

Curriculum Vitae

Name: Joel Ducoste

Date: 10/6/2021

BRIEF RESUME:

1. Include Education (Degrees, Dates, Institutions, Locations):

Ph.D., Environmental Engineering, 1996, University of Illinois, Urbana-Champaign, IL
M.Eng., Mechanical Engineering, 1989, Rensselaer Polytechnic Institute, Troy, NY
B.S., Mechanical Engineering, 1988, Rensselaer Polytechnic Institute, Troy, NY

2. Professional Experience (Titles, Organizations, Locations, Dates of Employment):

Interim Associate Dean of Faculty Advancement, COE, 7/20-Present
Assistant Dean of Graduate Student Advancement, COE, 1/19-7/20
Director of College Graduate Student Recruitment and Advancement, NCSU, 1/18-1/19
Professor of Civil Engineering, North Carolina State University, 8/10 – Present
Associate Professor of Civil Engineering, North Carolina State University, 8/04 – 8/10
Assistant Professor of Civil Engineering, North Carolina State University, 8/98 – 8/04
Water Treatment Process Engineer, CH2M HILL, 1996-1998
Graduate Research Assistant, University of Illinois, 1991-1996
Manufacturing Engineer, GE Aircraft Engines, 1989-1991

3. Scholarly and creative activities: (INSTRUCTION: ADD/DELETE ACTIVITY TYPES TO THE LIST BELOW AS APPLICABLE; USE THE TAB KEY TO ADD ADDITIONAL ROWS; [ACTIVITY TYPE EXAMPLES](#)) (ITEMS IN BOLD DISPLAY CATEGORIES WITH SIGNIFICANT CHANGE SINCE LAST PA2 PERIOD)

<i>Type</i>	<i>Number</i>
Refereed Journal Article (Published)	87
Refereed Journal Editorial (Published)	4
Refereed Journal Article (Submitted or in revision)	2
Edited Special Issue Refereed Journal (Published)	1
Technical Report, Refereed	8
Conference Proceeding, Refereed	1
Conference Proceeding Edited Book, Refereed	1
Non-Refereed Journal Article (Published)	3
Conference Proceedings/Abstracts	90
Research Presentation, Invited (without paper)	73
Conference Presentations (without paper)	52

4. Professional Society Memberships:

- 1) Member, American Academy of Environmental Engineers and Scientists (2016-Present)
- 2) Member, Water Environment Federation (2011-Present)
- 3) Member, International Ultraviolet Association (2006-2018)
- 4) Member, American Water Works Association (1992-Present)

- 5) Member, Association of Environmental Engineering and Science Professor (1999-Present)
- 6) Member, National Society of Professional Engineers (1991-2002)
- 7) Member, American Society of Engineering Education (2003-2005)

5. Scholarly and Professional Honors:

<i>Fair Distinguished Engineering Educator Medal WEF</i>	2021
<i>AEESP Distinguished Service Award (President and BOD)</i>	2021
<i>Elected Fellow of Water Environment Federation</i>	2020
<i>Finalist for University Undergraduate Academic Advising award DASA</i>	2020
<i>WEFTEC Interactive Knowledge Exchange Video award</i>	2019
<i>(https://www.youtube.com/playlist?list=PLLeo-tHuuDoa54IfYSQxxlejLAhCVQHho)</i>	
<i>Academy of Excellence in Global Engagement Member</i>	2019
<i>Keynote Speaker 34th Annual NC ONSITE Water Protection Conference</i>	2018
<i>COE Blessis Undergraduate Advising Award</i>	2018
<i>American Academy of Environmental Engineering and Science Excellence in Environmental Engineering and Science University Research Honor Award</i>	2017
<i>Board certified environmental engineer through eminence</i>	2016
<i>Keynote Speaker British Water FOG Forum, Cranfield UK</i>	2015
<i>NSF Advance Scholar Leadership Program</i>	2012
<i>National Academy of Engineering KECKs Future Initiative Symposium Participant</i> (100 engineers selected to join)	2011
<i>NSF Advance Scholar</i>	2009
<i>National Academy of Engineering Frontier of Engineering Japan Symposium Participant</i> (30 engineers selected from the USA to join 30 from Japan)	2008
<i>Fulbright Fellow</i> (Council for International Exchange of Scholars award)	2006
<i>FWO Visiting Faculty Scholar at Ghent University, Belgium</i> (Visiting research award provided by the National Science Foundation, Belgium)	2006
<i>NSF Career Award</i> (The award is the highest honor given by NSF to young university faculty in science and engineering)	2001
<i>Ralph Metcalfe Chair for Minority Scholars at Marquette University</i> (Visiting lecturer award)	2000
(The primary purpose of the Metcalfe Chair is to bring to Marquette University outstanding African-American and other minority scholars and professionals to interact with and enrich the academic life of Marquette University's students and faculty)	

Professional Licenses: Engineer-in-Training: Ohio, 1991

6. Professional service on campus: (INSTRUCTION: LIST ONE ON-CAMPUS SERVICE PER LINE, INCLUDE SERVICE DATES; NOTE LEADERSHIP ROLE IF HELD, E.G., CHAIR, CO-CHAIR, ETC.)

North Carolina State University and College of Engineering Committees:

- 1) NC-AGEP Fellow program (2021-2023)
- 2) University Budget Advisory Committee (2020-2021)
- 3) University Strategic Plan Taskforce: Advancing Inclusion and Well-Being to Enhance Excellence (2019-2020)
- 4) University Graduate Diversity Equity and Inclusion Committee (Chair) (2019-Present)

- 5) College of Engineering RPT Committee (Chair 2018-2020) (2017-2020)
- 6) University Reappointment, Promotion, and Tenure (RPT) Committee (2016-2018)
- 7) University Mentor Ring Program (2015-2017)
- 8) College of Engineering Leadership Review Committee (2015-2016)
- 9) University Lifelong Faculty Involvement Committee (2015-2018)
- 10) University Diversity Advisory Committee (UDAC) (2014-2016)
- 11) University Faculty Liaison (OIED) (2014-2016)
- 12) College of Engineering Faculty Development & Special Initiatives Faculty Development Committee (2008-2016)
- 13) NSF Advance Scholar (Part of Developing Diverse Departments (3-D) program at NC STATE <http://www.ncsu.edu/odi/advance/>) (2009-2012)

In addition to the above activities, I am involved in college and university activities that focus on broadening participation and inclusion of underrepresented groups in STEM, graduate programs, and faculty positions. These activities include the following:

- Building Future Faculty Program: Provided lectures to visiting scholars in the program
- Participated in Graduate School mentoring of new faculty and post-doctoral scholars related selecting and advising graduate students
- Provided a lecture to the new AGEP-NC Faculty Fellows about the culture of inclusion and strategies on broadening participation of underrepresented students in STEM
- Organized LSAMP BD Visitation Program and am director of BD program
- Part of a university committee (currently chair) through the graduate school that is exploring collective strategies on broadening participation through recruitment and retention programs. Committee participants come from COE, CALS, CHSS, CVM, CoED, CNR, Provost office
- Completed Inclusive Excellence Certificate Program 2020-2021, NCSU OIED
- Member of 3rd NC-AGEP Cohort of Fellows Program 2021-2023

Civil, Construction, Environmental Department Committees:

- 1) EWC Graduate Applications distribution Masters Level (2017-2018)
- 2) CCEE Diversity and Recruiting Committee (Chair 2016-2018) (2016-Present)
- 3) CCEE Energy Cluster Search Committee member (2015-2017)
- 4) CCEE RPT committee (Chair, 2012-2016) (2010-2017)
- 5) ABET Design Committee Chair (2013-2016)
- 6) ABET ENE Coordinator (2006-2012)
- 7) ABET subcommittee member (2005-2010)
- 8) Seminar committee member (2005-2007)
- 9) Awards committee member (2005-2009)
- 10) Executive Committee Member (2005-2006)
- 11) Engineering Open House (1998-1999)
- 12) ABET Subcommittee: Senior Design and Lab (2001-2004)
- 13) Lab Equipment Committee (1999-2010)
- 14) Hydraulics Lab Director (Mann 108)(FWH 1351) (2002-Present)
- 15) WREE group coordinator (2004-2006)

7. Professional service off campus:

- 1) Editorial Advisory Board Member, Journal of Environmental Science: Water Research and Technology, RSC (2021-Present)
- 2) NC LSAMP Advisory Board (2019-Present)
- 3) EPA Board of Scientific Counselors Safe and Sustainable water Resources Sub-committee (2018-Present)
- 4) External Advisory board CAEE Dept. NC A&T University (2017-2020)
- 5) AEESP Board of Directors (Elected by Peers) (Vice President, President elect, President, Past President) (2017-Present)
- 6) Member, International Association of Plumbing and Mechanical Officials (IAPMO) standards committee (2016-2020)
- 7) AEESP Environmental Engineering Program representative for CCEE (2016-2018)
- 8) AEESP Membership and Demographics Committee, (chair in 2016) (2015-2017)
- 9) Member, Exploris Middle School Educational Excellence Committee (2014-2015)
- 10) Member, EPA SAB Hydraulic Fracturing Advisory Panel (2013-2016)
- 11) IWA CFD Working Group (2013-2020)
- 12) Board Member, Chartered EPA Science Advisory Board (2012-2018)
- 13) Board Member, International UV Association (2011-2018)
- 14) Adhoc Member, EPA SAB Environmental Economics Advisory Committee (2011-2012)
- 15) Member, WEF FOG Collection Systems Committee (2010-2012)
- 16) Board Member, EPA Science Advisory Board Drinking Water Com. (2009-2015)
- 17) Board Member, EPA SAB Science Technology Awards Committee (2009-2012)
- 18) North Carolina House of Representative Offshore Energy Exploration Study Committee (2009-2010)
- 19) Board Member, North Carolina Fulbright Association (Treasurer) (2008-2021)
- 20) Editorial Board Member, Journal of Environment Engineering ASCE (2007-2015)
- 21) International Population Balance Modeling Organizing Committee (2002-2009)
- 22) International Population Balance Modeling Scientific Committee (2002-2010)

Scholarship In The Realms Of Faculty Responsibility

- A. **Scholarly Accomplishments** - Publications (original research articles and research review articles in peer-reviewed journals, research abstracts, books), invited and uninvited research presentations, appointments or election to study sections and editorial boards.

Journal publications (Peer-reviewed)

Published

- 1) Rivera, A.M.Z , Ducoste, J.J., Peña, M.R., Portapila. M., 2021, Characterizing the Transport of Suspended Solids in a Secondary Facultative Lagoon Using Computational Fluid Dynamics, Water, Accepted
- 2) *Karam, AL, *Lai, Y., de los Reyes III, FL , Ducoste, JJ, 2021, Chlorophyll a and non-pigmented biomass are sufficient predictors for estimating light attenuation during cultivation of Dunaliella viridis, Algal Research, Volume 55, DOI:10.1016/J.ALGAL.2021.102283
- 3) Narode, A., Pour-Ghaz, M., Ducoste, J.J., Barlaz, M.A., 2021, Measurement of heat release during hydration and carbonation of ash disposed in landfills using an isothermal calorimeter, Waste Management, 124, 348-355
- 4) Wu, J., Liu Z., Wan, J., Zhang, M., Ducoste, J.J., 2021, The effect of activated sludge floc morphology on the measurement of biomass half-saturation coefficient: a 2D CFD biofilm model-based evaluation and experimental verification, Biochemical Engineering Journal, 1, 107931. <https://doi.org/10.1016/j.bej.2021.107931>
- 5) Bouteh, B., Ahmadi, N, Abbasi, M, Torabian, A, van Loosdrecht, MCM, Ducoste J.J., 2021, Biodegradation of organophosphorus pesticides in Moving Bed Biofilm Reactors: Analysis of microbial community and biodegradation pathways, Journal of Hazardous Materials, 408, DOI: 10.1016/j.hazmat.2020.124950
- 6) *Kusum, S. A., Pour-Ghaz, M., & Ducoste, J. J., 2020, Reducing fat, oil, and grease (FOG) deposits formation and adhesion on sewer collection system structures through the use of fly ash replaced cement-based materials, Water Research, 186, 116304. <https://doi.org/10.1016/j.watres.2020.116304>
- 7) *Hao, Z., Barlaz, M. A., & Ducoste, J. J., 2020, Finite-Element Modeling of Landfills to Estimate Heat Generation, Transport, and Accumulation, Journal of Geotechnical and Geoenvironmental Engineering. [https://doi.org/10.1061/\(ASCE\)GT.1943-5606.0002403](https://doi.org/10.1061/(ASCE)GT.1943-5606.0002403)
- 8) Eslamiamirabadi, M. , Burton, J.D. , de los Reyes III, F.L. , Ducoste, J. J., 2020 Assessment of Alternative Herbicides for Residential Sewer Root Treatment and their Effects on Downstream Treatment Plant Nitrification, Journal of Environmental Management, 258, 110058. <https://doi.org/10.1016/j.jenvman.2019.110058>
- 9) Wu, J., de los Reyes III, F.L., Ducoste, J.J., 2020, Modeling cell aggregate morphology during aerobic granulation in activated sludge processes reveals the combined effect of substrate and shear, Water Research, 170, 115384. <https://doi.org/10.1016/j.watres.2019.115384>

- 10) Wang, L., Hossen, E., Aziz, T.N., Ducoste, J., de los Reyes III, F.L., 2020, Increased loading stress leads to convergence of microbial communities and high methane yields in adapted anaerobic co-digesters, Water Research, 169 (1)
<https://doi.org/10.1016/j.watres.2019.115155>
- 11) Wang, D., Lai, Y., Karam, A.L., de los Reyes III, F.L., Ducoste, J., 2019, Dynamic Modeling of Microalgae Growth and Lipid Production under Transient Light and Nitrogen Conditions, Environ. Sci. Technol. 2019, 53, 19, 11560-11568
- 12) Lai, Y., Karam, A., Sederoff, H., Ducoste, J., de los Reyes III, 2019, Relating nitrogen concentrations and continuous light intensity data on the growth and lipid accumulation of Dunaliella viridis in a photobioreactor, Journal of Applied Phycology,
<https://doi.org/10.1007/s10811-019-01897-4>
- 13) Koryachko, A., Matthiadis, A., Hague, S., Muhammad, D., Ducoste, J., Tuck, J., Long, T., Williams, C., 2019, Dynamic modeling of the iron deficiency modulated transcriptome response in Arabidopsis thaliana roots, in silico Plants, Volume 1, Issue 1, diz005, <https://doi.org/10.1093/insilicoplants/diz005>
- 14) Weaver, J., J.C. Williams, J. Ducoste, and F. L. de los Reyes III, 2019, Measuring the shape and size of activated sludge particles immobilized in agar with an open source software pipeline. Journal of Visualized Experiments. e58963, doi:10.3791/58963)
- 15) Monroe, J., J. Ducoste, and E. Berglund, 2019, Genetic Algorithm–Genetic Programming Approach to Identify Hierarchical Models for Ultraviolet Disinfection Reactors, Journal of Environmental Engineering, 145(2), [https://doi.org/10.1061/\(ASCE\)EE.1943-7870.0001492](https://doi.org/10.1061/(ASCE)EE.1943-7870.0001492).
- 16) Weaver, JE, Hong, H., Ducoste, JJ, de los Reyes III, FL, 2018, Controlling aerobic biological floc size using Couette-Taylor Bioreactors, Water research 147, 177-183
- 17) Wang, J., Matthews, M., Naik, P., Williams, C., Ducoste, J., Sederoff, R., Chiang, V., 2019, Flux modeling for Monolignol Biosynthesis, Current Opinion in Biotechnology 2019, 56:187–192
- 18) Karam, AL, de los Reyes III, FL , Ducoste, JJ, 2018, Development of Photochemical Microsensors for Evaluating Photosynthetic Light Dose Distributions in Microalgal Photobioreactors, Environmental science & technology 52 (21), 12538-12545
- 19) Wang, J., Matthews, M, Williams, C, Shi, R, Yang, C, Tunlaya-Anukit, S, Chen, H, Li, Q, Liu, J, Lin, C, Naik, P, Sun, Y, Loziuk, P, Yeh, T, Kim, H, Gjersing, E, Shollenberger, T, Shuford, C, Song, J, Miller, Z, Huang, Y, Edmunds, C, Liu, B, Sun, Y, Lin, Y, Li, W, Chen, H, Peszlen, Y, Ducoste, J, Ralph, J, Chang, H, Muddiman, D, Davis, M, Smith, C, Isik, F, Sederoff, R, Chiang, V, 2018, Improving wood properties for wood utilization through multi-omics integration in lignin biosynthesis Nature Communications, DOI: 10.1038/s41467-018-03863-z
- 20) Naik PP, Wang JP, Williams CM, Sederoff RR, Chiang VL, Ducoste JJ, 2018, Assessing The Impact of The 4CL Enzyme Complex on The Robustness of Monolignol Biosynthesis using Metabolic Pathway Analysis, PLOS ONE 13(3): e0193896. <https://doi.org/10.1371/journal.pone.0193896>
- 21) Blaney, L., Perlinger, J.A., Bartelt-Hunt, S.L., Kandiah, R., Ducoste J.J., 2017, Another Grand Challenge – Diversity in Environmental Engineering, Environmental Engineering Science, DOI: 10.1089/ees.2017.0337

- 22) Hao, Z., Sun, M., Ducoste, J., Benson, C.H., Luettich, S., Castaldi, M., Barlaz, M.A., 2017, Heat Generation and Accumulation in Municipal Solid Waste Landfills, Environmental Science and Technology, DOI: 10.1021/acs.est.7b01844
- 23) He, X., de los Reyes III, Ducoste, J.J., 2017, A Critical Review of Fat, Oil, and Grease (FOG) in Sewer Collection Systems: Challenges and Control, Critical Reviews in Environmental Science and Technology, <http://dx.doi.org/10.1080/10643389.2017.1382282>
- 24) Wang JP, Tunlaya-Anukit S, Shi R, Yeh TF, Chuang L, Isik F, Yang C, Liu J, Li Q, Loziuk PL, Naik PP, Muddiman DC, Ducoste JJ, Williams CM, Sederoff RR, Chiang VL, 2017, A proteomic based quantitative analysis of the relationship between monolignol biosynthetic protein abundance and lignin content using transgenic *Populus trichocarpa* In: Quideau S & Yoshida K (eds) *Recent Advances in Polyphenol Research, Volume 5*, <https://doi.org/10.1002/9781118883303.ch4>
- 25) Karam, A., McMillan, C., Lai, Y., de los Reyes, F., Sederoff, H., Grunden, A., Ranjithan, R., Levis, J., Ducoste, J., 2017, Construction and Setup of a Bench Scale Algal Photosynthetic Bioreactor with Temperature, Light, pH Monitoring for Kinetic Growth Tests, Journal of Visual Experimentation, 124, DOI: doi:10.3791/55545, URL: <https://www.jove.com/video/55545>
- 26) Yousefelahiyeh, R., Dominic, C.C.S., Ducoste, J., 2017, Modeling Fats, Oil, and Grease Deposit Formation and Accumulation in Sewer Collection Systems, Journal of Hydroinformatics 19.3: 443-455.
- 27) Hao, Z., Malyala, D, Dean, L, Ducoste, J, 2017, Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy for determination of Long Chain Free Fatty Acid concentration in oily wastewater using the double wavenumber extrapolation technique, Talanta, (165), pp 526-532
- 28) Samstag, R.W., Ducoste, J. J., Griborio, A., Nopens, I., Batstone, D.J., Wicks, J.D., Saunders, S., Wicklein, E.A., Kenny, G., Laurent, J., 2016, CFD for Wastewater Treatment: An Overview, Water Science and Technology, 74(3), pp 549-563
- 29) Blaney, L., Kandiah, R., Ducoste, J., Perlinger, J., Bartelt-Hunt, S., 2016, Assessing the Growth and Demographics of Environmental Engineering from 2005-2013, Environmental Engineering Science, 33(8), pp 578-590
- 30) Xiong, J., Fu, D., Singh, R.P., Ducoste, J.J., 2016, Structural Characteristics and Development of the Cake Layer in a Dynamic Membrane Bioreactor, Journal Separation and Purification Technology, 167, pp 88-96
- 31) Iasmin, M., Dean, L., Ducoste, J., 2016, Quantifying Fat, Oil, and Grease Deposit Formation Kinetics, Water Research, 88(1), pp 786-795
- 32) Wicklein, E., Batstone, D., Ducoste, J., Laurent, J., Griborio, A., Wicks, J., Samstag, R., Saunders S., Potier, O., Nopens, I., 2016, Good Modeling Practice in Applying Computational Fluid Dynamics for WWTP Modeling, Water Science & Technology, 73(5), pp 969-982
- 33) Jenny, R., Jasper, M., Simmons, O.D., Shatolov, M., Ducoste, J., 2015, Heuristic Optimization of a Continuous Flow Point of Use UV-LED Disinfection Reactor using Computational Fluid Dynamics, Water Research, 83: 310-318

- 34) Koryachko, A., Matthiadis, A., Muhammad, D., Foret, J., Brady, S.M., Ducoste, J., Tuck, J., Long, T., Williams, C., 2015, Clustering and Differential Alignment Algorithm: Identification of Early Stage Regulators in the Arabidopsis thaliana Iron Deficiency Response, Plos one, Vol 3-4, pp 20-29
- 35) Koryachko, A., Matthiadis, A., Ducoste, J., Tuck, J., Long, T., Williams, C., 2015, Computational approaches to identify regulators of plant stress response using high-throughput gene expression data, Current Plant Biology, Vol 3-4, pp 20-29
- 36) Ducoste, J., Alpert, S., 2015, Computational Fluid Dynamics Modeling Alternatives for UV-Initiated Advanced Oxidation Processes, Water Quality Research Journal of Canada, 50(1), pp 4-20
- 37) Nopens, I., Torfs, E., Ducoste, J., Vanrolleghem, P., Gernaey, K., 2015, Population balance models: a useful complementary modelling framework for future WWTP modelling, Water Science & Technology, Vol 71 No 2 pp 159–167
- 38) Laurent, J., Samstag, R., Ducoste, J., Griborio, A., Nopens, I., Batstone, D., Wicks, J., Saunders S., Potier, O., 2014, A protocol for the use of computational fluid dynamics as a supportive tool for wastewater treatment plant modelling, Water Science & Technology, Vol 70 No 10 pp 1575–1584
- 39) Jenny, R., Simmons, O.D., Shatolov, M., Ducoste, J., 2014, Modeling a Continuous Flow Ultraviolet Light Emitting Diode Reactor using Computational Fluid Dynamics, Chemical Engineering Science, 116: 524-535
- 40) Fu, D., Singh, R.P., Kai, H., Ducoste, J.J., 2014, Enhanced Nitrogen Removal by Rice Husk Amended Dynamic Membrane Bioreactor, Journal of Env Eng ASCE, 140(11), DOI: 10.1061/(ASCE)EE.1943-7870.0000840
- 41) Chen, H., Song, J., Wang, J.P., Lin, Y., Ducoste, J., Shuford, C.M., Liu, J., Li, Q., Shi, R., Nepomuceno, A., Isik, F., Muddiman, D.C., Williams, C., Sederoff, R.R., Chiang, V.L., 2014, Systems Biology of Lignin Biosynthesis in *Populus trichocarpa*: Heteromeric 4-Coumaric Acid:Coenzyme A Ligase Protein Complex Formation, Regulation, and Numerical Modeling, Plant Cell, doi: <http://dx.doi.org/10.1105/tpc.113.119685>
- 42) Wang, J.P., Naik, P.P., Chen, H., Shi, R., Lin, C., Liu, J., Shuford, C.M., Li, Q., Sun, Y.H., Tunlaya-Anukit, S., Williams, C.M., Muddiman, D.C., Ducoste, J.J., Sederoff, R.R., Chiang, V.L., 2014, Complete Proteomic-Based Enzyme Reaction and Inhibition Kinetics Reveal How Monolignol Biosynthetic Enzyme Families Affect Metabolic Flux and Lignin in *Populus trichocarpa*, Plant Cell, doi: <http://dx.doi.org/10.1105/tpc.113.120881>
- 43) Iasmin, M., Dean, L., Lappi, S., Ducoste, J., 2014, Factors that influence the Properties of FOG deposit formation in sewer collection systems, Water Research, 49(1), pp 92-102
- 44) Dominic, C., Szakasits, M., Dean, L., Ducoste, J., 2013, Understanding the Spatial Formation and Accumulation of Fats, Oils, and Grease Deposits in the Sewer Collection System, Water Science and Technology, 68(8) pp 1830–1836
- 45) He, X., Iasmin, M., Dean, L., Lappi, S., de los Reyes, F.L., Ducoste, J., 2013, Mechanisms of Fat, Oil, and Grease Deposit Formation in Sewer Lines, Water Research, (47) 13, pp. 4451-4459

- 46) Chen, H.C., Song, J., Williams, C.M., Shuford, C.M., Liu, J., Wang, J.P., Li, Q., Shi, R., Gokce, E., Ducoste, J., Muddiman, D.C., Sederoff, R.R., Chiang, V.C., 2013, Monolignol Pathway 4-Coumaric Acid:Coenzyme A Ligases in *Populus trichocarpa*: Novel Specificity, Metabolic Regulation, and Simulation of Coenzyme A Ligation Fluxes, *Plant Physiology*, Vol. 161, pp. 1501-1516
- 47) Long, H., Aziz, T., de los Reyes, F. L., Ducoste, J., 2012, Anaerobic Co-Digestion of Fat, Oil, and Grease (FOG): A Review of Gas Production and Process Limitations, *Process Safety and Environmental Protection*, 90(3), pp. 231-245 (Top 5 most highly cited article)
- 48) Aziz, T., Keener, K., Holt, L., Groninger, J., Ducoste, J.J., 2012, Field Characterization Of Grease Abatement Devices, *Water Environment Research*, 84(3), 237-246
- 49) Olukanni, D., Ducoste, J., 2011, Optimization of Waste Stabilization Pond Design for Developing Nations using Computational Fluid Dynamics, *Journal of Ecological Engineering*, 37, pp. 1878-1888
- 50) He, X., Iasmin, M., Dean, L., Lappi, S., Ducoste, J., de los Reyes, F.L., 2011, Evidence for fat, oil and grease (FOG) deposit formation mechanisms in sewer lines, *Environmental Science and Technology*, 45(10):4385-91
- 51) Hubbe, M.A., Hasan, S.H., Ducoste, J.J., 2011, Cellulosic Substrates for Removal of Pollutants from Aqueous Systems: A Review 1. Metals, *Bioresources* 6(2), 2161-2287
- 52) Gallimore, E., Aziz, T., Mohvahed, Z., Ducoste, J., 2011 Assessment of Internal and External Grease Interceptor Performance for Removal of Food Based Fats, Oil, and Grease from Food Service Establishments, *Water Environment Research*, 83(9):882-92
- 53) Bowker C., Sain. A., Shatolov, M., and Ducoste. J., 2011, Microbial UV Fluence-Response Assessment using a Novel UV-LED Collimated Beam System, *Water Research*, 45(5), pp. 2011-2019
- 54) Vallabh, R., Ducoste, J., SECAM, A.F., Banks-Lee, P., 2011, Modeling Toruosity in Fibrous Porous Media using Computational Fluid Dynamics, *Journal of Porous Media*, 14(9), pp. 791-804
- 55) Aziz, T., Keener, K., Holt, L., Ducoste, J.J., 2011, Performance of Grease Abatement Devices for Removal of Fat, Oil, and Grease, *Journal of Environmental Engineering ASCE*, 137(1), pp. 84-92
- 56) Santoro, D., Raisee, M., Moghaddami, M., Ducoste, J., Sasges, M., Liberti, L., Notarnicola, M., 2010, Modeling Hydroxyl Radical Distribution and Tri-alkyl Phosphates Oxidation in UV-H₂O₂ Photoreactors using Computational Fluid Dynamics, *Environmental Science and Technology*, 44, pp 6233-6241
- 57) Alpert, S., Knappe, D., Ducoste, J.J., 2010, Modeling of UV/Hydrogen Peroxide Advanced Oxidation Processes using Computational Fluid Dynamics, *Water Research*, 44 (6), pp. 1797-1808
- 58) Zhao, Xi, Alpert, S., Ducoste, J., 2009, Assessing the Impact of Upstream Hydraulics on the Dose Distribution of UV Reactors using Fluorescence Microspheres and Computational Fluid Dynamics, *Environmental Engineering Science*, Vol 26, 5, pp. 947-959

- 59) Keener, K.K., Ducoste, J.J., Holt, L. M., 2008, Properties Influencing FOG Deposit Formation, Water Environment Research, 80(12):2241-6
- 60) Richards, B., Ducoste, J.J., 2008, Application of Non-Biological Surrogates for Analysis of Sequential Disinfection Continuous Flow systems, Journal of Water Supply and Research, AQUA, 57(4), pp 225-238
- 61) Liu, D., Ducoste, J.J., Wu, C., Linden, K.G., 2007, Numerical Simulation of UV Disinfection Reactors: Evaluation of Alternative Turbulence Models, Applied Mathematical Modeling, 31, pp. 1753-1769
- 62) Prat, O., Ducoste, J.J., 2007, Simulation of Flocculation in Stirred Vessels: Eulerian vs. Lagrangian Approaches, Trans IChemE, 85(A2): 207-219
- 63) Bohrerova Z., Mamane, H, J. Ducoste, K. G. Linden, 2006, Comparative inactivation of *Bacillus subtilis* spores and MS-2 coliphage in a UV reactor: implications for validation, Journal of Environmental Engineering ASCE, 132, pp 1554-1561
- 64) Mamane, H, Ducoste, J.J and Linden, K.G, 2006, Impact of Particles on UVC Light Penetration in Natural and Engineered Systems, Applied Optics, 45(8), 1844-1856
- 65) Prat, O.P., Ducoste, J.J., 2006, Modeling Spatial Distribution of Floc size in Turbulent Processes Using Quadrature Method of Moment and Computational Fluid Dynamics, Chemical Engineering Science, 61(1), pp. 75-86
- 66) Liu, Y., J.J., Ducoste, 2006, Impact of turbulent mixing on the CFD chloramine model performance, Environmental Engineering Science, 23(2), pp. 341-356
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- 1) Ducoste*, J.J., Malmrose, P., Weil, G., Beacham, T., 1999, Determining Design Criteria for New WTP Solids Handling Facility, AWWA/WEF Residuals and Biosolids conference, Charlotte, NC.

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- 2) Kusum, S., Pour-Ghaz, M., Ducoste, J., 2020, Evaluation of Fly Ash as a cement replacement to reduce sewer collection system infrastructure maintenance and enhance sustainability, WRI Annual Conference, March 18-19, Raleigh NC (Conference Cancelled)
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- 82) *Ducoste, J.J., Daigger, G.T., Smith, R., 1999, Evaluation of Stacked Secondary Clarifier Design using Computational Fluid Dynamics, Proceedings Water Environment Federation Technology Conference, New Orleans, LA., 10 pgs.
- 83) *Peplinski, D. and Ducoste, J.J., 1999, Enhancement of Computational Fluid dynamics (CFD) Modeling of Clearwell Performance, Proceedings NCAWWA/WEA Conference, Asheville, NC., 10 pgs.
- 84) *Ducoste, J.J. and Brauer, R., 1999, Computational Fluid Dynamics Model of WTP Clearwell: Evaluation of Critical Parameters Influencing Model Performance, Proceedings, ASCE-CSCE Environmental Engineering Conference, Norfolk, VA., 10 pgs.
- 85) *Carlson, K.H., Bellamy, W., Pier, D., Ducoste, J., Carlson, M., 1999, Implementation of the Integrated Disinfection Design Framework, Proceedings American Water Works Association National Conference, Chicago, IL., 10 pgs.
- 86) *Ducoste, J.J. and Clark, M.M. 1997, The Influence of Tank Size and Impeller Type on Floc Size Distribution, Proceedings of the American Water Works Association National Conference, Atlanta, Georgia., 10 pgs.
- 87) *Hagstrom, J.P., Crozes, G., Reddy, S., Verghes, V., Clark, M.M., Ducoste, J.J., Burns, C. 1997, The Use of Computational Fluid Dynamics for Improving Clearwell Design for CT

- Compliance, Proceedings of the American Water Works Association Computer Conference, Austin, Texas., 10 pgs.
- 88) *Crozes, G., Hagstrom, J.P., Clark, M.M., Ducoste, J.J., Hermanowicz, S.W., Huntamer, J., 1996, Hydraulic Modeling for Improved CT Contactor Design, Proceedings of the American Water Works Association Annual Conference, Toronto, Ontario, 10 pgs.
- 89) *Clark, M.M. and Ducoste, J.J. 1996, A Journey in Understanding Mixing and Flocculation, Proceedings of the American Water Works Association Virginia Section, Williamsburg, Virginia., 1 pg.
- 90) *Ducoste, J.J., Clark, M.M., Weetman, R.J., 1995, The Evaluation of the Fluid Mechanics Generated in the Flocculation Process: Effects of Tank Size and Impeller Type, Proceedings of the American Water Works Association National Conference, Anaheim, California, 10 pgs.

Invited Presentations (No Paper)

- 1) Ducoste, J.J., Understanding the Generation of Elevated Temperature Landfills through Finite Element Modeling, University of Florida Virtual Presentation April 2021
- 2) Ducoste, J.J., 2021, Ding Ding Ding, Fatberg right ahead!: The challenges of sewer collection system sustainability and dealing with fats, oils, and grease discharge, Drexel university Virtual Presentation March 2021
- 3) Ducoste, J.J., 2020, Clearing the Haze from Grease Interceptor Design, WEAT CMOM Virtual Conference, August 27
- 4) Ducoste, J.J., 2020, Improving Diversity in Environmental Engineering and Science, CentrEau Webinar, Laval University August 6
- 5) Ducoste, J.J., 2020, Changing the Tide of Post Tenure Review, ASEE Virtual Annual Conference, June 24
- 6) Ducoste, J.J., 2020, Successfully Obtaining Tenure and Promotion at an R1 University, Preparing Future Minority Faculty (PFMF) 2020 Symposium, NC A&T, May 14
- 7) Ducoste, J.J., 2020, Explaining the Formation of Elevated Temperatures in Municipal Solid Waste Landfills, Southern Methodist University, February 12, Dallas TX
- 8) Ducoste, J.J., 2019, Tips on Successfully Navigating Graduate School, Florida International University, Miami, FL, October 18
- 9) Ducoste, J.J., 2019, Full of Gold (FOG): Identifying value added initiatives for Fats, oil, and Grease waste streams, WEAT CMOM Conference, Austin, TX August 19-
- 10) Ducoste, J.J., 2019, Designing Efficient Grease Abatement Systems, National Precast Concrete Association Annual Conference, Louisville, KY, March 2
- 11) Ducoste, J.J., 2018, A life's Journey in Being a Transformative Agent of Change, Florida State University, Tallahassee, FL, November 19

- 12) Ducoste, J.J., 2018, The Art of a graduate school Application: What's in the mind of Faculty, University of Alabama Huntsville, AL, November 13
- 13) Ducoste, J.J., 2018, Tips/information to successfully navigate graduate school Application/Decision and Fellowship Opportunities, University of North Carolina Charlotte, NC, October 30
- 14) Ducoste, J.J., 2018, Tips/information to successfully navigate graduate school Application/Decision and Fellowship Opportunities, St Augustine College, Raleigh, NC, October 25
- 15) Ducoste, J.J., 2018, Assessing Surface Characteristics to reduce the adhesion of Fats, Oils, and Grease Deposits, North Carolina ONSITE Water Protection Conference, October 16, (Keynote Speaker)
- 16) Ducoste, J.J., 2018, Slip Sliding away: Minimizing FOG Deposit Adhesion to Sewer Surfaces, August 16, CMOM Conference, Austin, TX August 20
- 17) Ducoste, J.J., 2018, Development of Photochemical Microsensors for Evaluating Light Distributions within Algal Photosynthetic Bioreactors, Clemson University, Clemson, SC April 13
- 18) Ducoste, J.J., 2018, Building your Academic Brand, Academic and Research Leadership Network Symposium, Pittsburgh, PA, March 23-24
- 19) Ducoste, J.J., 2017, Raising the Value of Water: A strategy for Greater Public Health Protection, Seminar at Shaw University, Raleigh, NC
- 20) Ducoste, J.J., 2017, Drinking Water Treatment: What Happens from Source to Tap, Seminar at St Augustine University, Raleigh, NC
- 21) Ducoste, J.J., 2017, Holy Dish Pan Hands Batman, there are Soaps in the Sewers: Fats, Oil, and Grease Issues in Sewer Systems, Seminar at University of South Florida, Tampa, FL
- 22) Ducoste, J.J., 2016, Grease Removal Devices: Challenges in the Removal of FOG Emulsions and the Impact of Food Service Establishment Operations, 32 Annual Onsite Water Protection Conference, Raleigh, NC
- 23) Ducoste, J.J., 2016, Game Changer: A New Technique for Measuring the Performance of Grease Interceptors, CMOM Conference, Austin, TX
- 24) Ducoste, J.J., 2016, Drinking Water Treatment: What Happens from Source to Tap, Durham Technical Community College, Durham NC
- 25) Ducoste, J.J., 2015, Internal and External Grease Interceptors: Challenges in the Removal of FOG Emulsions and the Impact of Food Service Establishment Kitchen Operations, Keynote Speaker, FOG New Times New Solutions Conference Cranfield University UK

- 26) Ducoste, J.J., 2015, How Restaurant Kitchen Practices Influence FOG Deposit Formation in Sewer Collection Systems, Invited Presentation, CMOM Conference, Austin, TX
- 27) Ducoste, J.J., 2014, Evaluation of Alternative Herbicides for Root Control: Should we be worried about their impact on Wastewater Treatment Plants?, Invited Presentation, CMOM Conference, Austin, TX
- 28) Ducoste, J.J., 2014, Data and CFD to Compare Horizontal and Vertical/enclosed UV Reactors, IUVA Specialty Conference UV Disinfection for Wastewater and Reuse Program, Irvine, CA
- 29) Ducoste, J.J., 2013, New Tools to Assess the Potential Risk of FOG deposit Accumulation in a Wastewater Collection System, Invited Presentation, CMOM Conference, Austin, TX
- 30) Ducoste, J.J., 2012, Modeling the removal of EDC chemicals using Advance Oxidation, WEFTEC, New Orleans, LA
- 31) Ducoste, J.J., 2012, Fat, Oil, and Grease (FOG) in Sanitary Sewer Systems: Factors that influence Deposit formation, Invited Presentation at NC Annual Onsite Water Protection Conference, Raleigh NC
- 32) Ducoste, J.J., 2012, Chemical and Hydraulic Factors that influence the formation of FOG Deposits in Sewer Collection Systems, Invited Presentation, CMOM Conference, Austin, TX
- 33) Ducoste, J.J., 2012, Modeling Advance Oxidation Processes for Optimizing Reactor Performance, Invited Presentation, IUVA Conference, Washington, DC
- 34) Ducoste, J.J., 2012, Numerical Approach to Modeling UV Disinfection Processes: A State of the Art Review, Southeast University, Nanjing, PR China
- 35) Ducoste, J.J., 2012, Using Computational Fluid Dynamics Modeling to guide design decisions, AWWA UVCFD Presentation Sue Bach Email, Dallas, TX, June 10-14
- 36) Ducoste, J.J., 2011, Fat, Roots, Oil, and Grease (FROG) in Sanitary Sewer Systems: Is a Sustainable Sewer system in Jeopardy, Invited Presentation at NC Annual Onsite Water Protection Conference, Raleigh NC
- 37) Ducoste, J.J., 2011, Velocity Profiles and their Relevance in UV Reactor Validation, IUVA workshop, Tracy CA,
- 38) Ducoste, J.J., 2010, Fat, Roots, Oil, and Grease (FROG) in Sanitary Sewer Systems: Is a Sustainable Sewer system in Jeopardy, Invited Presentation at NC Annual Onsite Water Protection Conference, Raleigh NC
- 39) Ducoste, J.J., 2010, Can CFD Answer Hydraulic Questions and make Validation more broadly applicable?, Invited Presentation at AWWA Nation Conference Workshop: UV Today – Ten Years Post-*Cryptosporidium*– Myths and Reality

- 40) Ducoste, J.J., 2010, Fats Roots Oil and Grease in US Sewer Systems: An overview, Invited Presentation at FOGS Buildup and Removal: Problems and Solutions Workshop Cranfield University, UK
- 41) Ducoste, J.J., 2010, Simulating the UV/H₂O₂ Advanced Oxidation Process using Computational Fluid Dynamics, Invited Presentation, Rensselaer Polytechnic Institute, Troy, NY
- 42) Ducoste, J.J., 2010, Grease Interceptors vs Under the Sink Grease Traps: Who won the Taste Test of Removing influent Fats, Oils, and Grease, Invited Presentation, CMOM Conference, Austin, TX
- 43) Ducoste, J.J., 2009, Assessment of Root Control Methods and Root Regrowth in a Pilot Scale Sanitary Sewer, Invited Presentation, CMOM Conference, Austin, TX
- 44) Ducoste, J.J., 2009, Analysis of Field Grease Interceptors, Invited Presentation, CMOM Conference, Austin, TX
- 45) Ducoste, J.J., 2009, The Intricacies of Analyzing/Designing Ultraviolet UV Disinfection Reactors using CFD, Invited Presentation, Water Reuse Workshop, Polytechnic University at Bari, Taranto, Italy
- 46) Ducoste, J.J., 2009, Population Balance Modeling in CFD Simulations, Invited Presentation, Water Reuse Workshop, Polytechnic University at Bari, Taranto, Italy
- 47) Ducoste, J.J., 2009, Computational Fluid Dynamics Modeling for Unit Process simulations in Drinking Water Treatment, Invited Presentation, Water Reuse Workshop, Polytechnic University at Bari, Taranto, Italy
- 48) Ducoste, J.J., 2009, Analysis of Fat, Oil, and Grease (FOG) in Sanitary Sewer Systems: Challenges to a Sustainable system, Invited Presentation, Villanova University, Villanova, PA
- 49) Ducoste, J.J., 2009, CFD Modeling for UV Disinfection and UV-Initiated Advanced Oxidation Processes, Invited Presentation, Disinfection 2009, Atlanta, GA
- 50) Ducoste, J.J., 2009, Simulating Ultraviolet Advance Oxidation Processes in Continuous Flow UV Reactors, Invited Presentation, University of Michigan, Ann Arbor, MI
- 51) Ducoste, J.J., 2008, Analysis of FOG and Roots in Sewer Collection systems, Invited Presentation, Water Environment Research Foundation Forum, Clearwater Beach, FL
- 52) Ducoste, J.J., 2008, Analysis and Design of Grease Interceptors, Invited Presentation, Water Environment Technology Conference, Workshop 115, Chicago, IL
- 53) Ducoste, J.J., 2008, FAT, Roots, Oil, and Grease (FROG) in Sanitary Sewers: Results from a Recent WERF Sponsored Study, Invited Presentation, Water Environment Research Foundation Webinar
- 54) Ducoste, J.J., 2008, An Introduction to Population Balance Modeling, Invited Presentation, MBR Training Seminar, Ghent University, Belgium

- 55) Ducoste, J.J., 2008, An Overview of Computational Fluid Dynamics Modeling, Invited Presentation, MBR Training Seminar, Ghent University, Belgium
- 56) Ducoste, J.J., 2008, Some Thoughts on CFD Modeling for Membrane Bioreactor Processes, Invited Presentation, 2nd Workshop CFD Modeling for MBR Applications, Ghent University, Belgium
- 57) Ducoste, J.J., 2008, Analysis of FAT, Roots, Oil, and Grease (FROG) in Sanitary Sewers, Invited Presentation, CMOM Conference, Austin, TX
- 58) Ducoste, J.J., 2008, Modeling UV reactors in Drinking Water Systems, Invited Presentation, Chemical Engineering Department, Mississippi State University
- 59) Ducoste, J.J., 2008, Analysis of Grease Interceptors for the Removal of FAT, Oil, and Grease (FOG): Are they Sufficient to Stop FOG related Sanitary Sewer Overflows, Invited Presentation, Civil and Environmental Engineering Department, Arizona State University
- 60) Ducoste, J.J., 2008, Analysis of Fat, Oil, and Grease Deposits in Sanitary Sewer Systems, Invited Presentation at Borchardt Conference, University of Michigan, Ann Arbor, MI
- 61) Ducoste, J.J., 2006, Modeling the Regulatory Behavior of *E coli* in Heterogeneous Substrate Environment, University of Ghent, Belgium, Biomath Department
- 62) Ducoste, J.J., 2006, Modeling Flocculation in Secondary Clarifiers using Quadrature Method of Moments, Water Environment Federation Technology (Weftec) Workshop, Dallas, Texas.
- 63) Ducoste, J.J., 2006, The Impact of Upstream turbulence characteristics on Ultraviolet (UV) Disinfection Reactors Performance, Invited Presentation at Purdue University, Department of Chemical Engineering
- 64) Ducoste, J.J., 2005, The Intricacies of Designing Ultraviolet (UV) Disinfection Reactors using Numerical Models, Invited Presentation at ATLANTIUM LTD, Har Tuv, Israel
- 65) Ducoste, J.J., 2005, Simulation of Flocculation in Stirred Vessels using Quadrature Method of Moments: Evaluation of Lagrangian versus Eulerian Approaches, Invited Presentation at Department for Applied Mathematics, Biometrics and Process Control, Ghent University, Ghent, Belgium
- 66) Ducoste, J.J., 2005, Impact of Upstream Hydraulic Structures on UV Reactor Performance, Invited Presentation at Borchardt Conference, University of Michigan, Ann Arbor, MI
- 67) Ducoste, J.J., 2004, Numerical Prediction of the Reduction Equivalent Fluence Bias, Invited Presentation at Degremont North American Research & Development Center, Richmond, VA
- 68) Ducoste, J.J., 2004, Characterization of Dose Distribution in UV Reactors, Invited Presentation at Pennsylvania State University Department of Civil Engineering

- 69) Ducoste, J.J., 2003, The Intricacies of using Numerical Models for Analyzing/Designing Ultraviolet UV Disinfection Reactors, Invited Presentation at North Carolina Central University Environmental Engineering Science Program
- 70) Ducoste, J.J., 2001, An Overview of Computational Fluid Dynamics Modeling for Evaluation of Water and Wastewater Treatment Process Performance, Invited Presentation at Duke University Department of Civil and Environmental engineering
- 71) Ducoste, J.J., 2000, Modeling Flocculation in Water Treatment Processes: Impact of Tank Size and Impeller Configuration, Invited Presentation, Engineering Foundation on Population Balance Modeling of Particulate Systems, Kailua-Kona, Hawaii. (A portion of the invited speakers conference fees are waived by the conference organizers.)
- 72) Ducoste, J.J., 2000, IDDF Approach to Enhanced Reactor Hydraulic Characterization, Invited Presentation, Department of Civil and Environmental Engineering, Marquette University, (Seminar part of the Metcalf Chair)
- 73) Ducoste, J.J., 2000, Water Scarcity in the 21st Century: Has Time Come for Water Reuse, Invited Presentation, Public Forum at Marquette University, (Seminar part of the Metcalf Chair)

Presentations (No Paper) (* = Presenter)

- 1) Weaver, J., de los Reyes, F., Ducoste, J.J., 2021, Modeling environmental bioreactors treating wastewater by integrating biological processes, floc microenvironments, and computational fluid dynamics, Early Career Research Conference, June 15-19 Virtual
- 2) Kusum, S.A., Pour-Ghaz, M., Ducoste, J.J., 2021, Surface Factors that Influence the Formation and Adhesion of Fat, Oil, and Grease (FOG) Deposits, WRII Annual Conference. A Virtual Event, 25-26 March.
- 3) Wang, D., Lai, Y., Karam, A.L., de los Reyes, III, F.L., and Ducoste, J.J., Algae Dynamic and functional modeling of carbon metabolism in photosynthetic microalgae, 10th Algal Biomass, Biofuels and Bioproducts Conference, June 16, 2021
- 4) Karam, A., de los Reyes, F., Ducoste, J., 2019, Evaluation of alternative light models for estimating light attenuation during microalgal cultivation, AEESP 2019 Research and Education Conference, Arizona State University, May 14-16, Tempe, AZ
- 5) *Hao, Z., Ducoste, J., Barlaz, M., 2018, A Spatial Variation Model Describing Generation, Accumulation, and Propagation of Heat in Municipal Solid, Global Waste Management Symposium, Indian Wells CA Feb 11-14
- 6) *Cranos Williams, Alexandr Koryachko, Anna Matthiadis, Durreshahwar Muhammad, Siobhan M. Brady, Joel Ducoste, James Tuck, Terri A. Long, 2017, Integrative Dynamic Modeling Using Diverse Biological Datasets, Crops In Silico Symposium and Workshop, University of Oxford, UK, June 12.
- 7) *Karam, A.L., Ducoste, J.J., de los Reyes III, F.L., 2017, Development of Photochemical Microsensors for Evaluating Light Distribution within Microalgal Photosynthetic Bioreactors, AEESP Conference, Ann Arbor Michigan, June 22-24

- 8) *de los Reyes, F. L. III, L. Wang, P. Shen, J. Yeh, T. Aziz, and J. Ducoste (2016). Directing microbial community assembly in anaerobic reactors: implications for increasing methane yields and improving start-up. WRRRI Conference, March 17-18, 2016, Raleigh, NC
- 9) *Hao, Z., Sun, M., Ducoste, J., Barlaz, M., Benson, C., Castaldi, M., Luettich, 2016, Understanding and Predicting Temperatures in Municipal Solid Waste Landfills, Global Waste Management Symposium, January 31-February 3, Indian Wells, CA
- 10) *Cranos Williams, Alexandr Koryachko, Anna Matthiadis, Durreshahwar Muhammad, Jessica Foret, Siobhan M. Brady, Joel Ducoste, James Tuck, Terri A. Long., 2016, “Clustering and Differential Alignment Algorithm: Identification of Early Stage Regulators in the A. thaliana Iron Deficiency Response.” Pittcon Conference, Atlanta, GA, March 2016.
- 11) Anna Matthiadis, Alexandr Koryachko, Durreshahwar Muhammad, Jessica Foret, Siobhan M. Brady, Joel Ducoste, James Tuck, Cranos Williams, and Terri A. Long., 2016, “Computational prediction of regulatory relationships: New players in the Arabidopsis thaliana iron deficiency response.” Salt & Minerals Symposium, American Society of Plant Biology (ASPB) Annual Meeting, Austin, TX, July 2016.
- 12) *Wang, L., Hossen, E., Aziz, T.N., Ducoste, J., de los Reyes, F.L., 2015, How to train your digester - Using step and pulse feeding of grease waste to increase community resistance and methane yield above 336%, Student Platform Presentation Speaker, Air & Waste Management Association (A&WMA), 108th Annual Conference & Exhibition, Raleigh NC
- 13) *Wang, L., Hossen, E., Aziz, T.N., Ducoste, J., de los Reyes, F.L., 2015, How to train your digester - Step and pulse feeding of grease interceptor waste increased community resistance and methane yield by up to 350%, “Fresh Ideas” Poster session, Annual Conference & Exposition (ACE), American Water Works Association (AWWA), Anaheim, California
- 14) Anna Matthiadis, Alexandr Koryachko, Durreshahwar Muhammad, Jessica Foret, Siobhan M. Brady, Joel Ducoste, James Tuck, Cranos Williams, and Terri A. Long., 2015, Algorithm application to identify novel regulators in the Arabidopsis thaliana iron deficiency response. Systems Biology and New Approaches Session, International Conference on Arabidopsis Research (ICAR), Paris, France, July, 2015.
- 15) Anna Matthiadis, Alexandr Koryachko, Durreshahwar Muhammad, Jessica Foret, Siobhan M. Brady, Joel Ducoste, James Tuck, Cranos Williams, and Terri A. Long. “Algorithm application to identify novel regulators in the Arabidopsis thaliana iron deficiency response.” Ionomics Workshop, International Conference on Arabidopsis Research (ICAR), Paris, France, July, 2015
- 16) Wang, L., Hossen, E.H., Aziz, T.N., Ducoste, J., Bullard, M., de los Reyes, F.L., 2014, Step and Pulse Feeding Of Anaerobic Co-Digesters Treating Thickened Waste Activated Sludge and Grease Interceptor Waste, Water Resources Research Institute Annual Conference, Raleigh, NC, March 19
- 17) Anna Matthiadis, Alexandr Koryachko, Durreshahwar Muhammad, Joel Ducoste, James Tuck, Cranos Williams, and Terri Long., 2014, “Using a systems biology approach to identify key transcriptional regulators in the Arabidopsis thaliana iron deficiency response.” 9th International BioMetals Symposium, Poster Presentation, Duke University, July 2014.

- 18) Weaver, J., Ducoste, J., de los Reyes, F.L., 2014, Influencing Aerobic Granulation through Variable Shear in an Eccentric Couette Micro-Reactor, NC AWWA/WEA Conference, Winston Salem NC, Nov 16-19
- 19) *He, X., Ducoste, J., de los Reyes, F., 2012, A Comprehensive Mechanistic Model Showing How Fat, Oil, and Grease (FOG) Deposits Form in Sewer Lines, NC AWWA-WEA Annual Conference Raleigh, NC., Nov. 11-14
- 20) *Wang, Y., Ducoste, J., Challenges in the Measurements of Fat, Oil and Grease in Food Service Establishment Waste Streams, 2012, NC AWWA-WEA Annual Conference Raleigh, NC., Nov. 11-14
- 21) *Song, J., Chen, H., Shuford, C.M., Li, Q., Shi, R., Muddiman, D.C., Williams, C.M., Ducoste, J., Sederoff, R.R., Chiang, V.L., 2012, Mechanistic Modeling Frameworks for Multiple Enzyme Regulation in Metabolic Pathway, KSEA South Atlantic Regional Conference, Nov 15-17
- 22) *Aziz, T.N., Wang, L., Long, J.H., Ducoste, J.J., de los Reyes, III, F.L., 2012, Sustainable Energy from Grease Interceptor Waste Co-Digestion, NC AWWA-WEA Annual Conference Raleigh, NC., Nov. 11-14
- 23) *Iasmin, M., Ducoste, J., 2012, Factors that Influence the Physical and Chemical Characteristics of Fat, Oil, and Grease Deposits in Sewer Systems, North Carolina Water Resources Research Institute, March 28
- 24) *He, X., de los Reyes, F.L., Ducoste, J., 2012, How do Fat, Oil, and Grease Deposits form in Sewer Lines, North Carolina Water Resources Research Institute, March 28
- 25) Aziz*, T.N., Long, J.H., Wang, L., de los Reyes, F.L., Ducoste, J.J., 2012, Exploring Sustainable Energy from Grease Interceptor Waste, WRRRI Annual Conference & NCWRA Symposium, Raleigh, NC.
- 26) *Williams, C.M., Chen, H., Song, J., Ducoste, J., Shuford, C.M., Li, Q., Liu, J., Shi, R., Muddiman, D.C., Sederoff, R.R., Chiang, V.L., 2012, Predictive Models of Regulatory and Metabolic Pathways for Monoglignol Biosynthesis in *Populus trichocarpa*, Plant & Animal Genome XX Conference, Jan. 14-18, San Diego, CA
- 27) *He, X., Ducoste, J., de los Reyes, F.L., 2011., How are Fat, Oil and Grease (FOG) Deposits Formed in Sewer Lines?, NCAWWA/WEA, Nov 15,16, Winston-Salem, NC
- 28) *Karami, B., de los Reyes, F., Ducoste, J., 2011, Studying Formation of Nitrifying Aerobic Granules and Effect of Shear Distribution on Granulation NCAWWA/WEA, Nov 15,16, Winston-Salem, NC
- 29) *Arafin, M., Ducoste, J., 2011, Modeling and experimental Evaluation of UV LED Reactor using Computational Fluid Dynamics (Poster), NCAWWA/WEA, Nov 15,16, Winston-Salem, NC (3rd prize award)
- 30) *Ducoste, J., 2011, Water and Waster Treatment Process on Steriods: Using Computational Fluid Dynamics to Drive out Unit Process Inefficiencies, KECKS Futures Initiative, Nov 10-13, Irvine, CA

- 31) Sobriminsana*, Ducoste, de los Reyes, 2011, Combining CFD, floc dynamics, and biological reaction kinetics to model carbon and nitrogen removal in an activated sludge system, WRRRI, March 21, Raleigh, NC
- 32) Gallimore*, Ducoste, Assessment of Grease Abatement Systems, WEF Sewer Collection System Conference, NCAWWA/WEA, Nov 15,16, Winston-Salem, NC
- 33) Vallabh, R., Seyam, A.M.*, Banks-Lee, and Ducoste, J., Tortuosity in Fibrous Porous Media, the Proceedings of the 7th International Conference of Textile Research Division, National Research Center, Cairo, Egypt, October 10-12, 2010.
- 34) Vallabh, R., Seyam, A.M.*, Banks-Lee, and Ducoste, J., Tortuosity of Nonwoven Structures, the 7th International Conference of Textile Research Division, National Research Center, Cairo, Egypt, October 10-12, 2010.
- 35) Vincent Chiang*, Ron Sederoff, John Ralph, Joel Ducoste, Fikret Isik, Cranos Williams, David Muddiman, Lignin proteome, metabolome, enzymology, biochemistry, transgenics, structural chemistry, and systems modeling, Forest Biotechnology Industry Research Consortium (FORBIRC) Annual Meeting McKimmon Center, NCSU, May 26-28, 2010
- 36) Cranos Williams*, Joel Ducoste, Jina Song, Fikret Isik, Ron Sederoff and Vincent Chiang Predicting regulatory control of lignin biosynthesis using signaling graph methodology Forest Biotechnology Industry Research Consortium (FORBIRC) Annual Meeting McKimmon Center, NCSU, May 26-28, 2010
- 37) Joel Ducoste*, Cranos Williams, Jina Song, His-Chuan Chen, Fikret Isik, Ron Sederoff and Vincent Chiang, Regulatory constrained flux balance analysis of monolignol biosynthesis Forest Biotechnology Industry Research Consortium (FORBIRC) Annual Meeting McKimmon Center, NCSU, May 26-28, 2010
- 38) Sobriminsana*, Ducoste, de los Reyes, 2010, A Numerical Approach for Modeling Carbon and Nitrogen Removal Under the Influence of Floc Size Distribution, IWA Leading Edge Conference, Pheonix, AZ June 4-8, 2010
- 39) de los Reyes, F., *Ducoste, J., 2010, Factors Affecting the Formation of FOG Deposits in Sewer Lines, Urban Water Consortium Meeting, June 4, Raleigh NC
- 40) Xia*, Ducoste, de los Reyes, 2010, Investigating the Formation of Fat Oil and Grease Deposits in Sewer Collection Systems, WRRRI Conference, Raleigh, NC March 15....
- 41) Alpert, S. M., & Ducoste, J. J., 2009, Validation of CFD Models Simulating the UV/H₂O₂ Advanced Oxidation Process. North Carolina AWWA/WEA Annual Conference, Raleigh, NC.
- 42) *de los Reyes, F., *Ducoste, J., 2009, Factors Affecting the Formation of FOG Deposits in Sewer Lines, Urban Water Consortium Meeting, March 11, Burlington NC
- 43) *Sobremisana, A., F. L de los Reyes III, and J. J. Ducoste (2009) Simultaneous Modeling Carbon and Nitrogen Removal under the Influence of Floc Size Distribution. NC American

WaterWorks Association/Water Environment Association Annual Conference, November 15-18, Raleigh, NC

- 44) Ducoste, J., *Aziz, T., Buckley, T., Movahed, Z., Card, C., Gallimore, E., 2008, Design Considerations for Volume Based Grease Interceptors, Chesapeake Water Environment Association Conference on Collection Systems, November 14, Linthicum, MD
- 45) *Ducoste, J., 2008, Improving our Understanding of Complex Reacting Processes in Water and Wastewater Treatment through Computational Fluid Dynamics, National Academy of Engineering Frontiers of Engineering Conference, November 17-19, Kobe, Japan
- 46) *Sobrimisana A., de los Reyes, F., Ducoste, J., 2008, A Numerical Approach for Modeling Carbon and Nitrogen Removal under the Influence of Floc Size Distribution poster presentation, NCAWWA/WEA 88th Annual Conference, November 16-19, Winston Salem, NC
- 47) *Gallimore, E., Ducoste, J.J., 2008, Performance of Grease Interceptors: Evaluating Design Alternatives, poster presentation, NCAWWA/WEA 88th Annual Conference, November 16-19, Winston Salem, NC
- 48) de los Reyes, F. L., J. Ducoste, M. Hyman, C. Mota, D. Aslett, and H. Hong (2007), New Approaches in Determining the Spatial and Metabolic Interactions of Nitrogen-Transforming Bacteria in Microbial Flocs, NSF MO/MIP Meeting, Mar. 1, Washington, DC
- 49) *Liu, Y. and Ducoste. J.J., 2005, Impact of Turbulent Mixing on Chloramines Formation Proceedings Chesapeake Section AWWA Annual Conference, Dover, DE
- 50) *Richards, B., J.J., Ducoste, 2004, Characterizing Sequential Disinfection in Flow Through Systems, 4th Annual Eastern Regional Conference, New Bern. NC
- 51) *Prat, O., Ducoste, J.J., 2004, Performance Analysis of Quadrature Method of Moments (QMOM) for PBM Systems used in Assessing Flocculation Processes in Water and Wastewater Treatment, 2nd International Population Balance Modeling, Valencia, Spain May 7-9
- 52) *Ducoste, J.J., V., Ortiz, Y., Liu, 2002, A Multifluid Modeling Approach to Characterizing Chemical Dispersion in Drinking Water Treatment, Water Resources Research Institute Annual Conference, Raleigh, NC, April 9