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## **EDUCATION**

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PhD Civil Engineering & Geological Sciences, School of Engineering,  
University of Notre Dame, 2005  
BSPH Environmental Science & Engineering, School of Public Health,  
University of North Carolina-Chapel Hill, 2000

## **WORK EXPERIENCE**

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### **Academic**

Associate Vice Chancellor for Research, University of Kansas, 2020 – current  
Professor, Civil, Environmental & Architectural Engineering,  
University of Kansas, 2019 – current  
Interim Associate Vice Chancellor for Research, University of Kansas, 2018 – 2019  
Vice President, KU Center for Research, Inc, 2018 – current  
Endowed Faculty Scholar, University of Kansas, 2016 – 2019  
Associate Professor, Civil, Environmental & Architectural Engineering,  
University of Kansas, 2013 – 2019  
Assistant Professor, Civil, Environmental & Architectural Engineering,  
University of Kansas, 2006 – 2013  
Postdoctoral Researcher, Civil and Environmental Engineering,  
University of California, Davis, 2005 – 2006  
Graduate Research Assistant, Institute for Water Quality and Waste Management,  
Technical University Munich, Germany, 2002 – 2005  
Graduate Teaching Assistant, Civil Engineering & Geological Sciences,  
University of Notre Dame, 2000 – 2002  
Visiting Scholar, La Sapienza University, Italy, 2001  
Undergraduate Researcher, Clarkson University, 1999

### **Professional**

Aerobic Granular Sludge Steering Committee, Aqua-Aerobics, 2016 – current  
Consultant, City of Lawrence Utilities Department, 2013 – current  
Consultant for Aerobic Granular Sludge, Black & Veatch Engineering, 2014 – 2015  
Intern, Division of Extramural Research & Training,  
National Institute of Environmental Health Sciences, 1998

## **OTHER UNIVERSITY AFFILIATIONS**

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Affiliated Faculty, Bioengineering Graduate Program, University of Kansas, 2009 – current  
Courtesy Faculty, Environmental Studies Program, 2011 – current

Affiliated Faculty, Center for Environmental Policy, Institute for Policy & Social Research,  
University of Kansas, 2007 – current  
Faculty Advisor, Center for Research on Global Change, Institute for Policy & Social Research,  
University of Kansas, 2007 – 2015

## **HONORS AND AWARDS**

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The Edward & Thelma Wohlgemuth Endowed Faculty Scholar, 2016  
Miller Scholar, School of Engineering, University of Kansas, 2016  
Keeler Family Intra-University Professorship, University of Kansas, 2016  
Water Environment Federation's 5S Society Award (Select Society of Sanitary Sludge  
Shovelers), KWEA, 2015  
Miller Scholar, School of Engineering, University of Kansas, 2015  
Graduate Teaching Achievement Recognition, Center for Teaching Excellence, University of  
Kansas, 2013  
Excellence in Environmental Engineering, 2012 Honor Award for University Research,  
American Academy of Environmental Engineers  
Miller Award for Distinguished Professional Service, School of Engineering, University of  
Kansas, 2012  
Gould Award for Outstanding Undergraduate Advisor, School of Engineering, University of  
Kansas, 2012  
Bellows Scholar, School of Engineering, University of Kansas, 2010  
Fellow, University of Kansas, Center for Teaching Excellence Best Practices Institute, 2007  
Nominated for Best Oral Presentation, SBR3 Conference, 2004  
US Department of Education GAANN Fellowship, 2000-2004  
GE Graduate Fellowship, University of Notre Dame, 2000-2001  
James M. Johnston Undergraduate Fellowship, 1996-2000

## **PROFESSIONAL SERVICE**

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Water Environment Federation Member, 2003 – current  
WEFTEC Program Committee Member (Municipal Design Symposium), 2013 – current  
Vice-Chair, 2018 – current  
Nutrient Conference Chair, 2017 – 2018  
Nutrient Conference Steering Committee Member, 2016 – current  
Municipal Resource Recovery Design Committee Member, 2013 – current  
Research Committee, 2019 – current  
Algae Technologies Task Force Member, 2009 – current  
Advisor for University of Kansas student chapter, 2011 – current  
Member State Chapter Kansas Water Environment Federation, 2007 – current  
Algae Technologies Workshop at WEFTEC, Organizing Member, 2013  
Annual Literature Review Committee, *Water Environment Research*, 2003 – 2010  
International Water Association Member, 2004 – current  
USA National Committee Chair, 2020 – current  
USA National Committee, 2016 – current  
Microbial Ecology in Water Engineering Management Committee, 2013 – current  
Microbial Ecology in Water Engineering, 2004 – current  
Aerobic Granule Sludge Workshop Organizing Committee, Munich, Germany, 2004

Association of Environmental Engineering and Science Professors Member, 2006 – current  
American Water Works Association Member, 2013 – current  
Advisor for University of Kansas student chapter, 2014 – current  
American Association for the Advancement of Science, 2018 – current  
American Society of Civil Engineers, 2020 – current  
American Institute of Chemical Engineers Member, 2010 – 2013  
Annual Meeting Session Chair, Advances in Algal Biorefineries I and II, 2013 – 2014  
Annual Meeting Session Co-chair, Advances in Algal Biorefineries I and II, 2012  
Annual Meeting Chair, Sustainable Fuels from Renewable Resources I, 2012 – 2013  
Peer-Reviewer, *Environmental Science & Technology*, *Water Research*, *Biotechnology & Bioengineering*, *Applied Biochemistry and Biotechnology*, *Algal Research*  
Peer-Reviewer, National Science Foundation (2009, 2011, 2012, 2015, 2016, 2018)  
Mentor, United States Department of State Junior Faculty Development Program, 2012  
Educator, Douglas County Water Festival at the University of Kansas Field Station, 2009  
PhD Examiner, Department of Environmental Engineering, University of Bari, Italy, 2006

**PUBLICATIONS** (maiden name McSwain; corresponding author denoted by \*)

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**Books and Book Chapters**

Bathe S, de Kreuk MK, McSwain BS, Schwarzenbeck N, Eds. April 2005. *Aerobic Granular Sludge*. *Water Environment Management Series (WEMS)*, IWA Publishing, ISBN 1843395096.

**Peer-Reviewed Publications**

- Ibrahim A, Hiripitiyage Y, Peltier E\*, and Sturm B. 2020. “Use of halophilic bacteria to improve aerobic granular sludge integrity in hypersaline wastewaters.” *Environmental Engineering Science*, In Press.
- Van Winckel T, Vlaeminck SE\*, Al-Omari A, Bachmann B, Sturm B, Wett B, Takács I, Bott C, Murthy SN, and De Clippeleir H. 2019. “Screen versus cyclone for improved capacity and robustness for sidestream and mainstream deammonification.” *Environmental Science: Water Research & Technology*, 5(10), 1769-1781. <https://doi.org/10.1039/C9EW00384C>
- Alimoradi A, Stohr H, Stagg-Williams SM, and Sturm B\*. 2020. “Effect of temperature on toxicity and biodegradability of dissolved organic nitrogen formed during hydrothermal liquefaction of biomass.” *Chemosphere*, In Press – Available online. <https://doi.org/10.1016/j.chemosphere.2019.124573>.
- MardanDoost B, Brookfield AE, Feddema J, Sturm B\*, Kastens J, Peterson D, and Bishop C. 2019. “Estimating irrigation demand with geospatial and in-situ data: Application to the high plains aquifer, Kansas, USA.” *Agricultural Water Management*, 223. <https://doi.org/10.1016/j.agwat.2019.06.010>.
- Hable RD, Alimoradi S, Sturm BSM, Stagg-Williams SM\*. 2019. “Simultaneous solid and biocrude product transformations from the hydrothermal treatment of high pH-induced flocculated algae at varying Ca concentrations.” *Algal Research*, 40. <https://doi.org/10.1016/j.algal.2019.101501>
- Van Winckel T, Liu X, Vlaeminck SE\*, Takács I, Al-Omari A, Sturm B, Kjellerup BV, Murthy SN, and De Clippeleir H. 2019. “Overcoming floc formation limitations in high-rate activated sludge systems.” *Chemosphere*, 215, 342-352. <https://doi.org/10.1016/j.chemosphere.2018.09.169>
- Cornejo PK\*, Becker J, Pagilla K, Mo W, Zhang Q, Mihelcic JR, Chandran K, Sturm B, Yeh D, and Rosso D. 2019. “Sustainability metrics for assessing water resource recovery facilities of

- the future." *Water Environment Research*, 91(1), 45-53.
- Fortier M-OP, Roberts GW, Stagg-Williams SM, and Sturm BSM\*. 2017. "Determination of the life cycle climate change impacts of land use and albedo change in algal biofuel production." *Algal Research*, 28, 270-281. <https://doi.org/10.1016/j.algal.2017.06.009>
- Huang Y, Yasarer LMW, Li Z\*, Sturm BSM, Zhang Z, Guo J, and Shen Y. 2017 "Air-water CO<sub>2</sub> and CH<sub>4</sub> fluxes along a river-reservoir continuum: case study in the Pengxi River, a tributary of the Yangtze River in the Three Gorges Reservoir, China." *Environmental Monitoring Assessment*, 189(5), 223. DOI 10.1007/s10661-017-5926-2.
- Yasarer L\*, Sinnathamby S, and Sturm B. 2016. "Impacts of biofuel-based land-use change on water quality and sustainability in a Kansas watershed." *Agricultural Water Management*, 175, 4-14.
- Yasarer LMW\*, Sturm BSM, and White SS. 2016. "Climate change and Kansas water management: Perspectives and opportunities." *Transactions of the Kansas Academy of Science*, 119(2), 113-128.
- Gentry J, Sturm B, and Peterson AT\*. 2016. "Predictive mapping of transmission risk of a soil-transmitted helminth across East Africa: Findings from community prevalence surveys." *Journal of Public Health in Developing Countries*, 2(2), 150-161.
- Yasarer LMW and Sturm BSM\*. 2016. "Potential impacts of climate change on reservoir services and management approaches." *Lake and Reservoir Management*, 32(1), 13-26.
- Bambic DG, Kildare-Hann BJ, Rajal VB, Sturm BSM, Minton CB, Schriewer A, and Wuertz S\*. 2015. "Spatial and hydrologic variation of Bacteroidales, Adenovirus and Enterovirus in a semi-arid, wastewater effluent-impacted watershed." *Water Research*, 75, 83-94.
- Roberts GW, Sturm BSM, Hamdeh U, Stanton GE, Rocha A, Kinsella TL, Fortier M-O, Sazdar S, Detamore MS, and Stagg-Williams SM\*. 2015. "Promoting catalysis and high-value product streams by in-situ hydroxyapatite crystallization during hydrothermal liquefaction of microalgae cultivated with reclaimed nutrients." *Green Chemistry*, 17(4), 2560-2569.
- Fortier M-OP, Roberts GW, Stagg-Williams SM, and Sturm BSM\*. 2014. "Life cycle assessment of bio-jet fuel from hydrothermal liquefaction of microalgae." *Applied Energy*, 122, 73-82.
- Witthaus LM\*, Smith VH, Sturm BSM, and Carney E. 2014. "Evaluation of empirical models coupled with EUTROMOD for water quality prediction in Kansas reservoirs." *Inland Waters*, 4, 167-178.
- Peterson J\*, Caldas M, Bergtold J, McSwain Sturm B, Graves R, Earnhart D, Hanley E, Brown J. 2014. "Economic linkages to changing landscapes." *Environmental Management*, 53(1), 55-66.
- Bode C\*, Criss M, Ising A, McCue S, Ralph S, Sharp S, Smith V, and Sturm B. 2014. "Pond Power: How to use algae to energize inquiry and interdisciplinary connections." *The Science Teacher*, 81 (2), 43-49.
- Chen X, Peltier E\*, Sturm BSM, and Young CB. 2013. "Quantification of nitrifying and denitrifying bacteria in a stormwater bioretention system." *Water Research*, 47(4), 1691-1700.
- Roberts GW, Fortier M-O, Sturm BSM, and Stagg-Williams SM\*. 2013. "Promising pathway for algal biofuels through wastewater cultivation and hydrothermal conversion." *Energy & Fuels*, 27 (2), 857-867.
- Antezana Zbinden MD, Sturm BSM, Nord RD, Carey WJ, Moore D, Shinogle H, and Stagg-Williams SM\*. 2013. "Pulsed electric field (PEF) as an intensification pretreatment for

- solvent lipid extraction from microalgae.” *Biotechnology & Bioengineering*, 110 (6), 1605-1615.
- Fortier M-O and Sturm BSM\*. 2012. “Geographic analysis of the feasibility of collocating algal biomass production with wastewater treatment plants.” *Environmental Science & Technology*, 46 (20), 11426–11434.
- Sturm BSM\*, Peltier E, Smith V, and deNoyelles F. 2012. “Controls of microalgal biomass and lipid production in municipal wastewater-fed bioreactors.” *Environmental Progress & Sustainable Energy*, 31(1), 10-16.
- Yang C, Guo JS, Sturm BSM, Lane RF, Adams CD, and Carter RE. 2012. “Impact of sludge retention time on pharmaceuticals removal in activated sludge system.” *China Water & Wastewater*, 28(13), 99-102.
- Yang C, Guo JS, Sturm BSM, Lane RF, Adams CD, and Carter RE. 2012. “Impact of sludge residence time on the relative biodegradation and biosorption of sulfonamide antibiotics in activated sludge.” *Journal of Chongqing University*, 6, 12.
- Sturm BSM\* and Lamer SL. 2011. “An energy evaluation of coupling nutrient removal from wastewater with algal biomass production.” *Applied Energy*, 88, 3499-3506.
- Smith VH, Sturm BSM\*, Billings S, deNoyelles FJ. 2009. “Ecological aspects of algal biodiesel production.” *Trends in Ecology & Evolution*, 25(5), 301-309.
- Knapp CW\*, Zhang W, Sturm BS, and Graham DW. 2010. “Differential fate of erythromycin and beta-lactam resistance genes from swine lagoon waste under different aquatic conditions.” *Environmental Pollution*, 158(5), 1506-1512.
- Zhang W, Sturm BS\*, Knapp CW, and Graham DW. 2009. “Accumulation of tetracycline resistance genes in aquatic biofilms due to periodic loadings from swine lagoons.” *Environmental Science & Technology*, 43(20), 7643-7650.
- Mohan SV, Falkentoft C, Nancharaiah YV, McSwain Sturm BS, Wattiau P, Wuertz S, and Hausner M\*. 2009. “Bioaugmentation of microbial communities in laboratory and pilot scale sequencing batch biofilm reactors using the TOL plasmid.” *Bioresource Technology*, 100(5), 1746-1753.
- McSwain Sturm BS\* and Irvine RL. 2008. “Dissolved oxygen as a key parameter to aerobic granule formation.” *Water Science and Technology*, 58(4), 781-787.
- Rajal VB, McSwain BS, Thompson DE, Leutenegger CM, and Wuertz S\*. 2007. “Molecular quantitative analysis of human viruses in California stormwater.” *Water Research*, 41(19), 4287-4298.
- Kildare BJ, Leutenegger CM, McSwain BS, Bambic DG, Rajal VB, and Wuertz S\*. 2007. “16S rRNA-based assays for quantitative detection of universal, human-, cow-, and dog-specific fecal *Bacteroidales*: a bayesian approach.” *Water Research*, 41(16), 3701-3715.
- Rajal VB, McSwain BS, Thompson DE, Leutenegger C, Kildare B, and Wuertz S\*. 2007. “Validation of hollow fiber ultrafiltration and real-time PCR using bacteriophage PP7 as surrogate for the quantification of viruses from water samples.” *Water Research*, 41(7), 1411-1422.
- McSwain BS\*, Irvine RL, Hausner M., and Wilderer PA. 2005. “Composition and distribution of extracellular polymeric substances in aerobic flocs and granular sludge.” *Applied and Environmental Microbiology*, 71(2), 1051-1057.
- McSwain BS\*, Irvine RL, and Wilderer PA. April 2005. “Population dynamics during aerobic granule formation – lessons from denaturing gradient gel electrophoresis.” *Water Environment Management Series (WEMS)*, ISBN 1843395096, 53-61.

- McSwain BS\*, Irvine RL, and Wilderer PA. 2004. "The influence of settling time on the formation of aerobic granules and extracellular polymeric substances." *Water Science and Technology*, 50(10), 195-202.
- McSwain BS\*, Irvine RL, and Wilderer PA. 2004. "The effect of intermittent feeding on aerobic granule structure." *Water Science and Technology*, 49(11-12), 19-25.
- Wilderer PA\* and McSwain BS. 2004. "The SBR and its biofilm application potentials." *Water Science and Technology*, 50(10), 1-10.
- Chiavola A\*, McSwain BS, Irvine RL, Boni MR, and Baciocchi R. 2004. "Biodegradation of 3-chlorophenol in a sequencing batch reactor." *Environmental Science & Health (Part A)*, 38(10), 2113-2123.
- Schwarzenbeck N\*, Erley R, McSwain BS, Wilderer PA, and Irvine RL. 2004. "Treatment of malthouse wastewater in a granular sludge SBR." *Acta hydrochimica et hydrobiologica*, 32(1), 16-24.

### **Engineering Reports**

- Sturm, B. 2016. "Intensification of resource recovery (IR<sup>2</sup>) forum: State of knowledge and workshop report." Contract No. TIRR1R15, Water Environment Research Foundation.
- McSwain BS, Kildare B, Bae S, Lorente M and Wuertz S. June 2006. "Management of pathogens associated with storm water discharge and identification of sources of microbial contamination." Contract No. 43A0168, Task Order No. 3, Environmental Division of the California Department of Transportation, 104 pp.
- Kildare B, Rajal VB, Tiwari S, Thompson DE, McSwain BS, Bambic D, Reide G, and Wuertz S. May 2006. "Calleguas Creek Watershed Quantitative Microbial Source Tracking Study." Calleguas Creek Watershed Management Plan.
- Rajal V, Thompson D, Kildare B, Tiwari S, McSwain B and Wuertz S. May 2005. "Management of pathogens associated with storm water discharge: Methodology for quantitative molecular determination of viruses, bacteria and protozoa." Contract No. 43A0073, Task Order No. 19, Environmental Division of the California Department of Transportation.

### **Conference Proceedings / Minor Publications**

- Mayo T, Peltier E, and Sturm B. 2019. "Reliably quantifying microplastics within a wastewater matrix." *Proceedings of the Water Environment Federation*.
- Odunola O, Bagchi S, and Sturm B. 2019. "Performance of conventional activated sludge and aerobic granular sludge reactors for microplastics removal during municipal wastewater treatment." *Proceedings of the Water Environment Federation*.
- Faraj R, Sturm B, Jimenez J, and Wadhawan T. 2019. "Modeling aerobic granular sludge performance in sequencing batch reactors." *Proceedings of the Water Environment Federation*.
- Redmond E, Jalbert M, Young M, Faraj R, Sturm B, and Downing L. 2019. "Full-scale continuous flow selective pressures for sludge granulation." *Proceedings of the Water Environment Federation*.
- Hummel A and Sturm B. 2019. "Sulfate removal to prevent scaling in a moderate salinity environment via expanded granular sludge bed reactors." *Proceedings of the Water Environment Federation*.
- Kobylynski E, Barnard J, Harger M, Morris L, Sturm B, and Keller J. 2019. "Start-up of a 3-stage Bardenpho WWTP with a MLSS sidestream fermenter." *Proceedings of the Water Environment Federation*.

- Ibrahim A, Hiripitiyage Y, Warren J, Peltier E, and Sturm B. 2019. "Enhancing removal of aromatic compounds using an integrated biofilm-GAC reactor." *Proceedings of the Water Environment Federation*.
- Alimoradi S, Stohr H, Stagg-Williams S, and Sturm B. 2018. "Effect of temperature on recalcitrant dissolved organic nitrogen (rDON) concentration: Application of thermochemical treatment of biosolids." *Proceedings of the Water Environment Federation*, 14, 2093-2099. <https://doi.org/10.2175/193864718825156664>
- Van Winckel T, Al-Omari A, Takács I, Wett B, Bachmann B, Sturm B, Bott C, Vlaeminck S, Murthy S, and De Clippeleir H. 2018. "Enhancing the decoupling of solids retention times in full-scale deammonification processes using screens." *Proceedings of the Water Environment Federation*, 5, 185-191. <https://doi.org/10.2175/193864718825156664>
- Sturm B, Mayo T, and Bagchi S. 2018. "Fate of microplastics through North America WRRFs: an initial survey." *Proceedings of the Water Environment Federation*, 10, 3827-3831.
- Ibrahim A, Hiripitiyage Y, Peltier E, and Sturm B. 2018. "Investigation of the response mechanisms of halophilic and mixed culture aerobic granular sludge under hypersaline conditions." *Proceedings of the Water Environment Federation*, 10, 3836-3853. <https://doi.org/10.2175/193864718825135955>
- Faraj R, Kopper T, and Sturm B. 2018. "Mechanisms affecting water distribution and dewatering potential of aerobic granular sludge." *Proceedings of the Water Environment Federation*, 7, 5881-5889.
- Van Winckel T, Olagunju O, Sturm B, Vlaeminck S, Jones K, Rahman A, Bott C, Wett B, Al-Omari A, Murthy S, and De Clippeleir H. 2018. "Online oxidation control to maximize energy recovery and ensure year-round effluent quality." *Proceedings of the Water Environment Federation*, 18, 263-268. <https://doi.org/10.2175/193864718825138196>
- Ngo N, Liu X, Van Winckel T, Massoudieh A, Kjellerup BV, Takács I, Wett B, Mancell-Egala W, Sturm B, Vlaeminck SE, Al-Omari A, Murthy S, and De Clippeleir H. 2017. "Experimental metrics to predict the flocculent settling coefficient in a 1D settler model." *Proceedings of the Water Environment Federation*, 4, 5431-5435.
- Alimoradi S, Hable R, Stagg-Williams S, and Sturm B. 2017. "Fate of phosphorous after thermochemical treatment of algal biomass." *Proceedings of the Water Environment Federation*, 8, 3888-3891.
- Ibrahim A, Peltier E, and Sturm B. 2017. "Halophilic and nonhalophilic aerobic granular sludge formation in hypersaline synthetic oilfield produced water." *Proceedings of the Water Environment Federation*, 16, 141-152.
- Faraj R, Sturm B, Amante T, and Mosquera M. 2017. "Implementation of an External Selector to Improve the Stability and Nutrient Removal of Aerobic Granular Sludge with Low-Strength Municipal Wastewater." *Proceedings of the Water Environment Federation*, 3, 461-467.
- Van Winckel T, Yapuwa H, Wett B, Sturm B, Vlaeminck SE, Al-Omari A, Murthy S, and De Clippeleir H. 2017. "It's time to harvest: Combining internal selection and flocculent external selection to maximize carbon capture efficiency." *Proceedings of the Water Environment Federation*, 7, 4294-4296.
- Bagchi S, Hiripitiyage YD, Willoughby A, Ford A, Havsteen L, Bachmann B, Constantine T, Wett B, Bott C, and Sturm B. 2017. "Microbial community analysis revealed the selective retention of functionally important microorganisms by hydrocyclones in biological nutrient

- removal (BNR) processes.” *Proceedings of the Water Environment Federation*, 7, 4012-4022.
- Liu X, Van Winckel T, Kjellerup BV, Tacaks I, Sturm B, Vlaeminck SE, Al-Omari A, Murthy S, and De Clippeleir H. 2017. “Pinpointing bioflocculation limitations for enhanced carbon management in high-rate activated sludge.” *Proceedings of the Water Environment Federation*, 3, 47-52.
- Pendelberry KJ, Gilmore KR, Sturm BS, and Faraj R. 2017. “Practical imaging techniques for monitoring granulation of activated sludge.” *Proceedings of the Water Environment Federation*, 16, 111-123.
- Alimoradi S, Hable R, Stagg-Williams S, and Sturm B. 2017. “Strategies to maximize P recovery and minimize biochar formation from hydrothermal liquefaction of biomass.” *Proceedings of the Water Environment Federation*, 3, 529-536.
- Liu X, Winckel TV, Kjellerup BV, Tacaks I, Sturm B, Vlaeminck SE, Al-Omari A, Murthy S, and De Clippeleir HD. 2017. “Pinpointing bioflocculation limitations for enhanced carbon management in high-rate activated sludge.” *Proceedings of the Water Environment Federation*, 3, 47-52.
- Bagchi S, Probasco S, Mardan Doost B, and Sturm B. 2016. “Fate of microplastics in water resource recovery facilities (WRRFs) and national environmental loading estimates.” *Proceedings of the Water Environment Federation*, 7, 353-361.
- Martin K, Shaw A, De Clippeleir H, and Sturm B. 2016. “‘Accidental Granular Sludge’: Understanding process design and operational conditions that lead to low SVI-30 values through a survey of full scale facilities in North America.” *Proceedings of the Water Environment Federation*, 9, 3385-3394.
- Sturm B, Faraj R, Amante T, Kambhampati S, and Warren J. 2016. “Impact of substrate profile on BNR performance in aerobic granular sludge pilots at the Lawrence, KS WWTP.” *Proceedings of the Water Environment Federation*, 9, 5470-5478.
- Van Winckel T, De Clippeleir H, Mancell-Egala A, Rahman A, Wett B, Bott C, Sturm B, Vlaeminck S, Al-Omari A, and Murthy S. 2016. “Balancing flocs and granules by external selectors to increase capacity in high-rate activated sludge systems.” *Proceedings of the Water Environment Federation*, 6, 5617-5622.
- Alimoradi S, Hable R, Perkins A, Stagg-Williams S, and Sturm B. 2016. “Phosphorus recovery as calcium phosphates during thermochemical conversion of algal biomass.” In *WEF/IWA Nutrient Removal and Recovery Proceedings*. Water Environment Federation, Denver, CO.
- Bagchi S, Epperson R, and Sturm B. 2016. “Evidence of complete ammonia oxidation (comammox) by *Nitrospira* under low dissolved oxygen in a side stream deammonification pilot.” In *WEF/IWA Nutrient Removal and Recovery Proceedings*. Water Environment Federation, Denver, CO.
- Jezeq R, Shaw A, Kobylinski E, Sturm B, Steichen M, and Barnard J. 2016. “Somewhere over the rainbow: Kansas' aerobic granular sludge pilot for domestic wastewater in the U.S.” In *Singapore International Water Week 2016 Proceedings*.
- Van Winckel T, De Clippeleir H, Yapuwa H, Wett B, Bott C, Sturm B, Vlaeminck S, Al-Omari A, and Murthy S. 2016. “Let's Settle Together? Extending external selection from mainstream deammonification to high-rate activated sludge.” In *WEF/IWA Nutrient Removal and Recovery Proceedings*. Water Environment Federation, Denver, CO.
- Jezeq R, Kobylinski E, Sturm B, Steichen M, and Barnard J. 2015. “Can Aerobic Granular Reactors Help a Land-Locked Plant Upgrade to BNR? From Bench-Scale Testing to Full-

- Scale Conceptual Design.” *Proceedings of the Water Environment Federation*, 16, 2760-2783.
- Jezek R, Kobylinski E, Sturm B, Steichen M, and Barnard J. 2015. “Aerobic granular sludge bench-scale testing to full-scale conceptual design.” *Proceedings of the Water Environment Federation*, 3, 1-22.
- Sturm B, Faraj R, Amante T, Wagner B, Kiani F, and Waybenais D. 2015. “Strategies for Operating Aerobic Granular Sludge Reactors for Low-Strength Municipal Wastewater.” *Proceedings of the Water Environment Federation*, 17, 5656-5665.
- Sturm B, Roberts G, Cook E, Hable R, and Stagg-Williams S. 2015. “Hydroxyapatite Crystallization and Biocrude Oil Production from Wastewater-Cultivated Algae.” *Proceedings of the Water Environment Federation*, 2, 1-11.
- Faraj RA and Sturm BSM. 2014. "The effect of slowly biodegradable carbon on the performance of aerobic granular sludge." *International Water Association Specialist Conference - Global Challenges: Sustainable Wastewater Treatment and Resource Recovery*. Kathmandu, Nepal.
- Fortier M-O and Sturm BSM. 2012. “Geographic Analysis of Algae Production for Biofuels at Kansas Wastewater Treatment Plants.” *Proceedings of the Water Environment Federation*, 13, 3565-3580.
- Bergsven L, Sturm BSM, Durar A, and Dickinson G. 2011. "After Over a Decade of Foaming, the Development of a Statistical Model Combined with Traditional Microscopy Provides Operating Guidelines." *Proceedings of the Water Environment Federation*, 10, 5422-5437.

### **Non-Peer Reviewed Publications**

- Gu AZ, Nerenberg R, Sturm B, Chul P, and Goel R. 2010 Literature Review. “Molecular Methods in Biological Systems.” *Water Environment Research*, 82(10), 908-930.
- McMahon K, Gu A, Nerenberg R, and Sturm B. 2009 Literature Review. “Molecular Methods in Biological Systems.” *Water Environment Research*, 81(10), 986-1002.
- McMahon K, Gu A, Nerenberg R, and Sturm B. 2008 Literature Review. “Molecular Methods in Biological Systems.” *Water Environment Research*, 80(10), 929-961.
- Sharma K, McSwain BS, Zhang X, Lin W, and Yu T. 2007 Literature Review. “Biological Fixed Film Systems.” *Water Environment Research*, 79(10), 1363-1391.
- Lin W, McSwain BS, Sharma K, Zhang X, and Yu T. 2006 Literature Review. “Biological Fixed Film Systems.” *Water Environment Research*, 78(10), 1324-1362.
- Yu T, Lin W, McSwain BS, Yu M, and Zhang X. 2005 Literature Review. “Biological Fixed Film Systems.” *Water Environment Research*, 77(6), 1263-1346.
- Lin W, Yu T, McSwain BS, and He YS. 2004 Literature Review. “Biological Fixed Film Systems.” *Water Environment Research*, 76(6), 1099-1154.
- Yu T, Lin W, Tian E, and McSwain BS. 2003 Literature Review. “Biological Fixed Film Systems.” *Water Environment Research*, 75(6), 421-504.

### **INVITED ORAL PRESENTATIONS**

#### **International**

- “Microbial Selection Approaches for Aerobic Granulation.” July 20, 2018. *Singapore International Water Week*, Singapore.
- “Implementing aerobic granular sludge in continuous WTT-processes.” March 18, 2018. *Granular Sludge Conference, IWA Biofilms Specialist Group*, Delft, the Netherlands.

- “The effect of slowly biodegradable carbon on the performance of aerobic granular sludge.” October 30, 2014. *International Water Association Specialist Conference Global Challenges: Sustainable Wastewater Treatment and Resource Recovery*, Kathmandu, Nepal.
- “A Sustainable Platform for Biofuels Production: Coupling nutrient removal from wastewater with algal biomass production.” September 1, 2014. Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences, Chongqing, China.

### **National**

- “The path to densification in WRRF: Current status and implications on performance and capacity.” October 9, 2019. *Florida Water Environment Association Innovative and New Wastewater Treatment Technologies*, Fort Myers, FL.
- “Fate of microplastics through wastewater treatment.” October 7, 2019. *CDM Smith Process Seminar*, webinar.
- “Microplastics fate through wastewater treatment.” September 21, 2019. Workshop *Pathogens and Constituents of Emerging Concern in Wastewater Effluent and Water Reuse*, Water Environment Federation Annual Technical Exposition and Conference, Chicago, IL.
- “Where are we going? And the search for cheaper, faster, better.” July 24, 2019. *Water Environment Federation Nutrient Removal and Recovery Symposium*, Minneapolis, MN.
- “Improving floc settleability and granulation for biological process intensification.” May 6, 2019. *CDM Smith Process Seminar*, webinar.
- “Challenges and research needs for microplastic fate and transport.” December 13, 2018. *Water Research Foundation Webinar: Occurrence of microplastics in water...size does matter!*
- “Fate of micro plastics through North America WRRFs: an initial survey.” October 2, 2018. *Water Environment Federation Annual Technical Exposition and Conference*, New Orleans, LA.
- “Environmental loading estimates and fate of microplastics from municipal wastewater treatment.” August 20, 2018. *American Chemical Society National Meeting*, Boston, MA.
- “Aerobic Granular Sludge.” June 18, 2018. *Water Environment Federation Nutrient Removal and Recovery Conference*, Raleigh, NC.
- “WE&RF Project Update: Balancing Granules and Flocs for Process Intensification.” September 24, 2016. *Water Environment Federation's Annual Technical Exhibition and Conference, Aerobic Granular Sludge Workshop*, New Orleans, LA.
- “Resource recovery using thermochemical processing of wastewater biosolids.” August 29, 2016. University of Notre Dame, Department of Civil & Environmental Engineering & Earth Sciences, South Bend, IN.
- “Wastewater characteristics in North-America: challenges for aerobic granulation.” October 2, 2015. Workshop: Aerobic granulation in existing facilities, DC Water, Washington D.C.
- “Intensification in action.” August 9, 2015. *Water Environment Federation Intensification of Resource Recovery (IR<sup>2</sup>)*, Manhattan College, Riverdale, NY.
- “Waste to energy to higher-value products: hydroxyapatite crystallization and biocrude oil production from wastewater-cultivated algae.” February 13, 2015. Environmental Engineering and Water Resources Engineering Seminar, University of Nebraska, Omaha, NE.
- “Research in Algae for Nutrient Uptake.” March 28, 2014. Metropolitan Water Reclamation District of Greater Chicago, Chicago, IL.
- “Early career advice for new faculty.” October 25, 2013. *Society of Women Engineers National Conference*, Baltimore, MD.

- “Algal ecology.” October 8, 2013. *Water Environment Federation Technical Exhibition and Conference (WEFTEC)*, Chicago, IL.
- “Systems analyses of coupling nutrient removal from wastewater with algal biomass production: LCA, land availability, and energy balances.” September 9, 2013. Civil and Environmental Engineering Department Seminar, University of Illinois at Urbana-Champaign.
- “A sustainable platform for biofuels production: coupling nutrient removal from wastewater with algal biomass production.” March 15, 2012. Civil Engineering Department Seminar, University of Arkansas, Fayetteville, AK.
- “Survival and migration of antibiotic resistant genes in the water column and biofilm environments.” April 3, 2009. Environmental Engineering & Water Resources Seminar, University of Missouri, Columbia, Missouri.
- “Coselection of copper- and antibiotic-resistant bacteria in activated sludge reactors.” November 2, 2007. Department of Civil and Environmental Engineering, The University of Iowa, Iowa City, Iowa.
- “From Hurricane Katrina Floodwaters to Rural Wine Country: Using quantitative PCR to monitor pathogens and fecal contamination in storm waters.” Feb, 20, 2006. Oral Seminar for the Department of Civil & Environmental Engineering, Purdue University, West Lafayette, Indiana.

### **Statewide**

- “What we know about microplastics... and what we need to learn.” July 26, 2018. Kansas Department of Health and Environment, Topeka, Kansas.
- “Beyond Biogas: Innovations in Sludge Processing.” June 11, 2018. CDM Smith, Kansas City, Missouri.
- “Granular sludge applications for wastewater treatment.” April 1, 2013. University of Kansas Civil, Environmental & Architectural Engineering Professional Development Series, offered as continuing education credit at Burns & McDonnell, 9400 Ward Parkway, Kansas City, Missouri.
- “Wastewater solutions: Treatment of wet-weather flows.” March 23, 2015. University of Kansas, Department of Civil, Environmental & Architectural Engineering Professional Development Series, offered as continuing education credit at Burns & McDonnell, 9400 Ward Parkway, Kansas City, Missouri.
- “Activated sludge microbiology – identifying the undesirables and designing against them.” May 2, 2011. University of Kansas Civil, Environmental & Architectural Engineering Professional Development Series, offered as continuing education credit at Burns & McDonnell, 9400 Ward Parkway, Kansas City, Missouri.
- “The impact of sludge residence time on the removal of synthetic estrogen in biological wastewater treatment.” March 24, 2009. University of Kansas Civil, Environmental & Architectural Engineering Professional Development Series, offered as continuing education credit at Burns & McDonnell, 9400 Ward Parkway, Kansas City, Missouri.
- “Measures of Water Quality for Pathogen TMDL Development.” Feb 19, 2007. University of Kansas Civil, Environmental & Architectural Engineering Professional Development Series, offered as continuing education credit at Burns & McDonnell, 9400 Ward Parkway, Kansas City, Missouri.

### **Local**

- “Microplastics and biofiltration.” October 15, 2019. WaterOne, Overland Park, KS.

- “Sludge Dewaterability: The Basics and new considerations with Biological Nutrient Removal.” February 26, 2018. Professional Development Seminar, University of Kansas Department of Civil, Environmental & Architectural Engineering, Kansas City, Missouri.
- “Municipal wastewater: Transforming a problem into our sustainable future.” November 27, 2017. Kansas University Center for Research, Lawrence, KS.
- “A new spin on BNR: Employing hydrocyclones for process intensification.” April 19, 2017. The University of Kansas 67th Environmental Engineering Conference, Lawrence, KS.
- “Resource recovery using thermochemical processing of wastewater biosolids from algal biological treatment.” March 16, 2017. The University of Kansas Environmental Studies / Geography Colloquium, Lawrence, KS.
- “Biological nutrient removal in wastewater treatment - engineering approaches to manipulate species selection.” September 9, 2016. Kansas Biological Survey, Lawrence, KS.
- “Solid waste in our built environment.” January 23, 2016. *Future Cities Regional Competition*, Lawrence, KS.
- “Testing a New Biofilm Application – Aerobic Granular Sludge.” April 22, 2015. 65th Annual Environmental Engineering Conference, University of Kansas.
- “Wastewater treatment and microbial ecology.” October 17, 2014. University of Kansas Red Hot Research, Lawrence, KS.
- “Modeling field-level irrigation demands with changing weather and crop choices.” September 26, 2014. Kansas Water: Research and Communication, From Data to News, Lawrence, KS.
- “Systems analyses of coupling nutrient removal from wastewater with algal biomass production.” October 1, 2013. Chemical and Petroleum Engineering Department Seminar, University of Kansas.
- “Envisioning wastewater as a resource.” April 13, 2013. Global Water Conference: Drought conservation & security, University of Kansas, Lawrence, KS.
- “Understanding Farmers’ Land- and Water-use Decisions in a Changing Climate and Biofuel Economy.” October 26, 2012. Sustainability Forum, University of Kansas, Lawrence, KS.
- “Encouraging synthesis of laboratory data with scientific literature.” August 17, 2010. *KU Summit for Teaching: Firm foundations for learning*, Lawrence, KS.
- “Preparing for class: ways to make it happen.” February 17, 2010. University of Kansas Center for Teaching Excellence, Lawrence, Kansas.
- “The promise of coupling nutrient removal from wastewater with algal oil production – preliminary results of a pilot study.” Feb 3, 2010. 60<sup>th</sup> *Environmental Engineering Conference: Designing for Sustainability*, Lawrence, Kansas.
- “Preparing students before they come to class.” January 12, 2010. KU School of Engineering Faculty Teaching Workshop “Technology in the Classroom,” Lawrence, Kansas.
- “KU Feedstock to Tailpipe Initiative: Algal Production.” April 9, 2009. Transportation Research Institute Colloquium, Lawrence, Kansas.
- “Production of algae as a feedstock for biodiesel production.” June 6, 2008. Transportation Research Institute Colloquium, Lawrence, Kansas.
- “A mesocosm study: The survival and migration of antibiotic resistant genes in the water column and biofilm environments.” November 30, 2007. Kansas Biological Survey, Lawrence, Kansas.
- “Biofilms in engineered systems: factors of their formation and function.” Department of Chemical & Petroleum Engineering’s Spring seminar series, University of Kansas, Lawrence, Kansas.

- “The application of microbial source tracking in water quality monitoring for TMDL development.” Feb 7, 2007. Oral presentation at the 57<sup>th</sup> *Environmental Engineering Conference: Striving Toward Sustainability*, Lawrence, Kansas.
- “More than continuing ed: bridging the gap between research and practice.” January 26, 2007. Kansas Water Environment Association Young Professionals Meeting, Topeka, Kansas.
- “Aerobic Granular Sludge Formation: Using a multidisciplinary approach to describe the critical processes.” April 3, 2006. Oral Seminar for the Department of Civil, Environmental & Architectural Engineering, University of Kansas, Lawrence, Kansas.

## CONFERENCE PRESENTATIONS

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### **Oral Presentations**

- “The role of DO in floc/granule formation.” September 25, 2019. *Water Environment Federation Annual Technical Exposition and Conference*, Chicago, IL.
- “Modeling aerobic granular sludge performance in sequencing batch reactors.” September 25, 2019. *Water Environment Federation Annual Technical Exposition and Conference*, Chicago, IL.
- “Fate of microplastics through wastewater treatment plants.” September 25, 2019. *Water Environment Federation Annual Technical Exposition and Conference*, Chicago, IL.
- “Modeling aerobic granular sludge performance in sequencing batch reactors.” July 24, 2019. *Water Environment Federation Nutrient Removal and Recovery Symposium*, Minneapolis, MN.
- “Quantifying the benefits of densified activated sludge on secondary clarifier capacity.” July 24, 2019. *Water Environment Federation Nutrient Removal and Recovery Symposium*, Minneapolis, MN.
- “Kinetic and microbiological characterization of varying size fractions of aerobic granular sludge.” October 3, 2018. *Water Environment Federation Annual Technical Exposition and Conference*, New Orleans, LA.
- “Modelling extracellular polymeric substances in granular sludge formed with low strength municipal wastewater.” March 20, 2018. *Granular Sludge Conference, IWA Biofilms Specialist Group*, Delft, the Netherlands.
- “Microbial community analysis revealed the selective retention of functionally important microorganisms by hydrocyclones in biological nutrient removal (BNR) processes.” October 4, 2017. *Water Environment Federation's Annual Technical Exhibition and Conference*, Chicago, IL.
- “Determining the internal selection / substrate gradient needed to induce granulation for low-strength wastewater.” October 3, 2017. *Water Environment Federation's Annual Technical Exhibition and Conference*, Chicago, IL.
- “Hydrocyclones Retain Functionally-Important Microorganisms in Biological Nutrient Removal.” August 29, 2017. *9th Annual Joint KWEA and KsAWWA Water / Wastewater Conference*, Wichita, KS.
- “Impact of Substrate Profile on BNR Performance in Aerobic Granular Sludge Pilots at the Lawrence, KS WWTP.” September 27, 2016. *Water Environment Federation's Annual Technical Exhibition and Conference*, New Orleans, LA. *Proceedings of the Water Environment Federation*: (9), 5470-5478.
- “Defining Granular Sludge and Process Intensification Benefits.” September 27, 2016. *Water Environment Federation's Annual Technical Exhibition and Conference*, New Orleans, LA.
- “Fate of micro plastics through wastewater treatment plants.” August 31, 2016. *8th Annual Joint KWEA and KsAWWA Water / Wastewater Conference*, Topeka, KS.
- “Strategies for operating aerobic granular sludge reactors for low-strength municipal

- wastewater.” September 28, 2015. *Water Environment Federation Technical Exhibition and Conference (WEFTEC)*, Chicago, Illinois.
- “Hydroxyapatite crystallization and biocrude oil production from wastewater-cultivated algae.” June 10, 2015. *WEF Water and Energy 2015 Opportunities for Energy and Resource Recovery in a Changing World*, Washington D.C.
- “Performance of granular sludge reactors for complete biological nutrient removal.” August 26, 2014. *Kansas Water Environment Association and Kansas American Water Works Association 6<sup>th</sup> Joint Annual Conference*, Topeka, KS.
- “The relationship between growth phase, macromolecular content, and biocrude yield for *Chlorella kessleri*.” November 6, 2013. *American Institute of Chemical Engineers Annual Meeting*, San Francisco, CA.
- “Controls of microalgal biomass and lipid production in municipal wastewater-fed bioreactors.” October 17, 2011. *American Institute of Chemical Engineers Annual Meeting*, Minneapolis, MN.
- “Developing critical reading and writing skills in a biological principles class.” July 10-12, 2011. *Association of Environmental Engineering and Science Professors Education and Research Conference*, Tampa, FL.
- “Impact of sludge residence time on the relative biodegradation and biosorption of sulfonamide antibiotics in activated sludge.” March 27-31, 2011. *American Chemical Society*, Anaheim, CA.
- “Application of top-down ecological control principles to maximize algal productivity in open pond systems.” November 7-12, 2010. *American Institute of Chemical Engineers Annual Meeting*, Salt Lake City, UT.
- “Pilot studies of algal lipid production in wastewater-fed systems.” 27-30 October 2010. 45<sup>th</sup> *Midwest Regional Meeting, American Chemical Society*, Wichita, KS.
- “Coupling nutrient removal with algal oil production.” 30 Aug-2 Sept, 2010. 2<sup>nd</sup> *Joint KWEA & KsAWWA Conference*, Topeka, Kansas.
- “The promise of coupling nutrient removal from wastewater with algal oil production – preliminary results of a pilot study.” Feb 3, 2010. 60<sup>th</sup> *Environmental Engineering Conference: Designing for Sustainability*, Lawrence, Kansas.
- “Dissolved oxygen as a key parameter to aerobic granule formation.” April 7, 2008. 2008 4<sup>th</sup> *IWA International Conference for Sequencing Batch Reactor Technology*, Rome, Italy.
- “The application of microbial source tracking in water quality monitoring for TMDL development.” Feb 7, 2007. 57<sup>th</sup> *Environmental Engineering Conference: Striving Toward Sustainability*, Lawrence, Kansas.
- “Population dynamics during aerobic granule formation – lessons from denaturing gradient gel electrophoresis.” 2004. 1<sup>st</sup> *IWA Aerobic Granular Sludge Workshop*, Munich, Germany.
- “The influence of settling time on the formation of aerobic granules and extracellular polymeric substances.” 2004. 3<sup>rd</sup> *IWA International Conference for Sequencing Batch Reactor Technology*, Noosa, Australia.
- “The effect of intermittent feeding on aerobic granule structure.” 2003. *IWA International Biofilm Symposium*, Cape Town, South Africa.

### **Poster Presentations**

- “Monitoring the conjugal transfer of plasmid pWWO from *Pseudomonas putida* in a sequencing batch biofilm reactor for bioaugmentation purposes” (Poster). 2002. *NIEHS Conference for*

*Bioremediation and Biodegradation: Current Advances in Reducing Toxicity, Exposure and Environmental Consequences*, Pacific Grove, California.

“A comparative evaluation of population dynamics in a sequencing batch reactor (SBR), and two conventional continuous flow systems” (Poster). 2001. *3<sup>rd</sup> IWA International Conference for Microorganisms in Activated Sludge and Biofilm Processes*, Rome, Italy.

## GRANTS:

### External Grants

“Benthic cyanobacterial mats: a potential source of harmful and nuisance compounds to Kansas streams,” 03/01/2020 – 02/28/2022, Kansas Water Resources Institute (\$40,000 plus \$80,000 cost-share). Co-Principal Investigator.

“Water Sustainability and Resource Recovery Consortium,” 08/01/2017 – current, City of Lawrence (\$25,000 annually; \$83,000 to date). Principal Investigator.

“WERF: Determining the fate and major removal mechanisms of microplastics in water and resource recovery facilities,” 08/01/2017 – 07/31/2020, National Science Foundation (\$304,892). Principal Investigator.

“RII Track-1: Microbiomes of Aquatic, Plant and Soil Systems (MAPS) mediating sustainability: An observational and experimental network across Kansas,” 06/01/2017 – 05/31/2022, National Science Foundation (\$20,000,000). Senior personnel with K Bowman-James, PI.

“RII Track-2 FEC: Improving water management, treatment and recovery in oil and gas production,” 08/01/2016 – 07/31/2020, National Science Foundation (\$3,898,637). Co-investigator with E Peltier, PI.

“GOALI - Balancing Flocs and Granules for Activated Sludge Process Intensification: Stoke's vs Fick's Laws,” 07/01/2015 – 06/30/2018, National Science Foundation (\$330,061). Principal Investigator.

“Balancing flocs and granules for activated sludge process intensification in plug flow configurations,” 04/01/2015 – 03/31/2017, Water Environment Research Foundation (\$118,926, with \$130,000 hard-dollar matching, and \$1,621,672 in-kind matching). Principal Investigator.

“Developing granular/floccular hybrid systems for activated sludge intensification,” 03/16/2015 – 03/15/2019, District of Columbia Water & Sewer Authority (\$260,000). Principal Investigator.

“Hydroxyapatite formation during hydrothermal liquefaction of algae: synthesis and catalytic implications,” 08/01/2014 – 07/31/2017, National Science Foundation (\$409,653). Co-PI with SM Stagg-Williams, PI.

“Aerobic granular sludge,” 07/01/2014 – 12/31/2015, Black & Veatch Engineering (\$20,000). Principal Investigator.

“EPSCoR Supplement: Sturm (KU),” 10/0/2014 – 12/31/2015, National Science Foundation (\$164,298). Principal Investigator.

“Microcosm/Bench-scale studies at Fort Riley, Kansas,” 09/22/2014 – 09/21/2015, US Army Corps of Engineers (\$76,530). Co-PI with J. Roberts and L. Krishtalka, PI.

“Asian Carp Distribution Study Using Environmental DNA (eDNA),” 9/20/2012 – 7/12/2015, US Fish & Wildlife Service #F12AP01204 (\$29,996). Co-investigator with D. Huggins, PI, D. Baker, and M. Grose.

“REU: Biofuels development – feedstock to tailpipe,” 09/15/2011 – 08/31/2015, National Science Foundation Grant # EEC-1063097 (\$358,531). Co-investigator with R. Ostermann,

PI, and S. Williams.

- “EPSCoR Phase VI: Climate change and energy: basic science, impacts, and mitigation - Farmers’ Decisions to Grow Crops for Fuel,” 10/01/2009 – 08/31/2015, National Science Foundation Grant # EPS-0903806 (\$3,369,867). Co-investigator with D. Earnhart, PI, C. Brown, S. Egbert, J. Feddema, J. Gibson-Carpenter, E. Hanley, J. Nagel, S. White, J. Peterson, J. Bergtold, and L. Kulcsar.
- “EPSCoR Phase VI: Climate change and energy: basic science, impacts, and mitigation – Subaward for Solar Energy Capture for Algal Oil Production,” 10/01/2009 – 09/30/2014, National Science Foundation Grant # EPS-0903806 (\$140,000). Principal investigator for sub-award.
- “Environmental DNA (eDNA) sampling as a non-invasive monitoring tool for threatened and endangered species: Experimental studies using Topeka shiners (*Notropis topeka*),” 10/10/2012 – 5/31/2014, Kansas Department of Wildlife Parks & Tourism (\$46,576). Co-investigator with D. Huggins, PI, D. Baker, F. deNoyelles, and M. Grose.
- “Feedstock to tailpipe initiative: Kansas biofuels production, testing and certification laboratory,” 01/01/2010 – 12/31/2013, Department of Energy Award # EE-0000408 (\$1,236,950). Co-investigator with S. Williams, PI, and C. Depcik.
- “RET: Shaping inquiry from feedstock to tailpipe (SHIFT),” 09/01/2009 – 08/31/2013, National Science Foundation Grant # EEC-0909100 (\$499,477). Co-investigator with S. Williams, PI, L. Blair, C. Bode, C. Depcik, D. Lane, V. Smith, A. Scurto, L. Weatherley, N. Brunsell, S. Billings, and E. Peltier.
- “Feasibility of renewable feedstocks for production of bio-jet fuel,” 01/01/2011 – 6/31/2013, National Aeronautics and Space Administration Grant #NNX07AO27A, Subaward #SUB3138-17 and Kansas Technology Enterprise Corporation (\$468,561). Principal investigator with co-investigators S. Williams, E. Peltier, and R. Taghavi.
- “KU Biofuels Feedstock to Tailpipe Initiative,” 10/01/2008 – 5/15/2013, US Department of Transportation Grant # DT0S59-06-G-00047, Kansas University Transportation Research Institute (\$845,714). Co-investigator with S. Williams, PI, F. deNoyelles, C. Depcik, V. Smith, A. Scurto, L. Weatherley, N. Brunsell, S. Billings, and E. Peltier.
- “Food vs. Fuel: Kansas farmer’s decisions to grow crops for transport fuels,” 8/2009 - 8/2010, US Department of Transportation Grant # DT0S59-06-G-00047, Kansas University Transportation Research Institute (\$153,392). Co-investigator with D. Earnhart, PI, C. Brown, J. Feddema, J. Gibson-Carpenter, E. Hanley, and S. White.
- “Feasibility of biological production of hydrogen from wastewater by a two-stage fermentation process,” 8/2007 - 8/2008, US Department of Transportation Grant # DT0S59-06-G-00047, Kansas University Transportation Research Institute (\$54,954). Principal investigator.
- “Fate of pathogens in transportation runoff and stormwater collection systems,” 8/2007 - 7/2008, US Department of Transportation Grant # DT0S59-06-G-00047, Kansas University Transportation Research Institute (\$53,662). Principal investigator.
- Black & Veatch gift to support wastewater treatment research, 3/2007 - 3/2008, Black & Veatch Engineering firm, Kansas City, MO (\$25,000). Principal investigator.

### **Internal Grants**

- “Creating a Center for Metagenomic Microbial Community Analysis,” 3/01/2014 – 8/31/2017, University of Kansas Provost’s Strategic Initiative Grant, Level One (\$299,925). Principal investigator with S. Billings, S. MacDonald, J. Roberts, and B. Sikes.

- “Sustainable Hydrocarbon Recovery in Unconventional Reservoirs,” 3/01/2014 – 2/28/2016, University of Kansas Provost’s Strategic Initiative Grant, Level One (\$299,000). Co-investigator with J-T. Liang, PI, C. Berkland, R. Barati, J-S. Tsau, S. Johnson, T. Peltier, and K. Peltier.
- “Combining engineering, public health, anthropological, geographic, and film knowledge for sustainable development among the Ch’orti’ Maya of Guatemala,” 5/10/2013 – 6/09/2014, University of Kansas Commons (\$25,000). Co-investigator with B. Metz, PI, A. Viera, J. Gentry, and A. Mladenov.
- “Social and environmental determinants of health for the Ch’orti’ Maya,” 05/01/2012 – 04/31/2013, Latin Americanist Research Cluster Award, University of Kansas (\$5,000). Co-investigator with B. Metz, PI, P. Herlihy, and J. Gentry.
- “Distinguishing the influence of ammonia oxidizing bacteria or abiotic reactors in the degradation of synthetic estrogens (EE2),” 7/2009 - 6/2010, University of Kansas General Research Fund #2301215 (\$6,890). Principal investigator.
- “A pilot project: maximizing the lipid content of algal growth for downstream biodiesel production,” 7/2008 - 6/2009, University of Kansas General Research Fund #2301326 (\$8,116). Principal investigator.
- “Investigating the impact of sludge residence times on microbial diversity and reactor stability under stressed conditions,” 4/2007 - 4/2009, University of Kansas General Research Fund (\$7,887). Principal investigator.

## **TEACHING**

### **Courses Taught**

CE 477	Introduction to Environmental Engineering
CE 573/773	Biological Principles of Environmental Engineering Processes
CE 871	Fundamentals of Bioremediation
CE 876	Wastewater Treatment Plant Design
CE 550/850	Life Cycle Assessment
ENVR 702	Energy, Ecology & Community in Kansas

### **Doctoral Students Advised**

1. Zhengxi Li, Environmental Engineering, began August 2019, Current.
2. Sirwan Alimoradi, Environmental Engineering, began August 2015, Current.
3. Rasha Faraj, Environmental Engineering, began January 2015, Current.
4. Abdullah Ibrahim, Environmental Engineering, began January 2014, Current. Co-advised with Dr. Edward Peltier.
5. Robert Hable, Chemical Engineering, December 2018. Co-advised with Dr. Susan Williams.
6. Mariela Mosquera, Environmental Science, January 2016 – May 2018. Incomplete.
7. Jodi Gentry, Environmental Engineering, began January 2010 – 2014. Incomplete.
8. Bob Everhart, Environmental Engineering, December 2015.
9. Lindsey Witthaus Yasarer, Environmental Science, August 2015.
10. Marie-Odile Fortier, Environmental Engineering, August 2015.

### **Masters Students Advised**

1. Omolola Odunola, Environmental Engineering, January 2020.
2. Boshra Alfowzan, Environmental Engineering, December 2019.

3. Chelsea Linvill, Environmental Science, Current.
4. Mai Bui, Environmental Engineering, August 2018.
5. Andrew Hummel, Environmental Engineering, May 2019.
6. Jennifer Warren, Environmental Engineering, May 2019.
7. Tyler Mayo, Environmental Engineering, May 2019.
8. Cordell Viehweg, Environmental Science, December 2018.
9. Shashi Khambampati, Environmental Engineering, completed coursework May 2017.
10. Theresa Amante, Environmental Engineering, December 2017.
11. Samruddhi Vinayak, Environmental Engineering, August 2017.
12. Rachel Swezy, Environmental Engineering, May 2016.
13. Matthew Herynk, Environmental Science, December 2015.
14. Ammar Al Zarjawi, Environmental Engineering, May 2017.
15. Rasha Faraj, Environmental Engineering, May 2014.
16. Babak Mardan Doost, Environmental Engineering, May 2015.
17. Roopa Matole, Environmental Engineering, December 2014.
18. Christine Polo, Environmental Engineering, December 2014.
19. Richard Gui, Environmental Science, December 2014.
20. Guo (Sarah) Chen, Environmental Engineering, December 2013.
21. Jaci Ferguson, Environmental Engineering, December 2013.
22. Jennifer Raney, Environmental Science, December 2012.
23. Lindsey Witthaus, Environmental Science, May 2012.
24. Ryan Coiner, Bioengineering, December 2011.
25. Stacey Lamer, Environmental Engineering, May 2011.
26. Reuben Dermeyer, Civil Engineering (Water Resources), August 2011.
27. Lindsey Bergsven, Environmental Engineering, December 2010.
28. Mauricio Antezana, Chemical Engineering, May 2011.
29. Jason Koontz, Environmental Science, August 2010.
30. Gustavo Queiroz, Environmental Engineering, May 2010.
31. Pat Owens, Environmental Science, August 2009.
32. Xi Chen, Environmental Science, August 2009.
33. Erin Bellassai, Environmental Engineering, May 2009.
34. Maritza Yanez Navarrete, Environmental Science, May 2009.
35. Jeff Barnard, Civil Engineering, December 2008.
36. Wen Zhang, Environmental Engineering, August 2008.
37. Chris Finn, Environmental Engineering, May 2007.
38. Lu Yi, November 2003.

#### **Undergraduate Student Research Advised**

1. Kathryn Rasmussen, B.S., Civil Engineering, environmental emphasis, Spring 2019 – current.
2. Megan Wittman, B.S., Chemical Engineering, environmental emphasis, Summer 2019 – current.
3. Amelia Wyndrum, B.S., Biochemistry, Fall 2018 – current.
4. Anna Barreda, B.S., Civil Engineering, environmental emphasis, May 2018 – December 2018.
5. Edward Darbro, B.S., Chemical Engineering, environmental emphasis, May 2018 – current.

6. Sydney Gard, B.S., Civil Engineering, environmental emphasis, December 2017 – current.
7. Adrian Romero, B.S., Chemical Engineering, January 2018 – current.
8. Juan Pablo Ramirez Mantilla, B.S., Mechanical Engineering, August 2017 – current.
9. Hannah Stohr, B.S., Chemical Engineering, environmental emphasis, August 2017 – current.
10. Abigail Bradshaw, B.S., Civil Engineering, environmental emphasis, December 2017 – May 2018.
11. Sam Nixon, B.S., Civil Engineering, environmental emphasis, December 2017 – May 2018.
12. Andrew Finley, B.S., Chemical Engineering, environmental emphasis, May – December 2017.
13. Colton Kenner, B.S., Civil Engineering, environmental emphasis, August 2016 – May 2017.
14. Miranda Mendiola, B.S., Chemical Engineering, January 2016 – August 2016.
15. Russell Epperson, B.S., Chemical Engineering, Summer 2015 – May 2016.
16. Rogelio Preschard, B.S., Civil Engineering, environmental emphasis, January 2016 – May 2017.
17. Jennifer Warren, B.S., Civil Engineering, environmental emphasis, August 2015 – May 2017.
18. Savannah Probasco, B.S., Chemical Engineering, August – December 2015.
19. Ryan Magner, B.S., Chemical Engineering, Summer 2015.
20. William O'Fill, B.S., Chemical Engineering, Summer 2015.
21. Abigail Perkins, B.S., Chemical Engineering, January 2015 – current.
22. Kyle Harrigan, B.S., Chemical Engineering, August 2014 – May 2015.
23. David Tyndall, B.S., Environmental Science, Haskell Indian Nations University, October 2014 – May 2016.
24. Theresa Amante, B.S., Civil Engineering, environmental emphasis, February 2014 – August 2015.
25. Brett Wagner, B.S., Civil Engineering, environmental emphasis, August 2012 – May 2016.  
National Science Foundation Graduate Research Fellowship recipient (2016).
26. Emily Cook, B.S., Civil Engineering with environmental emphasis, August 2012 – May 2015.
27. Malcolm Squire, B.S., University of Minnesota, Summer 2014.
28. Katie Legenski, B.S., Chemical Engineering, Pennsylvania State University, Summer 2014.
29. Luigi Basalo, B.S., Civil Engineering, environmental emphasis, May 2012 – December 2013.
30. Emanuel Di Stasio, B.S., Mechanical Engineering, Loyola Marymount University, Summer 2013.
31. Daniel Calzadilla, B.S., Chemical Engineering, SUNY-Buffalo, Summer 2013.
32. Corinne Finley, B.S., Chemical Engineering, University of Maine, Summer 2012.
33. Cody Siroka, B.S., Chemical Engineering, University of Massachusetts - Amherst, Summer 2012.
34. Elizabeth Murray, B.S., Chemical Engineering, Columbia University, Summer 2012.
35. Matt Crawford, B.S., Engineering Physics, University Kansas, Summer 2012.
36. Alex Keeling, B.S., Chemical Engineering, Syracuse University, Summer 2012.
37. Cale Mages, B.S., Civil Engineering with environmental emphasis, May 2012 - August 2012.
38. Alahmadi, Mala, B.S., Civil Engineering, September 2011 – December 2011.
39. Quent Cole, B.S., Civil, Civil Engineering with environmental emphasis, June 2011 – June 2012.
40. Chloe Wooldridge, B.S., Civil Engineering with environmental emphasis, November 2010 – May 2012. National Science Foundation Graduate Research Fellowship recipient (2013).
41. Brent Gerard, B.S., Civil Engineering, September 2010 – December 2010.
42. Brandon Westemeyer, B.S., Chemical Engineering, May 2010 – August 2010.
43. Amanda Roden, B.S., Chemical Engineering, August 2009 – December 2010.
44. John Sullivan, B.S., Chemical Engineering, August 2009 – August 2010.
45. Vinur Kaul, B.S., Civil Engineering, August 2009 – May 2010.
46. Daniel Klapper, B.S., Chemical Engineering, May 2009 – May 2010.

47. Matt Hiatt, B.S., Civil Engineering with environmental emphasis, May 2009 – May 2011.  
National Science Foundation Graduate Research Fellowship recipient (2012).
48. Ryan Coiner, B.S., Chemical Engineering, January 2009 – May 2010.
49. Amanda Green, B.S., Civil Engineering, December 2007 – August 2010.
50. Gillian Johnston, B.S., Biology, March 2009 – August 2009.
51. Jonathon Holmes, B.S., Chemical Engineering, August 2008 – June 2009
52. Joe Day, B.S., Chemical Engineering, May 2008 – October 2008.
53. Seth Motes, B.S., Chemical Engineering, March 2008 – December 2009.
54. Nicole Carroll, B.S., Civil Engineering, September 2007 -May 2008.

## **COMMUNITY AND UNIVERSITY SERVICE**

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### **University of Kansas**

- Vice Provost for Undergraduate Studies, Search Member (Fall 2019 – Current)
- Director of Research Development, Office of Research, Search Committee Chair (Fall 2019)
- University Faculty Senate Research Committee, Ex-Officio (Fall 2018 – Current)
- University Conflict of Interest Committee, Ex-Officio (Fall 2018 – Current)
- Federal Demonstration Partnership, University Faculty Representative (Fall 2018 – Current)
- University Faculty Development Liaison (Fall 2018 – Current)
- NSF Broader Impacts Writing Workshop Planning Committee, Member (Fall 2018 – Spring 2019)
- Kansas Geological Survey Deputy Director Search Committee, Member (Fall 2018 – Spring 2019)
- Office of Research Director of External Affairs Search Committee, Chair (Fall 2018 – Spring 2019)
- Alcohol Sales Policy Review Committee, Member (2017 - 2018)
- Ad-hoc Insurance Review Committee, Member (2017)
- University Faculty Senate, Member (2015 - 2018)
- University Faculty Senate Research committee, Member (2013 - 2016)
- Center for Teaching Excellence, Departmental Ambassador (2008 - 2016)
- National Science Foundation, Innovations in Food Energy & Water Design Workshop, Organizing committee member (2015 - 2016)
- University Sabbatical Leave committee, Member (2013 - 2015)
- Big 12 Universities Water Workshop, Leader of the Nutrients and Trace Contaminants Workshop, Task Force Chair (Fall 2014)
- Aquatic Ecology faculty search committee, KBS/CLAS, Member (Fall 2013 - Spring 2015)
- Vice Chancellor for Research Search Committee, Member (Spring 2014 - Fall 2014)
- KU Water Research Planning committee, Member (2013 - 2014)
- Fulbright Scholars evaluation and interview committee, Member (2012 - 2014)
- Center for Research on Global Change, C-Change project, Faculty Advisor. (2007 - 2014)
- McNair Scholars Program, Mentor (Spring 2014 - Summer 2014)
- Center for Teaching Excellence Peer Triad member, Member (Spring 2014)
- Water Research Workshop, Organizer (September 13, 2013)
- Center for Teaching Excellence GTA workshop, Presenter (2008, 2012, 2014)
- Sustainability Curriculum & Research committee, Member (2010 - 2012)
- “Water Initiative” for the University Strategic Planning process, Co-Author (2011)
- KU Teaching Summit, Presenter (2010)

Sustainability in Education Group, KU Sustainability Master Plan, Member (2008 - 2010)  
University Graduate Teaching Award, Reviewer (2008)  
Best Practices Institute, Center for Teaching Excellence, Fellow (2007 - 2008)  
Midwestern Association of Graduate Schools, Thesis reviewer (2007)

### **School of Engineering**

Chair Five Year Review committee, Member (2018)  
School of Engineering Academic Standards Committee (2016 – 2018)  
LEEP2 Building Analytical Core Lab Committee, Member (2012 - 2015)  
LEEP2 Building Unit Ops/ Environmental Teaching Lab Committee, Member (2012 - 2015)  
Graduate Engineering Association Presentation Competition, Judge (April 10, 2014)  
NIST Building Committee, Member (2009 - 2013)  
Water Theme Leader, Strategic Planning Committee, Leader (2010 - 2012)  
SOE Annual Teaching Workshop, Presenter (2010)  
Engineer Your Career Outreach Program, Presenter (2009 - 2010)  
Dept of Chemical & Petroleum Engr Undergraduate Research Presentations, Judge (2009)  
Mechanical Engineering Senior Design Team, Advisor (2008 - 2009)  
Society of Women Engineering Weekend Camps, Presenter (2007 - 2009)  
Graduate Research Poster Competition, Judge (2008)  
Environmental engineering laboratories, Design Director (2006 - 2007)

### **Department of Civil, Environmental & Architectural Engineering**

KU Environmental Engineering Conference Organizing Committee Chair (2020 – Current)  
American Society for Civil Engineering KU Student Chapter, Co-Advisor (2019 – Current)  
Environmental Engineering Faculty Search committee, Member (2017 - 2018)  
Curriculum committee, Member (2013 - 2018)  
Association of Water and Environment, Faculty Advisor (2011 - Current)  
Environmental Science and Engr annual student poster competition, Coordinator (2011 – 2015)  
Scholarship committee, Member (2011 - 2019)  
Environmental engineering laboratory safety, Coordinator (Fall 2008 - Current)  
KU Environmental Engineering Conference Organizing Committee (2007 - Current)  
Transportation faculty search committee. Member (2013 - 2014)  
Website Development, Member (2013 - 2014)  
Environmental Engineering and Science seminar, Organizer (2011 - 2012)  
CEAE Chair Search Committee, Member (2007 - 2008)  
ABET Assessment Planning Committee, Member (2006)