Environmental Sustainability: The Water (Re)cycle", A Public Lecture in Storey Hall, Royal Melbourne Institute of Technology, Melbourne, Australia, October, 18, 2007
192. "UV Disinfection: The Next Generation" post-grad mini symposium, RMIT University, Melbourne, Australia, October 16, 2007.
193. "UV Treatment: An Age-old Emerging Technology for Safe Water", Guest Lecture, Advanced Environmental Class, RMIT University, Melbourne, Australia, October 9, 2007
194. "Production and Destruction of Disinfection Byproducts by UV and Advanced Oxidation Processes" in Organic Byproducts of Potential Health Concern Produced During Drinking Water Treatment Workshop, *AWWA Water Quality Technology Conference*, Nov 4-8, 2007, Charlotte, NC
195. "Treatment of Chemical Contaminants with UV-AOP: The Pros and the Cons" in Advanced Oxidation Technologies in Water Treatment: Fundamentals and Applications Workshop, *AWWA Water Quality Technology Conference*, Nov 4-8, 2007,Charlotte, NC
196. Safe Water Keynote: UV Technologies and the Future of Water Treatment. Frontiers of Science – National Academy of Engineering, September 24-26, 2007; Seattle Washington
197. "Advanced Oxidation: an emerging process for clean water" Chemeca 2007, September, 2007, Melbourne Australia. Invited Keynote. [Note: Declined Invite]
198. "Fundamentals and advances in UV based advanced oxidation processes", Leading Edge Technology Conference, International Water Association, June 4-7 2007, Singapore.

199. "Ultraviolet Light Water Purification", University of Colorado Engineers Without Borders, Boulder CO, April 28, 2007
200. "UV Disinfection: The Next Generation" Arizona State University, Tempe AZ, April 24, 2007
201. "UV Photolysis and UV-Based Advanced Oxidation Processes" CIRSEE Workshop on Organic Byproducts of Potential Health Concern Produced During Drinking Water Treatment, Paris, France, March 5-9, 2007
202. "Fundamentals of UV based advanced oxidation processes" and "Destruction of N-nitrosodimethylamine and endocrine disrupting contaminants via UV advanced oxidation" at the Southeastern Technology Transfer Conference, January 24-25, 2007, Greenville, SC.
203. "UV/$H_2O_2$ Degradation of EDCs in Water Evaluated via Toxicity Assays" Research Development Group – HACH Corp, Loveland, CO. Nov 9, 2006.
204. "Ultraviolet Light: Beyond Drinking water Disinfection" Water Engineering Group, CH2MHill, October 11, 2006. Denver, CO
205. "Ultraviolet Light: Beyond Drinking water Disinfection" Environmental Engineering Seminar Series, Colorado School of Mines, October 19, 2006. Golden, CO
206. "Ultraviolet Light-Based destruction of Endocrine Disrupting Compounds" Awwa Research Foundation Monthly Tech Talk – Sept. 13, 2006, Denver, CO.
207. "Ultraviolet Light Induced Disinfection Byproducts: Realities and Challenges" Swiss Federal Institute for Environmental Science and Technology (EAWAG), von Gunten Lab group, May 18, 2006,
208. "UV Disinfection and the Long Term 2 Enhanced Surface Treatment Rule" NC AWWA Section Special Workshop on LT2 Compliance June 7, 2006
209. "Ultraviolet Light: Beyond Drinking water Disinfection" Environmental Engineering Seminar Series, University of Colorado at Boulder Jan. 18, 2006, Boulder, CO
210. "UV-Based Advanced Oxidation for Emerging Contaminants" University of Massachusetts, March 30, 2006, Amherst, MA
211. Vietnamese Government workshop on Water Pollution Prevention Technologies, Hanoi Vietnam, Nov. 15-16, 2005, "Ultraviolet light disinfection and beyond"
212. Institute of Environmental Technology, Vietnamese Academy of Science and Technology, Hanoi, Vietnam, Nov. 17, 2005. "UV Oxidation and Subsequent Toxicity of Endocrine Disrupting Chemical in Water"
213. Tel Aviv Israel – First Mid-East Conference on UV Technologies. Nov. 20-22, 2005 "Fundamentals of UV light based processes"
214. Yale University, Chemical and Environmental Engineering Department. Sept. 28, 2005 "UV-its not just for disinfection anymore: oxidation of emerging contaminants"
215. State of the Science on Adenovirus, Expert Workshop, AWWA, Sept. 26-27, 2005 "Efficacy of water treatment for adenoviruses and other viruses"

216. “Wait, wait, don’t pump” Public Policies Before and After Hurricane Katrina: Government Responses and Environmental Choices. Terry Sanford Institute of Public Policy, Duke University, Sept. 8, 2005
217. NC AWWA: Stage 2 M/DBP Rules NCSU McKimmon Center Raleigh, June 7, 2005 “UV Disinfection for LT2ESWTR”
218. University of Tokyo Center for Sustainable Urban Regeneration Program, Oct. 7, 2004, "Ultraviolet Based Disinfection and Advanced Oxidation Processes for Drinking Water Treatment"
219. Swiss Federal Institute for Environmental Science and Technology (EAWAG), von Gunten Lab group, Sept 20, 2004, “UV and UV/$H_2O_2$ degradation and subsequent toxicity of endocrine disrupting chemicals in water”
220. US EPA Office of Water (2004) “Ultraviolet Disinfection and UV-Advanced Oxidation Research” Cincinnati, Ohio, Sept. 9, 2004
221. Gordon Research Conference on Environmental Science: Water (2004): Holderness School, Plymouth, NH, June 27 – July 1, 2004 – Workshop.
222. US EPA Science Advisory Board Meeting (2004) Poster: “UV light based treatment processes for emerging microbial and chemical contaminants” US EPA, Research Triangle Park, NC, May 24-25, 2004.
223. Emerging Contaminants (EDCs and PhACs) Tech Transfer Conferences (2004): “UV photolysis and oxidation for destruction of EDCs in drinking water”, Oakland, CA, May 20, 2004, Awwa Research Foundation
224. Advancing the Quality of Water, National Science Foundation Workshop at UNC Chapel Hill. March 10-12, 2004. Invited Workshop Participant.
225. Kansas University Environmental Engineering Conference, (2004) “UV disinfection and EPA guidance: Where do we go from here?” Lawrence Kansas, February 4, 2004.
226. Swiss Federal Institute for Environmental Science and Technology (EAWAG), Nov 21, 2003, “Kinetic Screening of Candidate Contaminant List (CCL) Chemicals for Treatment by Advanced Oxidation Processes”
227. KIWA-Netherlands “Investigation of an on-line fluence meter for UV disinfection”, progress review. Nov 12, 2003
228. IWA First Leading Edge Conference: Drinking Water and Wastewater Treatment Technologies, (2003) “UV and UV-advanced Oxidation processes for removal of EDCs in water”, Noordwijk, The Netherlands, May 26-28, 2003.
229. UV Technology Transfer conferences, American Water Works Association Research Foundation (AwwaRF) in Chicago (April 8, 2003), Los Angeles (Sept 9, 2003), Boston (May 16, 2003). 2 presentations: “What Else Can UV Do (or NOT do) for Me?: UV Light for Contaminant Degradation in Water” and “Measurement of UV Fluence at the Bench and Full Scale”.

230. International UV Association 2nd International Congress on UV Technologies: UV Disinfection Workshop, talk and demonstration, July 9, 2003, "UV Basics for Disinfection Applications"
231. DVGW UV Workshop, Siegburg, Germany. "Alternative Monitors for UV reactors: Impact on Validation and Operation", July 7, 2003
232. EPA Science Forum 2003. May 5-7, 2003, "UV light based treatment processes for emerging microbial and chemical contaminants", Poster Session.
233. University of Vienna, Department of Environmental Hygiene, March-April, 2003, "Balancing chemical and microbial risks in drinking water treatment" Seminar Series.
234. Swiss Federal Institute for Environmental Science and Technology (EAWAG), April 5, 2003, "Ultraviolet Light Photolysis and Advanced Oxidation of Emerging Contaminants in Drinking Water".
235. International UV Association Texas Regional Workshop, "UV light Disinfection of Water: Fundamentals" Austin, TX. February 27, 2003.
236. Linden, K.G. (2003) Symposium: Treatment Methods for Inactivation of Pathogens in Juice, "UV Light Basics for Treatment of Juice", National Center for Food Safety & Technology, Orlando Fl, Feb 20-21, 2003.
237. North Carolina Central University – Emerging Technologies Series. "UV treatment of endocrine disrupting contaminants", Invited February 11, 2003.
238. UV Disinfection Workshop, AWWA Water Quality Technology Conference, Seattle, Washington, November 10, 2002, "UV Dose-Response of Drinking Water Pathogens"
239. Department of Civil and Environmental Engineering, University of Colorado at Boulder, Special Friday Seminar November 8, 2002, "UV Inactivation of Cryptosporidium and Other Drinking Water Pathogens"
240. AWWA Emerging Treatment Technologies Teleconference: Nation-wide broadcast from AT&T Studios, Denver, CO, November 7, 2002, "Emerging Treatment Technologies: UV Light"
241. UV for Cryptosporidium Workshop for the Scottish Executive, Edinburgh, Scotland, October 31, 2002, "Challenges to Accurate Measurement of UV Fluence: Bench and Full Scale"
242. Technologies to Meet Cryptosporidium - Workshop, Birmingham, England, October 29, 2002, "UV Inactivation of Cryptosporidium and other Drinking Water Pathogens"
243. International UV Association Midwest Regional Workshop, Milwaukee, WI. September 23, 2002, "Fundamentals of UV Disinfection"
244. International UV Association Southern Regional Workshop, Tampa, FL. September 6, 2002, "Fundamentals of UV Disinfection"
245. Drinking Water Research Center Symposium, International Ozone Association Annual Conference. May 22, 2002, "Ultraviolet light disinfection of water"
246. Drinking Water Leadership Program: UNC Kenan Flagler Business School. April 24, 2002, "Ultraviolet Light for Water and Wastewater Treatment *Facts and Fiction*"

247. Expert Workshop on identifying research needs UV in drinking water treatment: Scientific foundation of successful application. Kiwa Water Research at Nieuwegein, Netherlands. March 22, 2002, "From Collimated Beam to Full Scale UV Treatment"
248. Borchardt Conference 2002, University of Michigan, Ann Arbor MI. February 27, 2002, "Ultraviolet Light and Advanced Oxidation Processes for Drinking Water Treatment"
249. South Carolina AWWA Technology Transfer Conference. January 24-25, 2002, "Primer on UV Light Technology" and "UV Light for Disinfection and Contaminant Degradation in Water"
250. Government of Hong Kong, Water Supplies Department, "UV Disinfection for Control of Cryptosporidium and Giardia in Water", December 17, 2001, China
251. Government of Hong Kong, Drainage Services Department, "UV applications in Wastewater Disinfection" December 18, 2001, China
252. Binnie Black & Veatch Engineering Consultants, "UV Disinfection for Drinking Water, Engineering Applications", December 19, 2001, Hong Kong, China
253. Virginia AWWA Section Seminar Series; "UV Disinfection: Determination of UV Dose", May 1, 2001, Richmond, VA
254. Water Quality Association Annual Conference and Exhibition, "The Growing Importance of UV in Water Treatment", March 31, 2001, Orlando, FL.
255. Department of Civil Engineering, NC State University "Ultraviolet Light Photolysis and Advanced Oxidation of Contaminants in Drinking Water", Environmental Engineering Seminar Series, November 19, 2001
256. AWWA Water Quality Technology Conference, Nashville, TN, "UV Disinfection: Determination of UV Dose in a Collimated Beam and in a UV Reactor" Turning the Lights On: UV Disinfection Workshop, November 11-14, 2001
257. UV for Drinking Water Seminar, "Recent Advances in UV Research", Boston, MA, November 5, 2001
258. UV for Drinking Water Seminar, "Overview of the UV Guidance Manual", Boston, MA, November 5, 2001
259. NC AWWA Drinking Water Seminar Series; "Determination of UV Dose in Bench and Full Scale UV Reactors", UV Disinfection for Drinking Water: Its Coming. October 29, 2001, Raleigh, NC
260. First International Congress on UV Technologies, "UV Disinfection: Determination of UV Dose in a Collimated Beam and in a UV Reactor" UV Disinfection Basics Workshop, International Ultraviolet Association Washington DC, June 14-16, 2001
261. UV Disinfection Workshop, "UV Basics", Kansas City, Kansas, March 21, 2001
262. UV Disinfection Workshop, "UV Disinfection for Water: Reactor Dose Validation", Kansas City, Kansas, March 21, 2001

263. *Water Quality Technology Conference*, *AWWA*, "UV Collimated Beam Testing" UV Fundamentals Workshop, Utah Valley Water Treatment Plant, Salt Lake City, UT. November 4-8, 2000
264. *International Conference on Applications of Ozone, International Ozone Association, at Wasser Berlin*, "Evaluating germicidal dose from UV sources with actinometry – theoretical considerations" Berlin Germany, October 23-26, 2000.
265. Advanced Oxidation Technologies International Congress, "Applications of chemical actinometry for measurement of polychromatic UV irradiance" London, Ontario, Canada, June 26-30, 2000
266. Trojan Technologies Inc., "Inactivation of *Giardia lamblia* ad *Cryptosporidium* in water" London, Ontario, Canada, June 25, 2000
267. Keynote Presentation, Trojan Technologies Inc. UV Luncheon Forum at AWWA Annual Conference and Exhibition, "UV Disinfection for *Giardia* and *Cryptosporidium* in Drinking Water" Invited Denver, CO, June 12, 2000
268. Israeli Bi-national Science Foundation Workshop, "Ultraviolet disinfection: advances in dose measurement and disinfection efficiency" Invited Participant, Tel Hai Academic College, Kibbutz Kfar Giladim, Upper Galilee Israel, March 8-10 2000.
269. UV 2000 Technical Symposium, "UV Dose Verification Using Chemical Actinometry and Biodosimetry Methods", Invited presentation, National Water Research Institute, Costa Mesa, CA January 27-28, 2000
270. UNC-Charlotte Professional Development Series, "Physical and Chemical Treatment Fundamentals for Water and Wastewater" November 12, 1999
271. Duke University Mechanics and the Environment Research Colloquia, "Physical and chemical models for evaluation of germicidal UV irradiance" Oct. 20, 1999.
272. Drinking Water Research Needs Workshop, Expert Participant, US EPA, AWWARF, Sept. 27-29, 1999
273. *USEPA Workshop on UV disinfection of drinking water*, "Ultraviolet Disinfection: Factors affecting UV Dose" invited: Washington, DC, April 28, 1999.
274. *USEPA ICR Stakeholders Meeting*, "Ultraviolet Disinfection: Inactivation of Microorganisms" invited: Washington, DC, March 12, 1999.
275. *University of Cincinnati*, "Ultraviolet Disinfection: Understanding Germicidal UV Intensity for Evaluation of New UV Technologies" invited: Cin., OH, Feb 25, 1999.
276. UNC-Charlotte PDH Series, "Physical and Chemical Treatment Fundamentals for Water and Wastewater" November 6, 1998
277. UNC-Charlotte Spotlight on Research "Disinfection of water and wastewater" (for television broadcast) series September 24, 1998
278. UNC-Charlotte MEGR 5090: "Introduction to Bioremediation" Biotechnology and Bioengineering, February, 1998
279. North Carolina Urban Water Consortium, "UV Disinfection in North Carolina: Needs for Assessment" February, 1998

280. Trojan Technologies Inc., "Determining UV dose in medium pressure UV systems" London, Ontario, Canada, September 17, 1997
281. Maxwell/PurePulse Technologies, "Advances and issues in UV disinfection" San Diego, CA June 3, 1997
282. NC Water Resources/Environmental Engineering Teleconference Series "UV disinfection: determining true UV absorbance and subsequent estimation of UV intensity", April 23, 1997
283. Indian Institute of Technology, "Anaerobic treatment of municipal solid waste" Kanpur, India, January, 1992.

## Posters Presented at Conferences

1. Hull NM, Rosenblum JA, Robertson CE, Harris JK, and Linden KG (Nov 2018). Fracking Flowback Long-Term Succession of Microbial Communities and Toxicity. Water Quality Technology Conference, Toronto, Ontario, Canada.
2. Valcourt, N., Walters, J., Javernick-Will, A., Linden, K. (2018). An Interactive Group Model Building Process for Mapping Complexities of Local WASH Systems. Poster presented at the Water and Health Conference, University of North Carolina at Chapel Hill: The Water Institute.
3. Valcourt, N., Javernick-Will, A., Walters, J., & Linden, K. (2018). Systems Approaches to WASH: A Systematic Literature Review. Poster presented at the Water and Health Conference, University of North Carolina at Chapel Hill: The Water Institute.
4. Murphy, J. "Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". Joanna R. Murphy, Dr. Karl G. Linden. MAST IAB Meeting. November 4, 2018. Boulder CO. Poster.
5. Murphy, J. "Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications". Joanna R. Murphy, Dr. Karl G. Linden. MAST IAB Meeting. May, 22 2018. State College, PA. Poster.
6. Hull NM, Holinger EP, Ross KA, Robertson CE, Harris JK, Stevens MJ, and Pace NR (May 2017). Longitudinal and Source-to-Tap New Orleans, LA, USA Drinking Water Microbiology. Concurrent International Symposium on Health-Related Water Microbiology Conference and Water Microbiology Conference, Chapel Hill, NC, USA.
7. Keliher, Kari, Linden, 2017, UV/LED Applications for Disinfection of Small Water Systems: Water Treatment Reactor for Aircraft, Discovery Learning Research Symposium, April 14th
8. Kimberly Pugel; Amy Javernick-Will, Nicholas Valcourt, Jeffrey Walters; Matthew Guttentag; Karl Linden; Daniel Hollandar; Eddy Perez (2017) "Understanding actor perspectives in collaborative partnerships for rural water service planning and management in Ethiopia" UNC Water and Health Conference, October 2017

9. Linden, KG (2017) MP or Not MP: Exploring Advantages and Disadvantages of Polychromatic UV Sources in Water treatment, AWWA WQTC Portland, November 2017
10. Kingdom, J. Evaluating Optical Measurements to Distinguish Organics Present in Wastewater and Natural Water, DLA Symposium
11. Murphy, JR, K.G. Linden. Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications. Poster Presented at: MAST Center Industrial Advisory Board Meeting 2017 Apr 22-24. Fayetteville AK.
12. Murphy, JR., K.G. Linden. Coupled UV-Membrane and Oxidant - Membrane Processes For Decreased Biofouling and Enhanced Flux in Water Reclamation Applications. Poster Presented at: MAST Center Industrial Advisory Board Meeting 2017 Oct 22-24. Newark, NJ.
13. Yacob, T. Odors in Fecal Sludge Management: Sources, Impacts, and Control using Adsorption and Biofiltration. UNC Water and Health Conference October 2016. Authors: Kate Stetina, Tesfayohanes Yacob, Karl Linden, Stewart Farling, Siddharth Kawadiya, Kathy Jooss, Marc Deshusses.
14. Yacob, T., Stetina, K., Farling, S., Kawadiya, S., Jooss, K., Deshusses, M., Linden, K.G. (2015) "Odors in Fecal Sludge Management: Sources, Impacts, and Control using Adsorption and Biofiltration" Water and Health Conference, Oct 26 - 30, 2015. University of North-Carolina, Chapel Hill, NC.
15. Neethling, J., Yacob, T., Linden, K.G. (2015) "Continuous Flow Applications for Managing Source-Separated Urine Nutrient Recovery". HumTec. Boston MA, May 2015
16. Bolton, J.R., Mayor-Smith, I., Linden, K.G., Beck, S.E., Stefan, M.I. (2014) "Fluence (UV dose) – an Outdated Concept?" AWWA Water Quality Technology Conference, New Orleans, LA. November 16-19, 2014. Poster
17. Mostafa, S., Rubinato, M. Rosario, F., Linden, K.G. (2014) "Killing pathogens in treatment ponds: predicting the role of sunlight from wastewater optical properties" Water and Health Conference - Where Science Meets Policy. University of North Carolina, October 13-17, 2014. Poster
18. Travis, E., Yacob, T., Summers, R.S., Linden, K.G., "Hydrogen Sulfide Adsorption onto Human Feces-Derived Biochar Creating Marketable Products from Human Waste" Water and Health Conference - Where Science Meets Policy. University of North Carolina, October 13-17, 2014. Poster
19. Neethling, J., Mahoney, R.B., Stetina, K., Yacob, T., Linden, K.G., Summers, R.S. (2014) "Recovery of nutrients from source-separated urine via biochar adsorption and precipitation" Water and Health Conference - Where Science Meets Policy. University of North Carolina, October 13-17, 2014. Poster
20. Yacob, T., Fisher, R., Linden, K., Weimer, A. (2014) "Pyrolysis Kinetics of Fecal Sludge: Experiments and Modeling" Water and Health Conference - Where Science Meets Policy. University of North Carolina, October 13-17, 2014. Poster

**21.** Sitterley, K.A., Rosenblum, J., Lester, Y., Linden, K., (2014) "Evaluating Coagulation Followed by a Moving Bed Bioreactor (MBBR) as a Pretreatment for Highly Saline Produced Water" Rocky Mountain Water Reuse Workshop, August 14, 2014, Poster

22. Hallowell, R., Linden, K.G., (2014) Toxicological Assessment of photodegraded crude oil and crude oil-dispersant mixtures on marine species, *Arbacia punctulata*, *Mysidopsis bahia*, and *Vibrio fisheri*. GoMRI Research Conference, Mobile, Alabama Jan 26-30, 2014, Poster

23. Lester, Y., Yacob, T., Sitterley, K.A., Duca, C., Morrissey, I., Linden, K.G. (2014) "Treating Fracturing Flowback by Biological and Advanced Oxidation Processes" SRN Research Forum, University of Colorado Boulder, Jan 22-23, 2014, Poster

24. Parker, A.M.; von Gunten, U.; Linden, K.G.; "Toxicological Assessment of UV/Ozone – AOP Transformation Products" – Poster Symposium – Annual Conference and Exposition – American Water Works Association: June 9-12, 2013.

25. Yacob, T.; Fisher, R.; Mahoney, R.; Kearns, J.; Ward, BJ.; Summers, RS.; Linden, K.; Weimer, A. Fecal sludge treatment by pyrolysis: characterization of exhaust gas and odor treatment. Water and Health Conference, University of North-Carolina, Chapel Hill, NC. October 14-18, 2013.

26. Yacob, T.; Mahoney, R.; Beck, S.; Ruiz, A.; Kearns, J.; Oversby, C.; Summers, RS.; Linden, K. Disinfection and nutrient recovery of source diverted urine. Water and Health Conference. University of North-Carolina, Chapel Hill, NC. October 14-18, 2013.

27. Parker, A.M.; von Gunten, U.; Linden, K.G.; "Evaluating the use of AOPs for Treating CCL3 Contaminants." Poster Presentation. Water Quality Technology Conference, Long Beach, CA – November 4, 2013.

28. Linden, K.G., Summers, S., Bielefeldt, A.R., Klees, R., Sandekian, R., Amadei, B., Chinowsky, P. (2013) "Engineering for Developing Communities (EDC) Program at the University of Colorado" Association of Environmental Engineering and Science Professors (AEESP) Bi-annual meeting, Environmental Engineers and Scientists of 2050: Education, Research, and Practice. Golden, CO July 14-16 2013

29. Rodriguez, R.A.; Bounty, S.; Beck, S.; Chan, C.; McGuire, C.; Linden, K.G. UV inactivation of Bacteriophages and their potential photo-reactivation. General Meeting of the American Society for Microbiology, Denver, Colorado May 19-21, 2013

30. Kover, S., Rosario-Ortiz, F., Linden, K.G. (2013) "Photo-induced Degradation of Corexit Constituents" Gulf of Mexico Research Institute Oil Spill and Ecosystem Annual Conference, New Orleans LA., January 20-23, 2013

31. Linden, K.G., Dehart, J. (2013) "Routes to Sustainability: Natural gas development and air and natural resources in the Rocky Mountain Region" presented at the Coalition for National Science Funding Investments in STEM Research and Education 19th Annual Exhibition and Reception, May 5, 2013.

32. Nelson-Nunez, J., Mahoney, R.; Mostafa. S.; Linden, K. "Getting Local Government Involved In Rural Water Services." 2013 UNC Water and Health Conference, Chapel Hill, NC, October 17, 2013.

33. Bounty, S., Rodriguez, R., Linden, K. (2011) "Molecular Mechanisms of Adenovirus Resistance to Ultraviolet Disinfection", Water Quality Technology Conference, November 13-16, 2011 (First Place – Best Poster of Conference)
34. Brooks, T., Dotson, A.D., Linden, K. (2011) "Nitrate Sensitized Degradation of Free Chlorine during Ultraviolet Irradiation", Water Quality Technology Conference, November 13-16, 2011.
35. Keen, O. and Linden, K. (2011) Degradation of antibacterial activity of antibiotics during UV/$H_2O_2$ advanced oxidation. EPA Fellows Conference, Washington, DC, September 19-20, 2011
36. Keen, O.S., Thurman, E. M., Ferrer, I., Dotson, A.D. and Linden, K.G. (2011) Degradation products of pharmaceutical diclofenac during UV photolysis. Annual Mass Spectrometry Workshop, Buffalo, NY, June 13-14, 2011
37. Glover, C.M., Parker, A.M., Linden, K.G., Rosario-Ortiz, F. (2011) "Photochemical Degradation of COREXIT in Surface Ocean Water" American Chemical Society National Conference, Anaheim, CA, March 27-31, 2011
38. Barstow, C., Dotson, A., Linden, K.G. (2010) "Development of a POU UV Device for Household Water Disinfection", Where Science Meets Policy, UNC Water Institute, Chapel Hill, NC Oct 24-26, 2010
39. Chatterley, C., Linden, K.G. (2010) "Local Perspectives and Challenges to Cleaning up School WASH in the Peruvian Amazon" Where Science Meets Policy, UNC Water Institute, Chapel Hill, NC Oct 24-26, 2010
40. Parker, A-M, McIntosh, C., Dotson, A.D., Linden, K.G. (2010) "Modeling the hydroxyl radical scavenging potential of natural waters" Gordon Research Conference, Environmental Sciences: Water. Holderness, New Hampshire, June 20-25, 2010
41. Dotson, A.D., Beggs, K., Linden, K.G. (2010) "Phototransformation of natural organic matter during UV disinfection of drinking water" Gordon Research Conference, Environmental Sciences: Water. Holderness, New Hampshire, June 20-25, 2010
42. Barstow, C., Chatterley, C., Linden, K (2010) "UV-LEDs for Point-of-Use Water Disinfection in Developing Communities" Water Science Day, University of Colorado, June 23, 2010
43. Cotton, C., Collins, J., Jousset, S. Dotson, A., Linden, K.G. (2010) "Selection of Hydrogen Peroxide Quenching Process for AOP Treatment: Options, Water Quality Issues, and Costs" AWWA ACE, Chicago, IL, June 20-24, 2010
44. Barstow, C., Chatterley, C., Linden, K (2010) "UV-LEDs for Point-of-Use Water Disinfection in Developing Communities" Rocky Mountain WEA/AWWA Student Conference, University of Colorado, May 18, 2010
45. Brooks, T., Dotson, A., Linden, K.G. (2010) "Enhanced UV photolysis of free chlorine in the presence of nitrate" Rocky Mountain WEA/AWWA Student Conference, University of Colorado, May 18, 2010

46. Keen, O., Thurman, E.M., Ferrer, I., Dotson, A., Linden, K.G. (2010) "Degradation and products of the pharmaceutical Diclofenac during UV Photolysis" American Chemical Society National Meeting in San Francisco, CA, March 21-24, 2010
47. Ruiz-Haas, P., Cho, K-D., Linden, K.G. (2010) "Comparative Evaluation on Fate and Treatability of Estrogenic Contaminants in Conventional Wastewater Treatment Plants" American Chemical Society National Meeting in San Francisco, CA, March 21-24, 2010
48. Barstow, C., Chatterley, C., Linden, K (2010) "UV-LEDs for Point-of-Use Water Disinfection in Developing Communities", Graduate Student Visitation Day, University of Colorado. March 5, 2010
49. Lyon, B. Howard Weinberg, Ana M. Sáenz de Jubera, Jennifer Chu, Sara Rodriguez-Mozaz, Karl Linden, Aaron Dotson, (2009) "Relationship Between Natural Organic Matter Polarity and Disinfection Byproduct Formation During Ultraviolet Treatment and Disinfection of Drinking Water" Micropol and Ecohazard 2009 June 8-10, 2009, San Francisco, CA
50. Chatterley, C., Linden, K., (2008) "UV-LEDs for Point-of-Use Water Disinfection in Developing Communities" Energy Initiative Research Symposium, University of Colorado, Boulder, CO, November 17, 2008
51. Watts, M.J., Linden, K.G. (2007) "OH-Radical Oxidation of Chlorinated Organophosphate Esters" *AWWA Water Quality Technology Conference*, Nov 4-8, Charlotte, NC
52. Rosenfeldt, E.J., Linden, K.G. (2006) "Destruction of estrogenic activity in water using UV oxidation technology" *Gordon Research Conference: Environmental Science – Water*. Holderness School, Plymouth, NH, June 26 - 30 2006.
53. Mamane, H., Shemer, H. Linden, K.G. (2006) "Advanced Oxidation of Viruses and Microorganisms" *4th IWA Specialist Conference Oxidation Technologies for Water and Wastewater Treatment* May 15-17, 2006, Goslar Germany
54. Schaefer, R., Grapperhaus, M. Linden, K.G., Bohrerova, Z., Mamane, H. (2005) "Improved Disinfection with a New Pulsed UV Lamp" *WEF/AWWA Disinfection 2005*, Phoenix, AZ, February 6-9, 2005
55. Linden, K.G., Rosenfeldt, E.J., Chen, P.J., Kullman, S.W. (2004) "Effect of UV based treatments on endocrine disrupting chemical bio-activity in water" *Gordon Research Conference Environmental Science: Water* Holderness School, Plymouth, NH, June 27 – July 1, 2004.
56. Chen, P.J., Rosenfeldt, E.J., Linden. K.G., Kullman, S.W. (2004) "Effect of UV based treatments on endocrine disrupting chemical bio-activity in water" Research Division: *Annual Conference and Exhibition of the American Water Works Association*, Orlando, FL, June 13 –16, 2004.
57. Mamane-Gravetz, M., Linden, K.G. (2003) "UV disinfection of indigenous aerobic spores: Implication for UV reactor validation in unfiltered waters" International UV Association 2nd International Congress on UV Technologies. **First Place, Best Poster of Conference**

58. Linden, K.G. (2003) "UV light based treatment processes for emerging microbial and chemical contaminants", EPA Science Forum 2003. May 5-7, 2003, Invited
59. Shin, G-A, Sobsey M.D., Linden, K.G. (2003) "Balancing chemical and microbial risks in drinking water treatment" EPA All investigators Meeting, Cincinnati, OH, Aug 5-7, 2003, Invited
60. Rosenfeldt E.J., and Linden, K.G. (2002) "Treatment of the endocrine disrupting compounds bisphenol A and ethinyl estradiol using direct UV photolysis and UV/$H_2O_2$ advanced oxidation process" 2002 NC AWWA/WEA Annual Conference, Winston Salem, NC, Nov. 18-20, 2002 – **Second Place Winner**
61. Rosenfeldt E.J., and Linden, K.G. (2002) "Treatment of the endocrine disrupting compounds bisphenol A and ethinyl estradiol using direct UV photolysis and UV/$H_2O_2$ advanced oxidation process" 2002 Endocrine Disruptors Symposium, AWWA, Cincinnati, Ohio, April 18-20,2002
62. Linden K.G., Jin, S., Mofidi, A. (2000) "Disinfection Efficiency and Dose Measurement for Polychromatic UV Systems" Research Division: *Annual Conference and Exhibition of the American Water Works Association*, Denver, CO, June 11 –15, 2000 – **Research Division: 3rd Place Winner**
63. Linden, K.G. Shin, G.A., and Sobsey, M.D. (2000) "Comparative effectiveness of UV wavelengths for the inactivation of *Cryptosporidium parvum* in water" *International Water Association First World Congress*, Paris France, July 5-8, 2000.
64. Linden, K.G. (2000) "Application of UV Disinfection for Water Treatment", *Annual North Carolina Water Resources Research Conference,* N.C. State University - McKimmon Center Raleigh, North Carolina, March 30, 2000

## Graduate Students Theses Directed or Co-Directed

1. Wilkerson, Shawn "Application of Morphologic Characterization to Urban Watersheds for Developing Stream Restoration Techniques", MS Dec. 1998. Post Graduation: Engineer at City of Charlotte Storm Water Services, Charlotte, NC
2. Osborne, Michael "Performance and optimization of biotower for treatment of beverage industry wastewater", MS Dec. 1998. Post Graduation: Engineer at WK Dickson and Associates in Charlotte, NC
3. Keaton, Jeffrey "Criteria and identification of reference reaches for urban stream restoration", MS May 1999. Post Graduation: Process Engineer at CH2MHill in Charlotte, NC.
4. Soriano, Girlie "Investigation of disinfection by-product formation following low and medium pressure UV irradiation of wastewater" MS UC Davis, May 1998. Post Graduation: Engineering Consultant, Northern CA. (Co-directed)
5. Bonislawsky, Mary "Comparison of performance and operations and maintenance costs for three biological nutrient removal schemes at a full-scale wastewater treatment plant", MS December 2000. Post Graduation: Process Engineer at Black & Veatch, Charlotte, NC

6. Christensen, Jason "Impacts of particles on dose delivery in UV disinfection systems", MS March 2001. Post Graduation: Project Engineer at HDR in Austin, TX.
7. Jin, Shanshan "Practical considerations for actinometer based UV dosimetry: stability of uridine and iodide/iodate actinometers under experimental conditions", MS 2002. Post Graduation, Consulting Engineer, Hazen and Sawyer, Alexandria, VA.
8. Jin, Shanshan "Fluence Measurement for Polychromatic UV Disinfection Systems: Bench Scale Modeling and Applications to Characterization of UV Reactors", Ph.D. 2003. Post Graduation, Consulting Engineer, Hazen and Sawyer, Alexandria, VA.
9. Ishida, Gina "Sequential inactivation of microorganisms: UV and chlorine", MS June 2001 - UNC. Post Graduation: Project Engineering at Carollo Engineers in Phoenix, AZ. (Co-Directed)
10. Batch, Lawrence "Water Quality Impacts on UV Disinfection of MS2 Virus in Filtered Water Supplies", MS May 2002. Post Graduation: Naval Engineering, San Diego, CA
11. Khanna, Nitin "Ultraviolet Inactivation Kinetics and Time-Dose Reciprocity of *E. coli* and *S. typhimurium*." MS December 2003. Post Graduation, MacConell and Associates, Morrisville, NC
12. Rosenfeldt, Erik "Destruction of endocrine disrupting compounds in water with direct UV and UV/$H_2O_2$ advanced oxidation" MS December 2003, Post Graduation, Assistant Professor, Department of Civil and Environmental Engineering, University of Massachusetts, Amherst, MA.
13. Shringapure, Nilesh "Predicting medium pressure UV fluence via biodosimetry using Escherichia coli, MS2 Bacteriophage and Bacillus subtilis spores" MS May 2004, Post Graduation, Black & Veatch Engineers
14. Eischeid, Anne "UV inactivation of E. coli measured by ESS assay" MS June 2004, Post Graduation, PhD Student, Duke University.
15. Mamane, Hadas, Ph.D. December 2004. "Factors affecting UV inactivation of pathogens in unfiltered waters" Environmental Engineering. Post Graduation: Tenured Prof., School of Engineering, Tel Aviv University, Israel.
16. Pereira, Vanessa, Ph.D. 2005. "UV and ozone degradation of pharmaceuticals in water" UNC (2005) (Co-Directed with H. Weinberg). Post Graduation: Research Associate, Portugal
17. Hannah Saunders, M.S. 2005. "UV disinfection of adenovirus in water" UNC (Co-directed with Mark Sobsey), Post Graduation: with NIEHS, Raleigh, NC
18. Chen, Pei-Jen, Ph.D. December 2005. Environmental Engineering – "Application of Bioanalytical techniques for evaluation of UV based treatment of EDCs in water". Post Graduation: Assistant Professor, National University of Taiwan
19. Rosenfeldt, Erik, Ph.D. May 2007. Environmental Engineering – UV oxidation of emerging contaminants. Recipient of 2005 Abel Wolman Award, AWWA. Recipient of 2005-2007 NWRI Doctoral Fellowship. Post Graduation: Assistant Professor, Department of Civil and Environmental Engineering, University of Massachusetts, Amherst, MA.

20. Wu, Changlong, Ph.D. December 2008. Development of fundamental UV reaction parameters for CCL contaminants. Research Scientist, Syngenta
21. Bandy, Jeffrey, Ph.D. 2009. Integrating synergistic multiple barriers in Water Reuse treatment. Research Engineer at East Bay Municipal Utilities District, CA
22. Watts, Michael, Ph.D. May 2008. Oxidation and photodegradation of emerging contaminants in water. Post Graduation: Assistant Professor, Florida State University.
23. Eischeid, Anne, Ph.D. 2009. Molecular basis for viral resistance to UV disinfection. Post Graduation: Research Scientist at US FDA.
24. Christie Chatterley, M.S. (Colorado) –2009. UV LEDs for sustainable disinfection, PhD student, University of Colorado.
25. Olya Keen, Ph.D. (Colorado) –2012. Advanced oxidation of pharmaceuticals in wastewater. US EPA STAR Fellow. ACS Graduate Student Award in Environmental Chemistry. Assistant Professor at University of North Carolina at Charlotte.
26. CJ McClelland, Ph.D. (Colorado) – 2012. Decision Support for implementing water reuse in arid regions. Assistant Professor at Colorado School of Mines, Petroleum Engineering.
27. Christina Barstow, M.S., Dec 2010 (Colorado). UV in a can – developing on-demand household water treatment systems. PhD student, University of Colorado
28. Cole Sigmon, M.S. August 2011 (Colorado). Ozonation of wastewater for inactivation of viruses. Post Graduation: Engineer at Boulder Wastewater Treatment Plant, CO
29. Christie Chatterley, Ph.D. (Colorado) – May 2013. Evaluation of School based water sanitation and hygiene programs in Peru. Mortenson Research Fellow, Assistant Prof Fort Lewis college, Engineering, Consultant for UNICEF
30. Sara Beck, Ph.D. (Colorado) – May, 2015. Development of novel on-demand household water treatment for developing communities. EPA STAR Fellow, AWWA Pirnie Fellowship, Civil Engineering Dean's Outstanding Graduate Research Assistantship, Mortenson Center Dean's Outstanding Merit Fellowship, AEESP Best Dissertation, Fulbright.Asst Prof University of British Columbia.
31. Austa Parker, Ph.D. (Colorado) – May 2015. Oxidation processes and subsequent toxicity for EPA CCL3 contaminants. NSF Graduate Research Fellow., Water Reuse Lead, Jacobs Engineering
32. Traci Brooks, M.S. student (Colorado) – 2011. UV photolysis for production of ultrapure water – impact of nitrate., Engineer, Carollo Engineers
33. Sarah Bounty, M.S. (Colorado) –2012. DNA and protein damage of adenoviruses from UV disinfection in water. Engineer at CH2M Hill in Boston.
34. Stephanie Kover, M.S. (Colorado) –2013. Co-advised with Rosario. Degradation of dispersants used in oil spills via sunlight. Berkeley Law School
35. Sonya Milonova, M.S. (Colorado) –2013. Optimization of household UV system for point of use. Harvard School of Public Health.
36. Christopher Poepping, M.S. (Colorado) –2013. Impact of time and light exposure on UV disinfection of pathogens. Arcadis Engineers.

37. Kate Dowdell, M.S. (Colorado) – 2012. Co-advised with Summers. Biofiltration following advanced oxidation – impact on contaminant toxicity. Engineer at Arcadis in California.
38. Lia Brune, M.S. (Colorado) –2013. Appropriate water treatment processes for remote developing communities. Mortenson Research Fellow. Engineer at CDM-Smth
39. Simon Mostafa, Ph.D. (Colorado) – 2015. Co-advised with Rosario. Sunlight driven processes for inactivation of pathogens in wastewater. EPA STAR Fellow. International Water and Sanitation Engineer.
40. Robyn Hallowell, M.S. (Colorado) – Dec 2014. Fate and toxicity of dispersants used in oil spills. US EPA
41. Emily Spangler, M.S. (Colorado) –Dec 2014. Graduate School in UK.
42. Kurban Sitterley, M.S. Student (Colorado) – Dec 2015. Electrocoagulation technologies for flowback water from unconventional gas exploration. PhD student, University of Colorado
43. Jeanette Neethling, M.S. (Colorado) –December 2015. Characteristics of fecal derived biochar. Engineer in South Africa.
44. Choolwe Mandona, M.S. (Colorado) – December 2015. Advanced Oxidation of VOCs in ground water. Engineering Consultant
45. Amanda Connell, M.S. (Colorado) –December 2015. Toxicity testing assays for water quality assessment. Engineering Consultant
46. Elizabeth Travis, M.S. (Colorado) –December 2014. Odor control for the SolChar toilet. Engineering Consultant
47. Christie Ritter, M.S. (Colorado) –May 2015. Stove and water filter preferences among rural Guatemalans.
48. Christina Barstow, Ph.D. (Colorado) – December 2015. Monitoring strategies for assessing engineering interventions for water treatment in developing communities. Two time Boren Fellow for study in Rwanda. Beverly Sears Award 2011. Helvitas
49. Kate Stetina, MS thesis “Odor control from latrines using biochar” 2015-17. Water for People.
50. Michael Reinisch, MS Thesis, NSF Graduate Research Fellowship in 2016, Fecal sludge treatment.
51. Chelsea Cluff, PhD Student, NSF Graduate Research Fellowship, started PhD in 2017, Moved to University of Nevada Reno 2019 for personal reasons.
52. Liesbet Oalerts, MS (Colorado) – May 2018. Sustainable WASH – rural water preventative maintenance models. Community development engineer.
53. Kurban Sitterley, Ph.D. (Colorado) – Dec 2018. Innovative treatment technologies for flowback water from unconventional gas exploration. Research Scientist, NREL
54. Natalie Hull, Ph.D. (Colorado) – August 2018. UVLED disinfection for small systems. Professor at The Ohio State University and Boise State University.

55. Kari Sholtes, Ph.D. (Colorado) – May 20189. UVLED disinfection for point of use applications in aerospace. Professor at Colorado Mesa University/CU Boulder partnership.
56. Sesha Pochiraju, M.S. (Colorado) –May 2018, Toxicity testing driven analytical chemistry for UV AOP processes, Engineering consultant, Hazen and Sawyer.
57. Sydney Ulliman, PhD (Colorado) –December 2019. Advanced Treatment and Monitoring of Wastewater for Improved Water Reuse. Engineering Consultant, Brown and Caldwell.
58. Kaitlyn Jeanis, M.S. (Colorado) May 2020. Ozonation and Ceramic membranes for water reuse. Engineering consultant
59. Joanna Murphy, MS (Colorado) – May 2019. Ozonation and Ceramic membranes for water reuse. Water utility operator, CA
60. Evan Owen, MS (Colorado) –Aug 2018. Pilot evaluation of ceramic membranes at PWNT Netherlands. Engineering Consultant, Stantec.
61. Ryan Keliher, BS-MS, (Colorado) - May 2020, Engineering consultant
62. Tatiana Blanco-Quiroga, MS student in MCGE, advised MS project with Kaitlin Mattos on water research in Alaska Native Communities, 2021.
63. Kaitlin Mattos, PhD student in Sanitation and water reuse in rural Alaskan communities. Received an NSF Graduate Research Fellowship. Graduated 2021. Assistant Professor Fort Lewis College.
64. Caleb Cord, PhD advisor, Co-advised with Amy Javernick Will - 2022. Rural water sustainability and water quality, Engineering Consultant Tetra Tech/ARD
65. Pranav Chintalapati, Current Ph.D. Student (Colorado) – 2022, Sustainable WASH Systems – Systems dynamics approaches toward understanding rural maintenance approaches. Asst Professor at University of British Columbia
66. Kimberly Pugel, PhD student in Civil Systems, Co-Advise with Amy Javernick-Will, (Colorado) 2022. Sustainable WASH Systems – Collective Action approaches toward sustainable WASH infrastructure. Engineering Consultant at Stantec
67. Nicholas Valcourt, PhD student in Civil Systems, Co-Advise with Amy Javernick-Will, (Colorado) 2021. Modeling systems surrounding sustainable WASH infrastructure. Owner Engineering Company.
68. Tara Randall, M.S. (Colorado) –2021. Impact of UV LED disinfection on fouling of drip irrigation in water reuse. Engineering Consultant, HDR
69. Caleb Larison, M.S. student (Colorado) – 2022, Roadmapping water reuse in oil and gas and mining operations. Engineer at John Deere
70. Eliza Fink, MS – 2022 water supply research in East Africa, supported by USAID grant, Engineering Consultant
71. Anthony Pimentel, MS – 2022, Advanced oxidation with UV LEDs. Engineering consultant with Black and Veatch.

72. Bryan Liu, PhD, PhD 2024, Advanced oxidation for water reuse. Engineering Consultant at Garver
73. Corey Trujillo, PhD 2023. Soil remediation using concentrated solar energy. Jesuit Ministry.
74. Emma Wells, Current Ph.D. Student (Colorado) – Exp Dec 2025. UV applications and water quality in rural water systems toward meeting the SDGs.
75. Emma Payne, Current Ph.D. Student (Colorado) - Exp Dec 2026. Advanced oxidation for contaminant treatment in rural water supplies.
76. Maddie Ferrebee, Current PhD – Exp 2026. UV LEDs for biofilm control.
77. Ryan McKeown, Current PhD – Exp 2027. Advanced oxidation for water reuse.
78. Melanie Gamboa, Current PhD – Exp 2028. UV disinfection processes

## Undergraduate Researchers Directed

1. Emma Langelan, 2023-2024. DLA and research assistant, UV advanced oxidation
2. Ben Jordan, 2023-2024. CU SPUR and research assistant, UV advanced oxidation
3. Youngshin Cho, 2023-2024. Research assistant. UV inactivation of biofilms
4. Sam Burke-Bevis, 2022. CU SPUR summer researcher. UV disinfection with 222 nm UV.
5. Daniel Melmed, 2022. CU SPUR summer researcher. UV disinfection for biofilm control.
6. Nathaniel, Saldana Campos. 2022-2024. Undergrad DLA research assistant. Solar-driven treatment of contaminated soil.
7. Lauren Mullen, 2022-2023. Undergrad DLA research assistant, Advanced oxidation.
8. Anthony Pimentel, URM undergrad working in my lab on a water reuse research project with one of my PhD students, developing a undergraduate research project. Transitioned into BAM program in 2022
9. Eliza Fink, 2021 DLA. evaluating data on sustainability of rural handpumps and piped water networks in East Africa.
10. Belle Sexton, 2021 DLA water reuse in developing countries as part of NAWI DOE project.
11. Anand Trehan, 2021. DLA water quality data analysis for Alaska Native Communities
12. Paula Perez, 2021. URM, DLA water quality data analysis for Alaska Native Communities
13. Eleanor Sandifer, 2020. DLA, collective action research under USAID project
14. Ava Spangler, 2020. DLA, preventive maintenance modeling and environment research under USAID
15. Zach Schmidt, 2021. CU SPUR summer student, Colorado Mesa University,
16. Maddie Karr, 2021. DLA student, chemical risk database for USEPA

17. Rafael Morales URM, 2021. DLA, working on UV disinfection for biofilm disinfection.
18. Luke Tiefel, 2021, Discovery Learning Apprenticeship-DLA, UV inactivation of bacteria and viruses on surfaces.
19. Kyle Schonenbrun, summer research student from Cornell, working in lab
20. Sophie Rockland, undergraduate summer research student working in lab, from Cornell
21. Eliza Fink, Systems approaches in WASH, 2019-2020
22. Jasmine Gamboa, UV LED applications in oil and gas operations, 2019-2020
23. Will Herold, UV LED disinfection of water, 2017-2018
24. Jacqueline Kingdom, Advanced oxidation treatment of water, 2017-2018
25. Ryan Keliher, Modeling UV-LED based disinfection systems, 2017-2019
26. Dustin Levine, Microtoxicity assays in water – treatment evaluations 2015-2017
27. Anisha Lamsal, DLA in engineering, disinfection using UV LED lights. 2015-2016
28. Armand Ngassam, UV disinfection – application of molecular biology tools, 2015
29. Adrian Saenz, Iron based advanced oxidation processes, 2015
30. Yarrow Linden, Evaluation of urine disinfection with MS2 surrogates. 2015-2016
31. Ben Greiner, Undergraduate Research Assistant, Discovery Learning Apprentice, "Characterizing fuel content of fecal-derived char briquettes" (2014 – 2015)
32. Bridger Ruyle, Undergraduate Research Assistant, Treatment technologies for flowback water from hydraulic fracturing, literature review, (2014-2015)
33. Sandra Garcia-Fine, NSF REU Fellow, "Characterizing fuel content of fecal-derived char briquettes" from Worcester Polytechnic Institute (Summer 2014)
34. Kelsey Bennett, - undergrad research assistant working on generic evaluations of antibiotic resistance traits in bacteria 2014-16
35. Garrett Sprouse, Undergraduate Research Assistant, SolChar toilet mechanical engineering aspects. (2013-2014)
36. Kate Stetina, Undergraduate Research Assistant, Discovery Learning Apprentice, "Disinfection of urine under conditions found in the Sol-Char toilet" (2013-2014)
37. Ian Morrisey, Undergraduate Research Assistant, "Biological treatment of impaired waters from wastewater and fracking" (2013-2017)
38. Alyssa Rodriguez, NSF REU Fellow, "Disinfection of urine under conditions found in the Sol-Char toilet" from University of Notre Dame (Summer 2013)
39. Michael Hawkins, SMART (Summer Multicultural Access to Research Training) Student, "MS2 Inactivation and Nucleic Acid Damage to Wavelength Specific Ultraviolet Irradiation" from Georgia State University, (Summer 2013)
40. Emily Spangler, Undergraduate Research Assistant, "Toxicity assays for assessing oxidation of chemical contaminants" (2011-2012)
41. Genevieve Schutzius, Undergraduate Research Assistant, "Bioassays for assessing decay of emerging contaminants post AOP" (2012)
42. Andrea Berlinghof, NSF REU Fellow, "UV advanced oxidation of recalcitrant contaminants" from Johns Hopkins (Summer 2012)

43. Kaitlyn Jeanis, SMART (Summer Multicultural Access to Research Training) Student, "A Study of MS2 Inactivation and Nucleic Acid Damage to Wavelength Specific Ultraviolet Irradiation" from University of Central Florida, (Summer 2012)
44. Louis Dankovich, Discovery Learning Apprentice (DLA), "Assessment of exposure wavelengths for sunlight UV experiments" (2011-2012)
45. Connie Chan, SMART Summer student, "UV disinfection and photoreaction of phage", from Columbia University (Summer 2011)
46. Christian McGuire, NSF REU Fellow, "UV disinfection and photoreaction of phage", from University of Oklahoma (Summer 2011)
47. Erinn Kunick, NSF REU Fellow, "Solar powered UV disinfection for household water treatment" from University of Wisconsin-Madison (Summer 2010)
48. Chayla Rowley, Undergraduate Research Opportunity (UROP) fellow (2009), Discovery Learning Apprentice (DLA) (2010), University of Colorado- Boulder
49. Charlie McIntosh, Undergraduate Research Assistant, Chemical Engineering, University of Colorado- Boulder (2010)
50. Caitlin Rodriguez, Undergraduate Research Assistant, Environmental Engineering, University of Colorado- Boulder (2009-2010)
51. Bibek Joshi, Pratt Research Fellow "Appropriate technology disinfection for Nepal" (2006-2007). Post Graduation: Graduate Student, Stanford University
52. Kirsten Studer, NSF REU Fellow "Evaluation of estrogenic contaminant destruction via in vitro screening assay" (Summer 2005). Post Graduation: Graduate Student at UMass 2006-2009.
53. Chris Einmo – Pratt Research Fellow "UV based treatment for removal of arsenic" (2004-2005). High School Teacher.
54. Debbie Seibold – Pratt Research Fellow "UV based treatment for emerging chemical contaminants" (2001-2003) Post Graduation: in Grad School at Stanford 2005-2007.
55. Lisa Rauenzahn – UG research assistant "Investigation of emerging water contaminants" (2000-2002) Post Graduation: working as Engineering consultant.
56. Mollie Page – UG research assistant "Impact of pH and alkalinity on photolysis of nitrate in water" (2001) Post Graduation: working at Research Triangle Institute
57. Jennifer Buckman – NSF REU, Deaf Student for Summer 2001 "Impact of water quality on Nitrate photolysis" from Galludet University
58. Travis Bastow– NSF REU, Deaf Student for Summer 2000 "UV Photolysis of Nitrate in Water" from Galludet University

## High School Students Directed

1. Yarrow Linden – Boulder High School "Water holding capacity of biochar derived from fecal stocks" and "Thermal and ammonia driven disinfection of MS2 phage in urine" (2013-2014)
2. Ian Morrisey – Boulder High School "Biological treatment of impaired waters from wastewater and fracking" (2012-13)
3. Luke Martin – Broomfield High School "Molecular indications of virus damage from UV irradiation" (2010-11).

4. Naomi Levine – Shining Mountain Waldorf School "Quenching H2O2 with GAC following a UV-AOP" (2009-10). Post Graduation: at Cornell University
5. Jeff Hu – NC School of Science and Mathematics "Effect of antioxidants on inactivation of bacteria" (2004-2005). Post Graduation: at Duke University
6. Ying Liu – NC School of Science and Mathematics "Effect of antioxidants on inactivation of bacteria" (2004-2005)
7. Tamarin Riboli – Chapel Hill HS "Utilization of Medaka as biomarker for endocrine disrupter activity following UV treatment" (2002)

## Post-Doctoral Researchers Directed

1. Charles Maxwell Sharpless, Ph.D. 2000 "Investigations of contaminant degradation utilizing UV based treatment processes" (2001-2004) Post Graduation, Associate Professor, Environmental Chemistry, Mary Washington College, Fredricksburg, VA.
2. Banu Ormeci, Ph.D. 2000 "Investigations of particle impacts on inactivation of pathogens in water and wastewater" (2001-2003) Post Graduation, Associate Professor and Canada Research Chair, Environmental Engineering, Carleton University, Ottawa, ON Canada.
3. Zuzana Bohrer, Ph.D. 2001 "Molecular investigations as a basis for evaluation of UV disinfection efficiency" (2003-2007) Post Graduation: Lecturer and Associate Director of the Ohio Water Resources Center at Ohio State University.
4. Hilla Shemer, Ph.D. 2004 "Investigations of contaminant degradation utilizing UV based treatment processes" (2004-2006). Post Graduation: Research Professor, Technion, Haifa Israel.
5. Ki Don Cho, Ph.D. 2006 "Toxicity evaluations for estrogens in wastewater" (2006-2008). Post Graduation: Environmental Engineer, District Department of the Environment in Washington, DC
6. Peter Ruiz-Haas, Ph.D. 2006 "Chemical analysis of emerging contaminants in water following advanced treatment" (2006-2008). Post Graduation: Assistant Professor, Mary Baldwin College, VA.
7. Aaron Dotson, Ph.D. 2008 "UV induced disinfection byproducts" (2008-2010). Post Graduation: Assistant Professor in Environmental Engineering at University of Alaska, Anchorage.
8. Alina Handorean, Ph.D. 2009 "Bioassays for determining toxicity of oxidation products from UV and ozone processes" (2009-10). Post Graduation: a post-doc for Professor Hernandez.
9. Megan Howard, Ph.D. 2007 " Molecular method development to better understanding the fundamentals of virus disinfection by UV light" (2010) Post Graduation: Lecturer at Cal Poly San Luis Obispo, CA.
10. Imma Ferrer, Ph.D. 2007 "Advanced Analytical Chemistry via LC Time of Flight Mass Spectrometry" (2009 – 2012)

11. Roberto Rodriguez, Ph.D. 2007 “Fundamentals of virus inactivation by UV Light: Adenoviruses” (2010 – 2012). Post Graduation: Asst. Professor at University of Texas El Paso.
12. Yaal Lester, Ph.D. 2012 “Advanced Oxidation Demonstration for Emerging Contaminant Removal in Wastewater” (2012-2015). Post Graduation: Asst. Professor at Azrieli College of Engineering, Jerusalem Israel
13. Tesfa Yacob, Ph.D. 2012 “Odor control during pyrolysis of fecal sludge in the Sol-Char toilet” (2012-2016). Post Graduation: Asst. Professor at Messiah College of Engineering, PA, USA
14. James Rosenblum, Ph.D. 2013 “Advanced treatment technologies for waters used in hydrologic fracturing” (2014 – 2018). Post Graduation: Asst. Research Professor at Colorado School of Mines, CO, USA
15. Jatuwat Sangsanont, Ph.D. 2016 “Mechanisms of protein damage in viruses by UV irradiation” (2016 - 2018). Post Graduation: Asst. Professor at Thailand
16. Ben Ma, Ph.D. 2019-2023 “Innovative applications of Far UVC for virus control in water, air and surfaces”. Professor University of Nevada Reno
17. Matthew Bentley, Ph.D. 2020-21 “Roadmapping water reuse in oil and gas and mining operations”, Bureau of Humanitarian Assistance, USAID
18. Saba Seyedi, Ph.D. 2021-2022 “Innovative applications of UV LEDs for in-pipe disinfection, Engineer, Haze and Sawyer
19. Christian Ley, PhD. 2022-2024 “Applications of UV LEDs for biofilm control in distributions systems. Engineer Corona Environmental Consultants.
20. Blair Hanson, PhD. 2023 “Organic matter characterization following UV treatment”, Engineer Corona Environmental Consultants.
21. Akash Bhat, PhD. 2024-2026 “UV-driven control of membrane fouling”
22. Dana Pousty, PhD, 2024-2026 “UV disinfection of biofilm forming organisms”

## **Theses Committees Served On** (Partial list, other than for my own students)

1. Jousset, Stephane, MS Degree: *Contributions from Autotrophic Nitrification and Respiratory Denitrification to Nitric Oxide Emissions from Soil,* May 1999
2. Baker, Rebecca, MS Degree: *Effects of Water-Filled Pore Space on Nitric Oxide Emissions from Soil,* May 2000
3. Tabachow, Ross, MS Degree: *Nitric Oxide Emissions from Unamended, Biosolids Amended and Mineral Fertilizer Amended Agricultural Soil,* May 2000
4. Ramon, Desiree, Ph.D. Degree: *Estimating Modeling Nitric Oxide Emissions from the Soil to the Lower Levels of the Troposphere,* May 2000

5. Dingding An, MS Degree: *Identification of polyphosphate-accumulating organisms candidates in an enhanced biological phosphorus removal (EBPR) system by density separation and molecular methods*, May 2001
6. Ross Tabachow, Ph.D. Degree: *Nitric oxide emissions as an indicator of bioremediation,* May 2002
7. Baneeta Sabherwal, MS Degree, *Effects of Salt and Phosphorus Release/Uptake on biomass density and biomass settling rates in Full Scale Activated Sludge*, Dec. 2002
8. Xuyi Cai, MS Degree, *Role of Sea Salt Aerosol Organic Layers in The Formation of Secondary Organic Aerosol in Coastal Areas*, May 2002
9. Kat Stauffenberg, *Natural sunlight decay of pharmaceuticals in water*. UNC Graduate Student, MS, 2006 (Howard Weinberg)
10. Bonnie Lyon, University of North Carolina Ph.D. Student (Howard Weinberg)
11. Kari Leech, University of North Carolina MS Student (Mark Sobsey)
12. Kaelin Cawley, Ph.D. Student (Diane McKnight)
13. Bailey Simone, M.S. (Diane McKnight)
14. Kate Beggs, Ph.D. Student (Scott Summers)
15. Chris Corwin, Ph.D. Student (Scott Summers)
16. Sarah Gonzales, M.S. Student (Fernando Rosario)
17. Mei Mei Dong, Ph.D. Student (Fernando Rosario)
18. David Sparkman, Ph.D. Student (Scott Summers)
19. Caitlin Glover, Ph.D. Student (Fernando Rosario)
20. Josh Kearns, Ph.D. Student (Scott Summers)
21. Varun Ghandi, Georgia Tech, Ph.D. (Jaehong Kim)
22. David Kempisty, PhD Student University of Colorado (Scott Summers)
23. Alex Mass, PhD. Student University of Colorado (Diane McKnight)
24. Elizabeth Schilling, MS Student University of Colorado (Sherri Cook)
25. Eli Townsend, MS Student University of Colorado (Scott Summers)
26. Julie Korak, PhD Student University of Colorado (Fernando Rosario)
27. Leigh Gilmore, PhD Student University of Colorado (Scott Summers)

## Research Associates Supervised

1. Cori Oversby, M.S., Research Associate, Environmental Engineering. SolChar Toilet
2. Ryan Mahoney, M.S., Research Associate, Environmental Engineering. SolChar Toilet
3. Lauren Hafford, B.S., Research Associate, Environmental Engineering. SolChar Toilet

4. Jonas Waterman, B.S., Research Associate, Environmental Engineering. SolChar Toilet
5. Erin Printy, M.S., Research Associate, Environmental Engineering. SolChar Toilet
6. Dan Hollander, M.S., Research Associate, Environmental Engineering. USAID WASH

## Visiting Researchers Hosted

1. Oguma, Kumiko, Ph.D., Research Associate, Environmental Engineering Group, Department of Urban Engineering, University of Tokyo. June-August 2005
2. Li Dong, Ph.D., Associate Professor, Resources & Environmental Science School, Chongqing University, Chongqing, China. July 2005 – June 2006.
3. Galina Matafonova, Ph.D. Fulbright Scholar, Lake Baikal, Russian Academy of Sciences August – November 2010.
4. Chao Yang, Ph.D. Candidate, Tshinghua University, Beijing China, January – July 2017.
5. Lavern Nyamutswa, Ph.D. candidate, Victoria University, Fall 2019.

## Academic Service

University of Colorado at Boulder

Chair, Department of Civil, Environmental, and Architectural Engineering, Jan 2023-present

MS in Sustainable Engineering Collaborative degree program with Business School, Visioning committee 2023-2024

Director, Water-Energy Nexus Interdisciplinary Research Theme (IRT), College of Engineering and Applied Science, responsible for a program involving over 50 faculty, distribution of seed grants and development of large proposals in the water-energy space. 2018-June 2020

COVID-19 Working group to establish guidance for laboratory operations, College of Engineering and SEEC/SEEL

Graduate committee for EDC students, coordinated Env Eng Grad visit day 2018

Graduate committee for EDC students, coordinated Env Eng Grad visit day 2017

Co-Director, Mortenson Center in Engineering for Developing Communities, Direct Research and Graduate Studies. University of Colorado Boulder, 2015 - 2018

Provosts Advisory Committee, 2015 – 2016.

Vice Chancellor's Advisory Committee, University of Colorado Boulder, 2012- 2015.

Executive Committee, Mortenson Center in Engineering for Developing Communities, University of Colorado – Boulder, 2010 - present.

Executive Committee, Department of Civil, Environmental, and Architectural Engineering, University of Colorado – Boulder, 2010 - 2015.

Executive Committee, SEEC Building, for Environmental Engineering, 2012-2015

SEEC Advisory Committee, EVEN representative, meet to review and discuss policies for the SEEC Community

First Level Review Committee, Chair: College of Engineering and Applied Science, Aug 2010 – 2012

First Level Review Committee, Vice Chair: College of Engineering and Applied Science, Aug 2008 – 2010

Leader, Environmental Sustainability Initiative, CEAS, 2010 – 2020

Leader, SEEC Facilities Committee, Environmental Engineering, 2014-2021

Being the Bridge, faculty liaison for Associate Director of Development Nick Lobejko

Faculty Coordinator, 2010 Rocky Mountain AWWA/WEF Student Conference, University of Colorado Boulder May 18, 2010.

Coordinator, Environmental Engineering group, CEAE 2011-2013.

Department Research Committee: CU Boulder CEAE, 2008 – Present

Department Facilities Committee: CU Boulder CEAE, 2009 – Present

Department Personnel Committee: CU Boulder CEAE, 2009 – Present

Research Award Committee, College of Engineering and Applied Science, 2013-2015

<u>Duke University</u>

The Randolph K. Repass and Sally-Christine Rodgers University Professorship in Marine Conservation and Technology Search Committee (Pratt and NSOEES) 2004-2006

Hudson Hall Renovations Committee: Chair of the subcommittee on Basement of Hudson / Environmental Engineering, 2004-2006

Faculty Search Committee Member, Civil and Environmental Engineering, 2002-2007

Departmental Review Committee, Civil and Environmental Engineering, 2002-2006

Committee on Engineering Advisory Universal Resources (COEUR), Pratt School of Engineering, 2002-2007

Space Allocation Committee, Civil and Environmental Engineering, 2001-2005

Graduate Admissions Advisory Committee, Civil and Environmental Engineering, 2001-2002

Pratt CIEMAS Building Committee, Pratt School of Engin., New Building Design, 2000-2002

Chair, Search Committee Member, Civil and Environmental Engineering, 2000-01

Infrastructure Committee, Pratt School of Engineering Strategic Planning Group, 2000-2001

UNC-Charlotte

Duke Energy Endowed Professorship Search Committee, College of Engineering, 1998-99

College of Engineering, Laboratory Equipment Committee, 1997-99

Department of Civil Engineering Computer Committee, 1997-99

Department of Civil Engineering Advisory Committee, 1997-99

Environmental Science and Engineering Interdisciplinary Program Committee, 1997-99

Member, Environmental Academy 1997-99

## Professional Service

Committees, Panels and Editorships

US Environmental Protection Agency Science Advisory Board, for revisions of the Microbial and Disinfection Byproducts National Primary Drinking Water rules. 2024-2030

International UV Association Coronavirus Task Force 2020-2022

Conference Coordinator Chair: IUVA UV Research Symposium, May 23-25, 2022, Boulder CO. Coordinated conference for 150 attendees

Association of Environmental Engineering and Science Professors, Board of Directors 2016-2019, President-Elect, President, Past-President 2018-2021, 1000 members.

Chair, Association of Environmental Engineering and Science Professors (AEESP) Sustaining Members Committee, Coordinate 14 person committee to support AEESP membership

Editorial Advisory Board, ES&T-Engineering, ACS Publications 2019-present

World Health Organization (WHO) Water Quality Technical Advisory Group member 2015-present. Special advisor on revisions to the WHO Guidelines for Drinking Water Quality and Development of Guidelines for Small Systems.

World Health Organization (WHO) Co-author for revisions of the Guidelines for Drinking Water Quality and lead for updating of the log reduction values. 2015 - present

Lecture organizer, AWWA WQTC Emerging Investigator Lecture series, 2017

Trustee, Vice Chair (2014-2016), Water Science and Research Division, American Water Works Association 2011-2017

Associate Editor, Journal of the American Water Works Association, 2012- 2018

Associate Editor, ASCE: Journal of Environmental Engineering, 2005 - 2015

Journal AWWA Best Paper Award selection committee, 2011-2018, 10 hours/yr

Scientific Advisor, Canadian Water Network project: Development of a Water Safety Framework for Watershed and Water Demand Governance and Management Approaches Related to Hydraulic Fracturing, Dalhousie University. August – December 2014.

Expert Advisory Panel, University of British Columbia, RES'EAU-WaterNET, 2009-2019

Expert Advisory Panel, Trinkwave Consortium, Technical University of Munich, Germany 2015-2018

Expert Advisor to NIH Grant WET Trial for water treatment in small systems, Temple University, 2020-2023

Lecturer Selection Committee, AWWA Liaison Chair, Association of Environmental Engineering and Science Professors (AEESP), Member, 2010-2017, Chair 2012-14.

Chair, Lecturers Committee, Association of Environmental Engineering and Science Professors (AEESP), 2014-2016. Co-Chair 2012-2014.

Chair, Dissertation Award Committee, Association of Environmental Engineering and Science Professors (AEESP) 2013-14, Member 2011-2014.

Member, University Student Activities Committee, AWWA, 2004-2011

Founding Member/Board Member, International Ultraviolet Association, April 1999 – present

International Vice President, International Ultraviolet Association, June 2001 – 2009

Executive Operating Committee, International Ultraviolet Association, 2011 – 2020

President Elect, International Ultraviolet Association, 2011-2012

President, International Ultraviolet Association, 2013-2016

Editorial Board, UV News, International Ultraviolet Association, 1999 - 2018.

Chair, Green UV Initiatives Committee, International Ultraviolet Association, 2010 - 2014

Chair, Committee on UV Practice, IUVA, 2001- 2005

Chair, Awards Committee, IUVA, 2001 – 2003; 2008- 2013

Chair, Disinfection subcommittee, Far UVC Task Force, IUVA 2020-present

Member, Student Activities Committee, IUVA, 2001 – 2006

External Site Reviewer, Canadian NSERC Industrial Research Chair Selection, 2010, 2016

Site Visit Review Committee. Program in Civil and Environmental Engineering, Louisiana State University (LSU), April 18-20, 2010

Technical Advisor, New York City Department of Environmental Protection, UV Disinfection for NYC Drinking Water Supply, October, 2001 – 2006, 2010-2012

Orange County Water District Technical Review Committee for Groundwater Replenishment System, 2001 – 2004

Technical Advisor for Disinfection Research Group, New Zealand, Auckland Regional Council, Project Manukau Wastewater UV Disinfection 2002 - 2004

National Drinking Water Advisory Council (NDWAC), Research Working Group member, US EPA, November 2000 – 2004 (advises EPA on research priorities in drinking water)

- Futures Research Needs Subgroup, NDWAC, US EPA, 2000 - 2004
- Contaminant Mixtures Research Needs Subgroup, NDWAC, US EPA, 2000 - 2004

International Union of Pure and Applied Chemists (IUPAC) Photochemistry sub-group on UV Disinfection, 1999 – 2002

Special Consultant to the Federal Advisory Committee Act (FACA) in development of the National Regulatory Guidelines Stage 2 Disinfectants/Disinfection Byproducts Rule - US EPA, 1999-2001

US EPA UV Disinfection Technical Working Group Advisory Committee, 1999 – 2002

Steering Committee, National Center for Food Safety and Technology, Validation of Processing Technologies for Juice Conference, February 2003.

NC WEA/AWWA – Student Activities Committee Representative, 1997-2006

Statewide Coordinator, NC Water Resources/Environmental Engineering Teleconference Series, 1997 – 1999

National Institute on Drug Abuse Special Emphasis Panel, Proposal Reviewer, National Institute On Drug Abuse, January 30, 2013

<u>Conferences/Workshops</u>

Conference Symposium Coordinator. PacifiCHEM 2021, Organizing 2 day symposium of international speakers at a conference in Hawaii in Dec 2021 (Went Virtual)

Conference Symposium Coordinator. PacifiCHEM 2020, Organizing 2 day symposium of international speakers at a conference in Hawaii in Dec 2020

Session Coordinator: Water for Two Worlds, at the ACS Annual Conference, San Diego CA, Aug 2019. American Chemical Society

NSF-AEESP Grand Challenges Workshop: Redefining Environmental Engineering and Science, USC, Los Angeles CA, Jan 7-8, 2016

Co-coordinating the second Japan International Ultraviolet Technologies Symposium in Tokyo at the University of Tokyo (UT) on April 22, 2016 with the theme: “UV Innovations: Towards Sustainable Water Use”

Organized Israeli Water Reuse Symposium Water Reuse in Israel: Where we are and where can we go? June 2016, Tel Aviv University, Israel

Co-Chair, UV Research Symposium at Pacifichem, Honolulu Hawaii, December 2015

Co-Organizer, UV Research Frontiers Conference, IUVA, Netherlands, May 2015

Co-Organizer, Symposium on Water Treatment in Hydraulic Fracturing, ACS Annual Meeting, Denver, CO March 2015.

Moderator, AOPs in Water Treatment, Water Quality Technology Conference, AWWA, New Orleans, LA Nov 16-20, 2014.

Co-Organizer, UV in Developing Communities Symposium, UNESCO-IHE, Delft, Netherlands, November 2014.

Planning Committee, Water Quality Technology Conference (WQTC) AWWA, 2013 (Long Beach); 2014 (New Orleans); 2015 (Salt Lake City)

Workshop Organizer, US-Canadian Water and Hydraulic Fracturing - Knowledge Exchange Workshop, Boulder, CO August 19-20, 2014.

Workshop Coordinator, Medium Pressure UV Guidance for Low Wavelength Issues, Water Research Foundation 4376. White Plains, NY January 15-17, 2014.

Lead Organizer, Symposium in Honor of James R. Bolton, IUVA World Congress, Las Vegas, NV, September 22-26, 2013

Workshop Coordinator, Medium Pressure UV Guidance for Low Wavelength Issues, Water Research Foundation 4376. Los Angeles, CA July 23, 2013.

Co-Organizer, moderator, "WASH in the Curriculum", Association of Environmental Engineering and Science Professors (AEESP) Bi-annual meeting, Environmental Engineers and Scientists of 2050: Education, Research, and Practice. Golden, CO July 14-16, 2013

Moderator, Panel Discussion on Bridging Graduate Education and Research in WASH, Association of Environmental Engineering and Science Professors (AEESP) Bi-annual meeting, Environmental Engineers and Scientists of 2050: Education, Research, and Practice. Golden, CO July 14-16, 2013.

Co-Chair (with Urs von Gunten): Session 8: Advanced Oxidation – New Technologies And Applications. 10th IWA Leading-Edge Conference on Water and Wastewater Technologies, International Water Association, Bordeaux, France

International Scientific Committee, IUVA World Congress 2013, Las Vegas, NV. Sept 22-26, 2013

International Scientific Committee, Leading Edge Technologies 2013, International Water Association, Bordeaux, France, June 4-5, 2013

Symposium Organizer, "Water Sustainability in Oil and Gas Exploration: Treatment Issues" 249th ACS National Meeting in Denver, CO 3/22/15 – 3/26/15

Symposium Organizer, "Environmental Fate of Dispersants used in Oil Spills" 243nd ACS National Meeting in San Diego, CA 3/24/12 – 3/29/12

Symposium Organizer, "Chemistry of Hydroxyl Radicals in Natural and Engineered Aqueous Systems" 242nd ACS National Meeting in Denver, Colorado, 8/28/11 – 9/1/11

International Scientific Committee, MICROPOL 2011, International Water Association, Sydney Australia

International Scientific Committee, REUSE 2011, International Water Association, Barcelona Spain

Technical Committee Co-Chair, International Ultraviolet Association & International Ozone Association Joint North American Conference, May 3-6, 2009 Boston, MA

US EPA Water Reuse Research Needs Workshop, UNC-Chapel Hill Feb 3-4, 2010

WateReuse Foundation Research Needs Workshop, San Diego, CA Dec 1-3, 2009

Coordinator, Water Reuse in 2030 International Workshop, Brisbane, Australia Sept. 24-25, 2009.

Coordinator, Water Reuse in 2030 North American Workshop, Denver, CO, June 11-12, 2009.

Chair, Best student paper award, AWWA Water Quality Technology Conference. Savannah, GA. Nov 17, 2010

Chair, Best student paper award, AWWA Water Quality Technology Conference. Seattle WA. Nov 18, 2009

Chair, Best student paper award, AWWA Water Quality Technology Conference. Cincinnati, OH. Nov 19, 2008

Technical Committee Chair, IUVA First World Congress, June, 2001

Technical Committee Co-Chair, IUVA First Asian Regional Congress, October, 2002

Technical Committee member, IUVA UV Karlsruhe, European Conference on UV Radiation: Effects and Technologies, September, 2004

Moderator, Panel on “from Ideas to Impact” RESEAU Network Annual Meeting, Toronto ON Canada, November 3, 2012.

Moderator, Session 4: UV Reactor Design and Validation, International UV Association World Congress and Exhibition, Paris, France, May 22-25, 2011

Moderator, Session 5: UV Validation and Monitoring II, International UV Association North American Regional Congress, Toronto Canada, September 19-21, 2011

Moderator Session 9: Oxidation and Other Disinfection Alternatives, 3/2, 2009. Water Environment Foundation, Disinfection 2009: Addressing the Full Spectrum of Global Disinfection Challenges 2/28-3/3, 2009, Atlanta, Georgia

Moderator Session 12: Water Reuse, 3/2, 2009. Water Environment Foundation, Disinfection 2009: Addressing the Full Spectrum of Global Disinfection Challenges 2/28-3/3, 2009, Atlanta, Georgia

Moderator, UV and Advanced Oxidation Session, AWWA WQTC, Cincinnati, OH, November 2008

Moderator, Universities Forum, AWWA Annual Conference and Exhibition, Atlanta, GA June 2008

Co-Chair, Advanced Oxidation Session, Leading Edge Technologies Conference, IWA, Zurich, Switzerland June 1-4, 2008

Special Topics Session Organizer, Emerging Contaminants, International UV Association World Congress, Los Angeles, CA August 2007

Special Topics Session Organizer, Adenoviruses and UV Disinfection, International UV Association World Congress, Los Angeles, CA August 2007

Moderator, UV Validation and Operational Flexibility Session, AWWA WQTC, Charlotte, NC, November, 2007

WateReuse Foundation Research Needs Workshop, San Diego, CA Nov 28-30, 2006

Co-Chair, First Mid-East Conference on UV Technologies, Tel Aviv Israel, Nov 2005.

US EPA, American Water Works Association Research Foundation (AwwaRF) Drinking Water Research Needs Expert Workshop, September 1999.

Water Environment Federation, Disinfection Practices CD-ROM: UV disinfection section, Oct 2000 – April 2002

Coordinator, UV Disinfection Workshop, American Water Works Association Annual Conference, Nashville, TN, November 2001.

Outreach

Hosted a meeting of World Health Organization (WHO) experts on microbial pathogens, to update log reduction values in WHO guidance, in Boulder at SEEC, April 2018

Water Treatment Research for Hydraulic Fracturing Wastewater - Laboratory Tour Host to Oil and Gas Companies: Hosted tours and discussions with Noble Energy, Bayswater, Pioneer and Anadarko. Fall 2014 – Spring 2015.

Back to Boulder 2013: CU Engineering Lab Sampler. Environmental Engineering Lab tours. Oct. 25, 2013

Girls Explore Engineering day. Demonstration on dispersants and how they were used in the Deepwater Horizon Oil Spill. Nov 1, 2013.

Expanding Horizons Workshop. Hands-on demonstration on the use of dispersants for oil remediation as an effort to engage middle school girls in math and science. Feb 25, 2012

Explore Engineering Day for Women, Environmental Engineering Laboratory Tour Leader, College of Engineering and Applied Science, University of Colorado-Boulder, Nov. 12, 2010.

High School Honors Institute, Water treatment activity, College of Engineering and Applied Science, University of Colorado-Boulder July 2010

Faculty Advisor, Engineers Without Borders CU Chapter (2013-2021) and Rwanda Team, University of Colorado-Boulder 2008-Present.

Expert Advisor to NIH Grant WET Trial for water treatment in small systems, Temple University

Mentor CU Boulder mechanical engineering students senior design project: UV reactor and filter for water purification

Hosted week-long International Workshop at CU Boulder by the World Health Organization (WHO) for developing revisions to the WHO Guidelines for Drinking Water Quality and Microbial Fact Sheets.

Reviewer of Promotion, Grants, Journals

AEESP Future Faculty Job application mentor/reviewer. Support aspiring faculty in their job interview and application process

External Midterm Review of Assistant Professor at Technical University of Munich, Uwe Hubner.

Review of Tenure/Promotion Cases for numerous universities, 2021

Review of Tenure/Promotion Cases for numerous universities, 2020

Review of Tenure/Promotion Cases for numerous universities, 2019

Review of Tenure/Promotion Cases for numerous universities, 2018

Review of Tenure/Promotion Cases for numerous universities, 2017

Review of Tenure/Promotion Case for Portland State University, 2015

Review of Tenure/Promotion Case for University of Washington, 2015

Review of Tenure/Promotion Case for University of Central Florida, 2015

Review of Tenure/Promotion Case for Ecole Polytechnique, Quebec, 2015

Review of Tenure/Promotion Case for Imperial College London, 2015

Review of Tenure/Promotion Case for Tel Aviv University, 2014

Review of Tenure/Promotion Case for University of Cincinnati, 2014

Review of Tenure/Promotion Case for University of Washington, 2014

Review of Tenure/Promotion Case for Southern Methodist University, 2014

Review of Tenure/Promotion Case for Stanford University, 2013

Review of Tenure/Promotion Case for EPFL Lausanne, Switzerland, 2013

Review of Tenure/Promotion Case for University of Florida, 2013

Review of Tenure/Promotion Case for University of Missouri, 2013

Review of Tenure/Promotion Case for University of Wyoming, 2013

Review of Tenure/Promotion Case for University of California, Davis, 2011

Review of Tenure/Promotion Case for Seattle University, 2011

Review of Tenure/Promotion Case for Imperial College, London, 2011

Review of Tenure/Promotion Case for Florida International University, 2008

Review of Tenure/Promotion Case for National Technological University of Singapore, 2007

US EPA UV Disinfection Guidance Manual, Co-Author, US EPA, Jan. 2001 – 2006

McGraw Hill Encyclopedia: Author for water treatment and water supply revisions, 2005

Environmental Protection Agency Grants Review Panel, SBIR, July 2002

University of Colorado Seed Grant Review Panel, 2011

National Science Foundation Grants Review Committee, Division of Bioenvironmental Engineering, March 2001

External Review of MS thesis for Civil Engineering Department at McGill University, 2001

External Review of PhD Thesis for Civil Engineering Department at RMIT University, Melbourne, Australia 2002-03; 2005

External Review of PhD Thesis for Civil Engineering Department at University of Toronto, Canada, 2005

External Review of PhD Thesis for Civil Engineering Department at University of Alberta, Canada, 2006

Project Advisory Committee, AWWARF Proj # 3176, "Evaluation of Computational Fluid Dynamics (CFD) for Modeling UV-Initiated Advanced Oxidation Processes", Ducoste, PI, 2005-2007

Project Advisory Committee, AWWARF Proj # 2721, "Susceptibility of multiple strains of *Cryptosporidium* oocysts to UV light", Clancy, PI., 2000-2002

Project Advisory Committee AWWARF Proj # 2817, "Development of a Particle Actinometer", Anderson, PI., 2001-2004

Reviewer: Canadian New Opportunities Fund for Investigators, 2001

Reviewer: University of Illinois Water Research Center Grants Program, 2001

Reviewer: NC Water Resources Research Institute (WRRI) Grants, 2003

Reviewer: NSERC (Canadian National Science and Engineering Research Council) Discovery Grants Program, 2000, 2001, 2003, 2004, 2009, 2010

Reviewer: NSERC (Canadian National Science and Engineering Research Council) Malcolm Stacey Fellowship Grants Program, 2009

Reviewer: Science Centers program, U.S. Civilian Research and Development Foundation (CRDF) Grants, 2002

Reviewer: Collaboration in Basic Science and Engineering (COBASE) National Academies, Grants, 2002.

Reviewer: United States - Israel Binational Agricultural Research & Development Fund, 2007

Reviewer: Cottrell College Science Award proposal - Research Corporation, 2006, 2007

Reviewer: United States Civilian Research & Development Foundation, 2007

Reviewer: Canadian Water Network Expert Panel proposal review, 2007

Reviewer: Government of Israel, German-Israeli Proposal Reviewer, 2007

Reviewer: US EPA Grants Peer Review Panel, Washington DC, April 13-15

Reviewer: McGraw Hill Higher Education Texts: new graduate environmental engineering textbook, 2002

Manuscript Reviewer – *Wat. Environ. Res., Environ. Technol., Wat. Res., ASCE J. Environ. Eng., Biotech. Prog.* (AIChE), *Ozone Sci. Eng., Chemosphere, Environ. Sci. Technol., J AWWA, Env. Eng. Sci.*