

Innovations in Process Engineering 2021 A Virtual Event

**Conference Program
June 9-10 & 15-16**

www.wef.org/ProcessEngineering

This conference is held by the Water Environment Federation in cooperation with the Florida Water Environment Association.



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IN MEMORIAM

The Conference Co-Chairs, Steering Committee, Program Committee, and Staff would like to honor and remember our dear colleague and friend, Professor David Stensel, who passed away unexpectedly in March. He was the Chair of this inaugural WIPE conference, and his contributions to the field and this event are invaluable.



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GENERAL VIRTUAL EVENT INFORMATION

The Innovations in Process Engineering 2021 Virtual Event will be held online on an interactive platform where you'll gain access to ten Technical Sessions as well as the Opening General Session, a Technology Spotlight, Company Demos and Networking Opportunities as a part of this first-time virtual event.

Technical sessions are comprised of back-to-back, quick, and high-level presentations pre-recorded by each speaker, followed by a live roundtable facilitated discussion filling the remaining time. Real-time questions from attendees will be encouraged, and informal networking throughout each of the four days of the virtual event will be available for continued one-on-one and small group conversations. To include as many speakers as we could in Session 08, the Q&A process will be held via the chat.

Attendees should join these technical sessions from a device that can use Zoom.

Company Demos are simu-live meaning the pre-recording will be streamed automatically via Vimeo at the posted time on the session page. The Q&A process will be held via the chat.

REGISTRATION

Online registration can be completed at any time before or during Innovations in Process Engineering 2021: A Virtual Event by visiting the [Registration webpage](#).

The registration fee includes access to educational content and networking features. The preconference workshop is optional (not included).

Conference registrants will receive their username, temporary password, and [login](#) instructions from ProcessEng2021@wef.org on Monday, June 7th. If you registered on or after June 7th, your [login](#) credentials will be sent to you within an hour during from 9am-4pm ET (Monday-Friday).

For more information about registration policies, please visit the conference webpage at www.wef.org/processengineering and click the "Registration" tab.

Need help or didn't receive your login instructions? Contact ProcessEng2021@wef.org.

CONFERENCE CODE OF CONDUCT

WEF is committed to providing a professional, safe, and welcoming environment during its in-person and virtual events for all water professionals and their guests. WEF expects all attendees, speakers, sponsors, media, and other participants to uphold our commitment to diversity and inclusion by helping us provide a positive conference environment for everyone.

WEF has zero-tolerance for any form of discrimination or harassment, including but not limited to sexual harassment by participants or our staff at our meetings. WEF will take any action deemed necessary and appropriate, including immediate removal from the meeting without warning or refund, in response to any incident of unacceptable behavior, and WEF reserves the right to prohibit attendance at any future meeting, virtually or in person.

If you experience harassment or hear of any incidents of unacceptable behavior, WEF asks that you immediately email the WEF Executive Director Walter Marlowe.

Unacceptable behavior is defined as:

- Negative comments about race/ethnicity, gender and gender identity, sexual orientation, disability, age, religion, physical appearance, citizenship, or other protected categories
- Unwelcome sexual attention, including inappropriate use of nudity and/or sexual images in public spaces or in presentations
- Threatening, stalking, or endangerment of others
- Any activity meant to cultivate hostility, ad hominem insults or other attacks

We do not tolerate the following:

- Disruption of presentations during sessions, exhibitions, or at other events organized by WEF throughout the virtual meeting. All participants must comply with the instructions of the moderator and any WEF virtual event staff.
- Presentations, postings, and messages should not contain promotional materials, special offers, job offers, product announcements, or solicitation for services. WEF reserves the right to remove such messages and potentially ban sources of those solicitations.

Participants should not copy or take screen shots of any technical presentations, sponsor demonstration, Q&A or any chat room activity that takes place in the virtual space.

SESSIONS-AT-A-GLANCE

Session	Session Title	Time	CE Credits
Wednesday, June 9			
OGS	Opening General Session – Honoring Dave Stensel and David Jenkins	11:00 a.m. – 12:00 p.m. ET	N/A
Company Demos	Sponsoring companies Vaughan Company and World Water Works demonstrate the latest products, resources and problem-solvers.	12:00 p.m. – 12:30 p.m. ET	N/A
Session 1	MABR	1:00 p.m. – 2:00 p.m. ET	1.0 PDH
Session 2	PDNA	2:30 p.m. – 3:30 p.m. ET	1.0 PDH
Thursday, June 10			
Session 3	Intensification	11:00 a.m. – 12:00 p.m. ET	1.00 PDH
Session 4	Carbon Management & Diversion	1:00 p.m. – 1:30 p.m. ET	0.5 PDHs
Session 5	Disinfection, Reuse, Emerging Contaminants	2:00 p.m. – 2:30 p.m. ET	0.5 PDHs
Tuesday, June 15			
Session 6	Innovative Biosolids Treatment	11:00 a.m. – 12:00 p.m. ET	1.00 PDs
Session 7	Sidestream Treatment	1:00 p.m. – 1:30 p.m. ET	0.5 PDHs
Session 8	Novel Treatment	2:00 p.m. – 2:30 p.m. ET	0.5 PDHs
Wednesday, June 16			
Session 9	CFD Modeling	11:00 a.m. – 11:30 a.m. ET	0.5 PDHs
Technology Spotlight	Similar to mobile sessions at in-person events, technology spotlights allow companies to showcase products and services in technical and educational presentations combined with equipment or hands-on visuals. Presented by Aqseptence Group & Hydrograv GmbH, CLEARAS, and Biowaste Pyrolysis Solutions, LLC	12:00 p.m. – 1:30 p.m. ET	1.5 GCHs
Session 10	Data Analytics	2:00 p.m. – 3:00 p.m. ET	1.0 PDH

NETWORKING OPPORTUNITIES

We are utilizing [Kumospace](#) to allow for casual networking. The space will be open throughout the entire conference, so stop in any time. You can choose from any of the rooms listed and talk with people inside your sound bubble. The closer you get to a group, the louder they become. Some rooms even have music and a chance to fill up a virtual drink. Explore and see what you can do!

We encourage you to join this platform after technical sessions, technology spotlights and company demos to continue the conversation.

[Click here to download](#) tips on how to use Kumospace effectively.

WER SPECIAL ISSUE – COMING SOON!

Instead of conference proceedings, several abstracts from the program will be featured in a special issue of the peer reviewed journal *Water Environment Research* dedicated to the Innovations in Process Engineering 2021 Virtual Event. Topics covered in the special issue include process intensification, data-driven process operation and machine learning, and utilizing anammox. Keep an eye out for the special issue to be published online early next year. There are no conference proceedings associated with this conference.

CONTINUING EDUCATION

How to get your certificate?

On each session's page, you will see three tabs: session, quiz and certificate. In order to obtain your certificate, you will need to watch each session video in its entirety (on the session page), respond to attentiveness polls during the video, and pass the associated quiz with a score of 100%.

- For Professional Engineers: WEF Education and Training events are accepted in most U.S. states. WEF maintains Provider Status with several state engineering boards, including the Florida Board of Professional Engineers (FBPE) and the New York State Education Department (NYSED).
- For Professional Operators: WEF will work with attendees on specific state approvals by request.

States' licensing boards encourage licensees to familiarize themselves with credit policies and requirements and to verify which events are approved or accepted in their state(s). If you have questions about WEF's Continuing Education Program, please contact us at csc@wef.org or 1-800-666-0206.

SPONSORS

We would like to thank the following companies for their contributions to the conference and program.



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CONFERENCE SPONSORS

PRE-CONFERENCE WORKSHOP

(Additional fees apply)

Machine Learning in the Water Industry

June 8, 2021

1:00 p.m. – 4:00 p.m. ET (UTC -4)

This workshop will be held live on Zoom only and will not be recorded.

- 1:00 p.m. Welcome, Introductions, and Background**
Katya Bilyk, Hazen and Sawyer; Branko Kerkez, University of Michigan
- 1:30 p.m. Utility Case Studies**
Erika Bailey, Raleigh Water; Alexandria Gagnon, Jeff Sparks, HRSD; Kate Newhart, Denver MWRD
- 1:50 p.m. Q&A on Utility Case Studies**
- 2:00 p.m. Break**
- 2:10 p.m. Introduce Machine Learning Life Cycle**
Katya Bilyk, Hazen and Sawyer
- 2:15 p.m. Machine Learning Life Cycle Steps 1 and 2**
Alexandria Gagnon, Jeff Sparks, HRSD
- 3:20 p.m. Model Deployment and Continuous Retraining (Machine Learning Steps 3 and 4)**
Katya Bilyk, Hazen and Sawyer
- 3:35 p.m. Breakout Room for Discussion**
- 3:55 p.m. Wrap-up**
- 4:00 p.m. Workshop Adjourns**

WEDNESDAY, JUNE 9, 2021

Opening General Session

Wednesday, June 9, 2021, 11:00 a.m. – 12:00 p.m. ET (UTC -4)

In the last year our profession lost two true legends: Professors David Jenkins (University of California at Berkeley) and Dave Stensel (University of Washington). In addition to kicking off this exciting first-time WEF conference, this year's Opening Session will be a special celebration of the impact made to our field by these two great men. Highlights will include their critical contributions to activated sludge settling processes, biological nutrient removal and bioremediation. Both men were not only brilliant researchers, but they were also passionate and committed to seeing their insights through to improving design and operations in full scale systems. They were ALSO outstanding role models and nurturing mentors, not to mention colorful characters who left us with many wonderful stories. Please join us to celebrate the lives and contributions of two icons in our community.

Speakers will include James Barnard, JB Neethling, B. Narayanan, Krishna Pagilla, Paul Pitt, Andy Schuler, Tom Coleman, Angela Bielefeldt, April Z.Gu, and Bob Bucher.

Company Demo

Wednesday, June 9, 2021, 12:00 p.m. – 12:30 p.m. ET (UTC -4)

Sponsoring companies demonstrate the latest products, resources and problem-solvers with live chat Q&A

12:00 p.m. Garbage In / Garbage Out - Keys to Specifying Computational Fluid Dynamics (CFD) Inputs for Successful Projects

Presented by: Vaughan Company

12:15 p.m. World Water Works – Change the Pace of Innovation in the Water Industry

Presented by: World Water Works

WEDNESDAY, JUNE 9, 2021

Session 1: MABR

Wednesday, June 9, 2021, 1:00 p.m. - 2:00 p.m. ET (UTC -4)

- 1:00 p.m. Welcome and Introduction from the Session Moderators**
Tim Constantine, Jacobs; Martha Dagnev, Western University
- 1:03 p.m. Advancing Resource Recovery Using Hybrid Membrane Aerated Biofilm Reactor Processes**
Glen Daigger, Avery Carlson, Huanqi He, Brett Wagner, Cheng Yang, University of Michigan
- 1:10 p.m. Eliminating N₂O Emissions to Zero: ZeeLung MABR Shows the Way**
Dwight Houweling, SUEZ Water Technologies & Solutions; Nerea Uri Carreo, Vandcenter Syd; Moreno di Pofi, Sven Baumgarten, Daniel Coutts, Giuseppe Guglielmi, Jeff Peeters, SUEZ Water Technologies & Solutions
- 1:17 p.m. Insights on MABR Performance through Multivariate Analysis of Operational Data from the Full-Scale Demonstration at the Ejby Mølle WRRF**
Nerea Uri Carreo, Vandcenter Syd; Per Nielsen, VCS Denmark; Tim Constantine, Jacobs; Krist Gernaey, Department of Chemical and Biochemical Engineering, Technical University of Denmark. Lyngby (Denmark); Xavier Flores-Alsina, Department of Chemical and Biochemical Engineering, Technical University of Denmark. Lyngby (Denmark)
- 1:24 p.m. Sidestream Deammonification MABR Development and Performance in Bench-Scale Reactor Treating Anaerobic Digester Dewatering Centrate**
Bryce Figdore, HDR; Michael Liu, Eric Krikorian, LA County Sanitation District; Matt Reeve, Jeff Peeters, SUEZ Water Technologies & Solutions
- 1:31 p.m. ZeeNAMMOX™: Cracking the Code on Resilient and Cost-effective Side-stream Nitrogen Removal**
Zebo Long, Suez WTS; Leon Downing, Black & Veatch; Dwight Houweling, SUEZ Water Technologies & Solutions; John Ireland, Suez WTS; Jeff Peeters, Daniel Coutts, Reeve, SUEZ Water Technologies & Solutions
- 1:38 p.m. Facilitated Discussion**

WEDNESDAY, JUNE 9, 2021

Session 2: PDNA

Wednesday, June 9, 2021, 2:30 p.m. - 3:30 p.m. ET (UTC -4)

- 2:30 p.m. Welcome and Introduction from the Session Moderators**
Leon Downing, Black & Veatch; Paul Wood, Lockwood, Andrews & Newnam, Inc.
- 2:33 p.m. The Theoretical Benefits of Mainstream Shortcut Nitrogen Removal Revisited and Validated by Full-scale Implementation of Partial Denitrification-Anammox**
Kester McCullough, Cornell University / HRSD; Stephanie Klaus, Michael Parsons, Charles Bott, HRSD
- 2:40 p.m. Optimizing and Validating Mainstream Partial Denitrification-Anammox (PdNA) in Deep-Bed Polishing Filters: Assessment of Media Type and Carbon Source**
Rahil Fofana, DC Water; Megan Bachmann, HRSD; Benay Akyon, Xylem; Kimberly Jones, Jeseth Delgado Vela, Howard University; Stephanie Klaus, Michael Parsons, Charles Bott, HRSD; Christine DeBarbadillo, Black & Veatch; Haydee De Clippeleir, DC Water & Sewer Authority
- 2:47 p.m. Application of Partial Nitrification, Denitrification-Anaerobic Ammonia Oxidation for Nitrogen Removal at WRRFs**
Wendell Khunjar, Hazen and Sawyer
- 2:54 p.m. Mainstream Anammox Implementation in MBBRs: Journey from Pilot-Scale PNA to Full-scale PdNA Design**
Stephanie Klaus, Sarah Schoepflin, Justin Macmanus, Michael Parsons, Charles Bott, HRSD
- 3:01 p.m. Optimization of Fermentate-Based Pre-Anoxic Partial Denitrification-Anammox (PdNA) Applications**
Nicole Forney, George Washington University; Mojolaoluwa Ladipo-Obasa, DC Water; Rumana Riffat, George Washington University; Bernhard Wett, ARAconsult; Charles Bott, HRSD; Christine DeBarbadillo, Black & Veatch; Haydee De Clippeleir, DC Water & Sewer Authority
- 3:08 p.m. Facilitated Discussion**

THURSDAY, JUNE 10, 2021

Session 3: Intensification

Thursday, June 10, 2021, 11:00 a.m. - 12:00 p.m. ET (UTC -4)

- 11:00 a.m. Welcome and Introduction from the Session Moderators**
Glen Daigger, University of Michigan; Belinda Sturm, University of Kansas
- 11:03 a.m. Mobile Organic Biofilm (MOB) Process: Biofilm and Suspended-Growth Synergies Expand Treatment Capacity without Extensive Modifications to Existing Infrastructure**
Joshua Boltz, Arizona State University; Glen Daigger, University of Michigan; Mari Winkler, University of Washington; Jason Calhoun, NUVODA; Stephany Wei, John Andrews Carter, University of Washington
- 11:10 a.m. Long-Term Performance of Pilot-Scale Aerobic Granular Sludge at the Noman M. Cole Pollution Control Plant**
Gregory Pace, Wendell Khunjar, Hazen and Sawyer; Kendra Sveum, Donohue & Associates; Ankit Pathak, Virginia Polytechnic Institute and State University; Elizabeth Manning, Paul Le Bel, Hazen and Sawyer; Jessica Donati; Mujahid Ali, Jason Wilkinson, Fairfax County; Terry Reid, Darryl Gravagno, Aqua-Aerobic Systems
- 11:17 a.m. Integrating and Evaluating Process Changes using the MOB Process from Nuvoda**
Peter Schauer, Clean Water Services
- 11:24 a.m. Microbial Insight on a Granular Biofilm Process**
Ditte Hansen, Erling Brodersen, Aarhus Vand; Frank Rasmussen, TechRas Miljø, ApS; Flemming Møller, Aarhus Vand; Markus Schmied, EssDe; Marta Nierychlo, Aalborg University; Lise Hughes, Aarhus Vand
- 11:31 a.m. Facilitated Discussion**

THURSDAY, JUNE 10, 2021

Session 4: Carbon Management & Diversion
Thursday, June 10, 2021, 1:00 p.m. - 1:30 p.m. ET (UTC -4)

- 1:00 p.m. Welcome and Introduction from the Session Moderators**
Stephanie Klaus, HRSD; Tanja Rauch-Williams, Carollo
- 1:03 p.m. Bioflocculation Controller for Contact Stabilization Process:
Respiring New Life into an Old Process**
Patrexia Tampon, Khoa Nam Ngo, Haydee De Clippeleir, DC Water & Sewer Authority; Tim Van Winkel; Arash Massoudieh; Charles Bott, HRSD; Bernhard Wett, ARAconsult; Sudhir Murthy, NEWhub; Ahmed Al-Omari, Brown and Caldwell
- 1:10 p.m. Controlling Biofilm Retention Time in an A-stage High Rate MBBR for Organic Carbon Redirection**
Alessandro Di Biase, Maciej Kowalski, University of Manitoba; Tanner Devlin, Nexom; Jan Oleszkiewicz, University of Manitoba
- 1:17 p.m. Integrated Shortcut Nitrogen Removal with Anammox and Sidestream bioP — Redirecting Carbon for Maximum Benefit**
Kester McCullough, Cornell University / HRSD; Stephanie Klaus, Anand Patel, Kyle Malin, HRSD; Christopher Wilson; IL HAN, Cornell University; Haydee De Clippeleir, DC Water & Sewer Authority; April Gu, Cornell University; Charles Bott, HRSD
- 1:25 p.m. Facilitated Discussion**

THURSDAY, JUNE 10, 2021

Session 5: Disinfection, Reuse, Emerging Contaminants
Thursday, June 10, 2021, 2:00 p.m. - 2:30 p.m.

- 2:00 p.m. Welcome and Introduction from the Session Moderators**
Matt Higgins, Bucknell University; Chris Maher, Clean Water Services
- 2:03 p.m. Enhancing 1,4-Dioxane Removal Through Co-Metabolic Biofiltration in Advanced Water Treatment Systems for Potable Reuse**
Hannah Stohr, HRSD; Ramola Vaidya, HDR; Germano Salazar-Benites, HRSD; Tyler Nading; Chris Wilson, Charles Bott, HRSD
- 2:10 p.m. Development of a Critical Control Point Based Monitoring Framework for Membrane Bioreactors**
Amos Branch, Andrew Gilmore, Carollo Engineers, Inc.; Nicola Fontaine; Andrew Salveson, Carollo Engineers
- 2:17 p.m. A Disruptive Solution for Municipal Wastewater Disinfection: Performic Acid (PFA) with Advanced Dose Control (ADC)**
Domenico Santoro, USP Technologies; Kyriakos Manoli; Roberta Maffettone, Bishop Water Technologies; Siva Sarathy, Trojan Technologies
- 2:25 p.m. Facilitated Discussion**

TUESDAY, JUNE 15, 2021

Session 6: Innovative Biosolids Treatment
Tuesday, June 15, 2021, 11:00 a.m. - 12:00 p.m. ET (UTC -4)

- 11:00 a.m. Welcome and Introduction from the Session Moderators**
Raj Bhattarai, Clean Water Strategies; Jeanette Brown, Manhattan College
- 11:03 a.m. Intensification of Solids Processing via Vacuum Assisted Anaerobic Sludge Treatment**
Diego Rosso, University of California, Irvine; Jose Jimenez, Kati Bell, Christopher Muller, Ahmed Al-Omari, Brown and Caldwell; Domenico Santoro, Eunkyung Jang, USP; George Nakhla, University of Western Ontario; Frances Okoye, Elsayed Elbeshbish, Ryerson University
- 11:10 a.m. Process Understanding of Full-scale Micro-aeration to Improve Biogas Quality and Anaerobic Digestion**
Adrian Romero, Josef Cesca, Jacobs; Derek Van Rys; Bruce Johnson, Jacobs; Bart Kraakman, Jacobs
- 11:17 a.m. How Low Can We Go — Evaluating the Limits of SRT and Loading Rates with THP-AD Systems for Process Intensification**
Matthew Higgins, Bucknell University; Bill Barber, AECOM; Steven Beightol, Bucknell University; Sudhir Murthy, NEWhub; Christine DeBarbadillo, Black & Veatch; Haydee De Clippeleir, DC Water & Sewer Authority
- 11:24 a.m. High Value Carbon Product Recovery From Municipal Solids And High Strength Organic Waste**
Wendell Khunjar, Hazen and Sawyer
- 11:31 a.m. Real-Time Process Monitoring and Predictive Management of Anaerobic Codigestion using a New Bioelectrochemical Based Biosensor**
Sandeep Sathyamoorthy, Black & Veatch; Yueyun Tse, NorthET (UTC -4) University; Brian Shoener, Black & Veatch; Peter Kistenmacher, Central Marin Sanitation Agency; Patrick Kiely, Island Water Technologies Inc.; Colin Ragush; Vishnu Rajasekharan, Hach
- 11:38 a.m. Enhancing Nutrient Recovery and Reducing GHG Emissions from Composting through Modeling**
Eric Walling, Universite Laval; Celine Vaneeckhaute, Université Laval; Evangelia Belia, Primodal Inc.
- 11:45 a.m. Facilitated Discussion**

TUESDAY, JUNE 15, 2021

Session 7: Sidestream Treatment
Tuesday, June 15, 2021, 1:00 p.m. - 1:30 p.m. ET (UTC -4)

- 1:00 p.m. Welcome and Introduction from the Session Moderators**
Joe Husband, Arcadis; Zhongtian Li, Perdue University
- 1:03 p.m. Novel Process to Simultaneous Releases Ammonia and Phosphate from Waste Activated Sludge using Sensible Heat Recovered from Thermal Hydrolysis Process**
Hong Zhao, I Kruger Inc; Sudhakar Viswanathan, Veolia Water Technologies; Garrett Geer, Kristen Wisdom, Isaac Avila, Metro Wastewater Reclamation District; Jim McQuarrie, TetraTech; Luke Wood, Kruger Inc; Brad Mrdjjenovich, VEOLIA; Rich DiMassimo, Kruger Inc
- 1:10 p.m. Optimization of Struvite Recovery Utilizing an Alternative Magnesium Source and Process Control Strategies**
Sydney Goy, Virginia Tech/HRSD; Mikaela Verigin; Robby Jones, Jeffrey Sparks, Seth Luma, Charles Bott, HRSD
- 1:17 p.m. The Undetected Thief: How our Neglect of Influent Metal Sampling is Limiting Sustainable Phosphorus Recovery and our Need for Updated Wastewater Characterization Guidelines**
Colin Fitzgerald, Jacobs; Leon Downing, Black & Veatch
- 1:24 p.m. Facilitated Discussion**

TUESDAY, JUNE 15, 2021

Session 8: Novel Treatment

Tuesday, June 15, 2021, 2:00 p.m. - 2:30 p.m. ET (UTC -4)

Moderators: Jeseth Delgado Vela, Howard University; Sandeep Sathyamoorthy, Black & Veatch

Unique to this session, 6 five-minute Flash Talk presentations will be highlighted back-to-back. Questions from attendees will be encouraged with an opportunity to discuss with speakers through informal networking available after the session.

- 2:00 p.m. Conversion of Recalcitrant Nutrient Species to Readily Removable/Recoverable Forms Using Electro-oxidation**
Synthia Parveen Mallick, Kaushik Venkiteshwaran, Patrick McNamara; Brooke Mayer, Marquette University
- 2:05 p.m. Advanced High-rate Total Nitrogen Removal using Methane-delivered through Membrane Biofilm Reactors**
Sadaf Mehrabi, Western University; Martha Dagnew
- 2:10 p.m. Autotrophic Denitrification — Transcending from Incidental to Beneficial**
Eric Evans, HDR; Timothy Ellis, Iowa State Univ; Jaeyoung Park; James Flamming, City of Cedar Rapids WPCF
- 2:15 p.m. Continuous Monitoring of Nitrification Kinetics in a Low DO Activated Sludge**
Leon Downing, Eric Redmond, Caitlin Ruff, Black & Veatch
- 2:20 p.m. Using Particle Settling Velocity Distributions for Innovative Dynamic Grit Chamber Modeling**
Queralt Plana Puig, modelEAU - Universite Laval; Paul Lessard; Peter Vanrolleghem, modelEAU-Universite Laval
- 2:25 p.m. Whole Plant Sulfur Modeling - Influent Works Odor Control Approaches Impact Nutrient Harvesting at WRRFs**
Eric Redmond, Ulrich Bazemo, Black and Veatch; Lynne Moss, Black & Veatch; Leon Downing, Black & Veatch

WEDNESDAY, JUNE 16, 2021

Session 9: CFD Modeling

Wednesday, June 16, 2021, 11:00 a.m. - 11:30 a.m. ET (UTC -4)

- 11:00 a.m. Welcome and Introduction from the Session Moderators**
Chris deBarbadillo, Black & Veatch; Dave Kinnear, KPS
- 11:03 a.m. Using State-of-the-Art CFD Modeling to Define Adequate Digester Mixing**
Alonso Griborio, Hazen & Sawyer; Andrea Edgerton; Charles Bott, Chris Wilson, Matthew Poe, HRSD
- 11:10 a.m. Virtual Piloting: The Disruptive Application of Computational Fluid Dynamics Simulation for Process Development, Innovation and Scale-up**
Wim Audenaert, Ingmar Nopens, Simon Duchi, Miguel Daza, Cilia De Wilde, Usman Rehman, a.m.-TEAM
- 11:17 a.m. Getting to the Bottom of Granular Sludge Separation with CFD Modeling**
Ed Wicklein, Carollo Engineers; Beate Wright, Carollo Engineers; Sudhir Murthy, NEWhub; Charles Bott, HRSD; Robert Angelotti; Haydee De Clippeleir, Christine DeBarbadillo, Black & Veatch; Tanja Rauch-Williams, Carollo Engineers
- 11:24 a.m. Facilitated Discussion**

WEDNESDAY, JUNE 16, 2021

Technology Spotlight

Wednesday, June 16, 2021, 12:00 p.m. – 1:30 p.m. ET (UTC -4)

Similar to mobile sessions at in-person events, technology spotlights allow companies to showcase products and services in technical and educational presentations combined with equipment or hands-on visuals. There will be a live Q&A after each presentation.

Moderators: Erika Bailey, City of Raleigh Public Utilities; Thor Young, GHD

12:00 p.m. First US Passavant Hydrograv Adapt System Installation at HRSD Nansemond STP (VA)

Philippe Anstotz, Aqseptence Group & Hydrograv GmbH; Matt Poe, HRSD

12:30 p.m. Advancements in Resource Recovery: Clean Water, Clean Air and Eco-Friendly Products

Jordan Lind, CLEARAS

1:00 p.m. Innovative Biosolids Drying Using Pyrolysis to Maximize Energy Recovery and Minimize Waste

Sam Sylvetsky, Ray Porter, Biowaste Pyrolysis Solutions, LLC

WEDNESDAY, JUNE 16, 2021

Session 10: Data Analytics

Wednesday, June 16, 2021, 2:00 p.m. - 3:00 p.m. ET (UTC -4)

- 2:00 p.m. Welcome and Introduction from the Session Moderators**
Amit Kaldate, SUEZ; Blair Wisdom, Denver MWRD
- 2:03 p.m. Development and Deployment of Real-Time Software for Long-Range Forecasting of Biological Phosphorus Removal Stability**
Keaton Lesnik, Maia Analytica; Adrienne Menniti, Clean Water Services; Jeff Van Note, Clean Water Services; Josh Ellington, Nightswim
- 2:10 p.m. Data Driven Decision Making at Metro Wastewater Reclamation District**
Joshua Goldman-Torres, Blair Wisdom, Kate Newhart, Denver MWRD
- 2:17 p.m. Evaluation of a Data-Driven Aeration Controller at a Water Resource Recovery Facility**
Greg Budzynski, Kate Newhart, Denver MWRD
- 2:24 p.m. Brute Force PID Loop Tuning is not Optimum: Using Step-Response Tuning Methods from Control Engineering for BNR and More**
Alexandria Gagnon, Charles Bott, HRSD
- 2:31 p.m. Improved Aeration Modelling using Innovative Concepts for Prediction of Key Factors in Oxygen Transfer**
Dániel Bencsik, Tanush Wadhawan, Imre Takacs, Dynamita SARL; Charles Bott, HRSD; Diego Rosso, University of California, Irvine
- 2:38 p.m. Digital Twin Development Implementation, and Results for the Changi WRP, Singapore**
Bruce Johnson, Yin Ping Mak, Jacobs; Raja Kadiyala, Jacobs; Garrett Owens, Colin Newbery, Priska Grace, Sean Sing, Aayush Saxena, Jacobs; Jack Greene
- 2:44 p.m. Facilitated Discussion**

SPEAKER BIOGRAPHIES

Session 1: MABR

Wednesday, June 9, 2021, 1:00 p.m. - 2:00 p.m. ET (UTC -4)



Tim Constantine is Jacobs' Wastewater Treatment Global Technology Leader and, when not traveling (or stuck at his home office during these COVID time), works primarily out of their Toronto office. He has 25 years of industry experience and has been involved in the design, optimization, and assessment of over 200 wastewater treatment plants around the world.



Martha Dagnew is an Assistant Professor in Environmental Engineering at the Department of Civil and Environmental Engineering (Western University, Ontario, Canada). Her research interests include advanced wastewater treatment processes and technologies, water and nutrient recovery from point and non-point sources, urban water infrastructure and numerical and data-based wastewater process and system modelling. Prior to Western, she was Lead Process Engineer at Suez water solutions and technologies (former GE water) where she played an active role in the development and commercialization of several energy efficient membrane technologies including anaerobic membrane reactor and membrane aerated biofilm reactors.



Glen Daigger is currently Professor of Engineering Practice at the University of Michigan and President and Founder of One Water Solutions, LLC, a water engineering and innovation firm. He previously served as Senior Vice President and Chief Technology Officer for CH2M HILL (now Jacobs) where he was employed for 35 years, as well as Professor and Chair of Environmental Systems Engineering at Clemson University.

SPEAKER BIOGRAPHIES

Session 1: MABR

Wednesday, June 9, 2021, 1:00 p.m. - 2:00 p.m. ET (UTC -4)



Dwight is a water resource recovery engineer with a wide range of experience in process design, development and operations drawn from years spent in academia, consulting and working on new product introduction for an equipment supplier. Dwight currently works with Dynamita SARL on the development and commercialization of the new industry leading SUMO process modelling software.



Nerea Uri Carreño is a joint PhD student with the Danish Technical University (DTU) and VCS Denmark.



Bryce Figdore is a senior wastewater process engineer with HDR based in Bellevue, WA. Bryce has Bachelors, Masters and Doctorate degrees, respectively, from Penn State, Villanova, and the University of Washington. He is enthusiastic about applying his expertise in biological nutrient removal to deliver robust and innovative wastewater treatment solutions. Outside of these pursuits, Bryce enjoys fly fishing, tennis, and hiking with his family.

SPEAKER BIOGRAPHIES

Session 1: MABR

Wednesday, June 9, 2021, 1:00 p.m. - 2:00 p.m. ET (UTC -4)



Zebo Long, a senior researcher working for Suez WTS based in Canada. Zebo has over 10 years of working experience with expertise in wastewater treatment process design, system simulation, and microbial characterization. As a key team member, Zebo has developed ZeeLung membrane aerated biofilm (ZeeLung MABR) technology, which is widely considered as a disruptive innovation due to its high energy efficiency, low footprint, and reliable performance. Currently, Zebo is focusing on the development of ZeeNAMMOX, an innovative application of ZeeLung MABR in side-stream nitrogen removal.

SPEAKER BIOGRAPHIES

Session 2: PDNA

Wednesday, June 9, 2021, 2:30 p.m. - 3:30 p.m. ET (UTC -4)



Paul Wood has over thirty-five years of experience in designing wastewater treatment facilities. Paul graduated with a Bachelor of Science degree in Chemical Engineering from the University of Arizona. Paul is licensed as a Civil and Environmental Engineer in the State of Texas, and as a Civil Engineer in the states of Florida, Nevada, and Illinois. Paul leads wastewater design efforts for LAN.



Eric Redmond is a process engineer with Black Veatch. He graduated from the University of Iowa with a Masters of Environmental Engineering. His primary focus is whole plant nutrient management and low energy nutrient removal.



Kester McCullough is a professional engineer, licensed wastewater treatment plant operator, and graduate student at Cornell University conducting research on advanced biological nutrient removal with the Hampton Roads Sanitation District. His research focuses on mainstream implementation of annamox for shortcut nitrogen removal, novel aeration control strategies, sidestream biological phosphorus removal, and wastewater treatment modeling.

SPEAKER BIOGRAPHIES

Session 2: PDNA

Wednesday, June 9, 2021, 2:30 p.m. - 3:30 p.m. ET (UTC -4)



Rahil Fofana is a PhD candidate at Howard University in the Civil and Environmental Engineering department. Her research is conducted at Blue Plains Advanced WWTP. She focuses on the application of partial denitrification - anammox (PdNA) in deep-bed denitrification filters while looking at media types and carbon sources. She received her Bachelors in chemistry and her Masters in water resources.



Dr. Khunjar is an Associate Vice President, Director of Wastewater Innovation and process specialist for Hazen and Sawyer. He brings over 15 years of experience related to wastewater, biosolids and advanced treatment processes, having worked on projects ranging from troubleshooting anaerobic digester foaming to implementation of sidestream treatment for nutrient control to mainstream BNR design and optimization.



Stephanie Klaus is a Treatment Process Engineer at Hampton Roads Sanitation District. She received her PhD and masters from Virginia Tech in Civil Engineering. She has researched a variety of topics pertaining to sidestream and mainstream shortcut nitrogen removal.

SPEAKER BIOGRAPHIES

Session 2: PDNA

Wednesday, June 9, 2021, 2:30 p.m. - 3:30 p.m. ET (UTC -4)

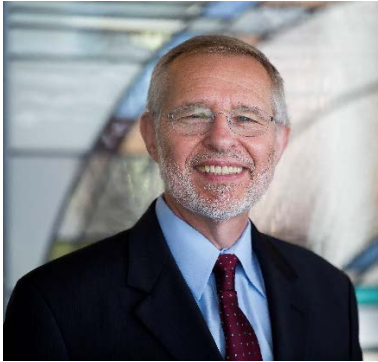


Nicole Forney earned her BS in Chemical Engineering from New York University in 2016 and her MS in Environmental Engineering from George Washington University in 2021. Her masters thesis research was conducted at DC Water and focused on optimizing mainstream PdNA applications.

SPEAKER BIOGRAPHIES

Session 3: Intensification

Thursday, June 10, 2021, 11:00 a.m. - 12:00 p.m. ET (UTC -4)



Glen Daigger is currently Professor of Engineering Practice at the University of Michigan and President and Founder of One Water Solutions, LLC, a water engineering and innovation firm. He previously served as Senior Vice President and Chief Technology Officer for CH2M HILL (now Jacobs) where he was employed for 35 years, as well as Professor and Chair of Environmental Systems Engineering at Clemson University.



Dr. Belinda Sturm is a Professor in the Department of Civil, Environmental & Architectural Engineering at the University of Kansas. She also serves as an Associate Vice Chancellor for Research. Belinda earned her B.S. in Public Health from the University of North Carolina at Chapel Hill and her PhD in Civil Engineering and Geological Sciences from the University of Notre Dame. Belinda currently serves as Vice-Chair of the Water Environment Federation's Municipal Design Symposium and as Chair of the International Water Association's USA National Committee Executive Board.



Dr. Joshua Boltz is a member of the Swette Center for Environmental Biotechnology at Arizona State University. He is a licensed Professional Engineer, a Board Certified Environmental Engineer by the American Academy of Environmental Engineers and Scientists, and an International Water Association Fellow. Dr. Boltz is particularly interested in wastewater treatment process models, biofilm models, and biofilm reactors.

SPEAKER BIOGRAPHIES

Session 3: Intensification

Thursday, June 10, 2021, 11:00 a.m. - 12:00 p.m. ET (UTC -4)



Gregory Pace is a wastewater process engineer with Hazen and Sawyer in Fairfax, Virginia. Gregory has experience in nutrient removal studies, energy efficiency evaluations, and designs for wastewater facilities. His engineering skills include piloting emerging technologies, activated sludge modeling with BioWin, report preparation, and developing design contract documents.



Peter Schauer is the Principal Process Engineer heading the Technology Development Research group for Clean Water Services. CWS operates four wastewater treatment facilities discharging to the Tualatin River in Washington County, Oregon. Previous to CWS Peter was a process engineer within the Water Technologies Group of Black Veatch and also worked as a civilian for the Navy conducting RD on membrane bioreactors for shipboard waste. Peter is a graduate of Johns Hopkins with a masters in environmental engineering from the same school.



Ditte Marie Hansen received her MSc in Engineering, Biotechnology in year 2018 from Aalborg University. After her graduation she worked a year as a research assistant in the research project, OnlineDNA. Since summer 2019 she has worked at Aarhus Vand as a process engineer in the Operations Team.

SPEAKER BIOGRAPHIES

Session 4: Carbon Management & Diversion
Thursday, June 10, 2021, 1:00 p.m. - 1:30 p.m. ET (UTC -4)



Stephanie Klaus is a Treatment Process Engineer at Hampton Roads Sanitation District. She received her PhD and masters from Virginia Tech in Civil Engineering. She has researched a variety of topics pertaining to sidestream and mainstream shortcut nitrogen removal.



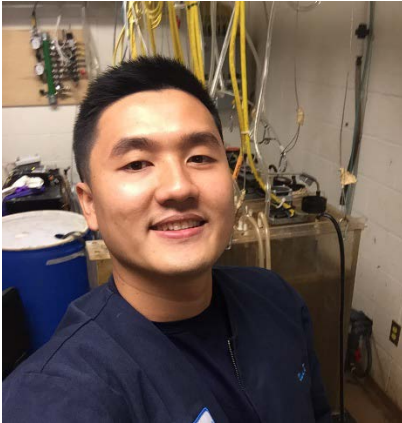
Dr. Tanja Rauch-Williams serves as Carollo's National Wastewater Process and Innovation Lead and Principal Technologist with more than 20 years of experience in wastewater treatment and applied research. She has served as Principal Investigator for several research projects focused on emerging contaminants and co-digestion.



Patrexia recently earned her Masters Degree in Environmental Engineering at the Catholic University of America. Her research with DC water is focused on Carbon and Energy management in High rate activated sludge systems through dynamic OUR control.

SPEAKER BIOGRAPHIES

Session 4: Carbon Management & Diversion
Thursday, June 10, 2021, 1:00 p.m. - 1:30 p.m. ET (UTC -4)



Ngo, Khoa Nam is working on his last year of PhD program at The Catholic University of America, Washington DC. Besides that, he has been working at the department of research development of DC Water from 2016 until now as a graduate research student. Nam has more than 6 years of experiences in design and analysis of HRAS system, and operating automated system utilizing different instruments to optimize process control. Moreover, Nam's work has also focused on developing full-plant model and prediction of settleability to monitor better process performance.



Alessandro Di Biase is a PhD Candidate in Civil and Environmental Engineering at the University of Manitoba (Canada). He has achieved a B.Sc. in Biological Science and a M.Sc. in Environmental Biology at the University of Florence (Italy). He has pursued a second M.Sc. in Civil and Environmental Engineering at the University of Manitoba (Canada). His main research interest is on moving bed biofilm reactor both for anaerobic and aerobic treatment. However, he gained experience also in technologies such as aerobic granular sludge and anammox processes.



Kester McCullough is a professional engineer, licensed wastewater treatment plant operator, and graduate student at Cornell University conducting research on advanced biological nutrient removal with the Hampton Roads Sanitation District. His research focuses on mainstream implementation of anammox for shortcut nitrogen removal, novel aeration control strategies, sidestream biological phosphorus removal, and wastewater treatment modeling.

SPEAKER BIOGRAPHIES

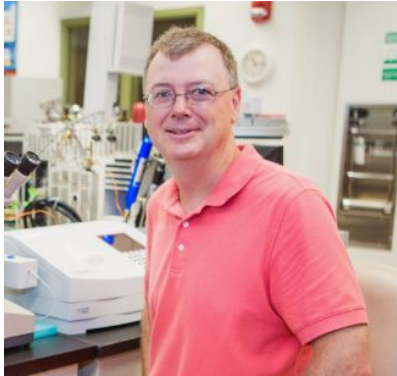
Session 4: Carbon Management & Diversion
Thursday, June 10, 2021, 1:00 p.m. - 1:30 p.m. ET (UTC -4)



Anand Patel is a Masters student studying environmental engineering at Cornell University doing pilot plant scale biological nutrient removal research at Hampton Roads Sanitation District.

SPEAKER BIOGRAPHIES

Session 5: Disinfection, Reuse, Emerging Contaminants
Thursday, June 10, 2021, 2:00 p.m. - 2:30 p.m.



Matt Higgins is Professor and Claire W. Carlson Chair in Environmental Engineering at Bucknell University. Over the last 20 years, his research has largely focused on biosolids issues including digestion, co-digestion, thermal hydrolysis, conditioning and dewatering, odors and reactivation and regrowth of indicators and pathogens in biosolids.



Chris Maher turned a BS in Chemistry from Colorado State University into a 13 year career at the Upper Blue Sanitation District in Breckenridge, CO where he earned his MS degree in Environmental Engineering through the Illinois Institute of Technology. He has been with Clean Water Services for 7 years where he is now a Senior Operations Analyst and an Oregon Grade IV certified operator

SPEAKER BIOGRAPHIES

Session 5: Disinfection, Reuse, Emerging Contaminants
Thursday, June 10, 2021, 2:00 p.m. - 2:30 p.m.



Hannah Stohr is a PhD student at Virginia Tech studying Environmental Engineering. Her research is in partnership with Hampton Roads Sanitation District, specifically the SWIFT Research Center. She majored in Chemical Engineering in undergraduate at the University of Kansas. (Rock chalk)



Amos joined Carollo Engineers as a Water Reuse Technologist in 2019. Prior to joining Carollo, Amos was a post-doctorate researcher at the Water Research Centre at the University of New South Wales, Australia. Amos has worked on a variety of microbial and chemical risk assessment projects related to water reuse and pilot testing and optimization of membrane systems. Amos doctorate was the Australian research behind membrane bioreactor validation protocols (WaterVal), which are now being adapted for application in the U.S.

SPEAKER BIOGRAPHIES

Session 5: Disinfection, Reuse, Emerging Contaminants
Thursday, June 10, 2021, 2:00 p.m. - 2:30 p.m.



Domenico Santoro completed his PhD in Environmental Engineering specializing in water and wastewater treatment. His Ph.D. dissertation, focused on peracetic acid (PAA) disinfection of municipal wastewater, paved the way for the adoption of PAA as a chlorine-alternative disinfectant. Currently, Dr. Santoro holds a double appointment as Senior Research Scientist at USP Technologies (London, ON Canada) and Research Professor at the University of Western Ontario.

SPEAKER BIOGRAPHIES

Session 6: Innovative Biosolids Treatment
Tuesday, June 15, 2021, 11:00 a.m. - 12:00 p.m. ET (UTC -4)



Raj Bhattarai is with Clean Water Strategies in Austin, Texas, and a visiting professor at the Indian Institute of Technology Kanpur. He currently serves as a WEF Trustee.



Jeanette Brown is a Research Assistant Professor in the Department of Civil and Environmental Engineering at Manhattan College. She served as the 2010-2011 President of WEF.

SPEAKER BIOGRAPHIES

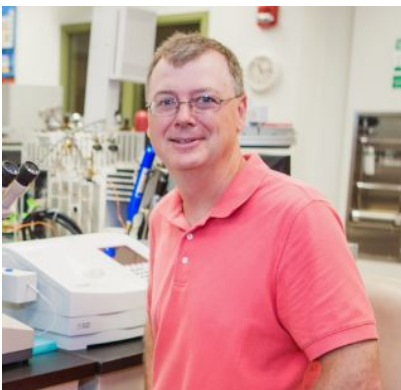
Session 6: Innovative Biosolids Treatment
Tuesday, June 15, 2021, 11:00 a.m. - 12:00 p.m. ET (UTC -4)



Diego Rosso joined the Department of Civil and Environmental Engineering of the University of California, Irvine in 2008. A process engineer by training, he leads the Environmental Process Laboratory and is Director of the Water-Energy Nexus (WEX) Center. Currently, he is Chair of the WEFTEC Conference. He is also WEF Ambassador at international conferences and member of the ASCE Oxygen Transfer Committee.



Adrian Romero is a process engineer with Jacobs working in projects related to energy and resource recovery from wastewater and integrating strategies for sulfide control in collection systems to the overall facility performance. He has presented at regional, national and international conferences. Adrian earned a PhD at University of Maryland as part of the DC Water Research and Development Program. His research focused on biosolids quality and utility-wide odor minimization through process optimization.



Matt Higgins is Professor and Claire W. Carlson Chair in Environmental Engineering at Bucknell University. Over the last 20 years, his research has largely focused on biosolids issues including digestion, co-digestion, thermal hydrolysis, conditioning and dewatering, odors and reactivation and regrowth of indicators and pathogens in biosolids.

SPEAKER BIOGRAPHIES

Session 6: Innovative Biosolids Treatment
Tuesday, June 15, 2021, 11:00 a.m. - 12:00 p.m. ET (UTC -4)



Dr. Khunjar is an Associate Vice President, Director of Wastewater Innovation and process specialist for Hazen and Sawyer. He brings over 15 years of experience related to wastewater, biosolids and advanced treatment processes, having worked on projects ranging from troubleshooting anaerobic digester foaming to implementation of sidestream treatment for nutrient control to mainstream BNR design and optimization.



Sandeep is the Global Practice and Technology Leader for Innovation and Applied Research for Black and Veatch, Water. He has a PhD from Tufts University and a BC in Chemical Engineering from Cornell University. Sandeeps research foci are centered on enhancing nutrient and resource management within WRRFs to expand their utility within a broader circular economy.



Eric is a graduating PhD student in chemical and environmental engineering. His research thus far has focused on the development of decision support systems and process modelling, notably focused on waste valorization and nutrient recovery, with a particular focus on composting. Further interests also include environmental assessments and the development of decentralized waste and water treatment trains for isolated areas, such as Northern Canada. Moving forward, he aims to continue working on holistic and multifaceted process optimization for increased environmental and economic benefits.

SPEAKER BIOGRAPHIES

Session 7: Sidestream Treatment

Tuesday, June 15, 2021, 1:00 p.m. - 1:30 p.m. ET (UTC -4)



Joe is the Director of Wastewater Treatment Technology at Arcadis in White Plains, NY. He has 45 years' experience in the planning, design, construction and operation of water resource recovery facilities. Former chair of the WEF Municipal Resource Recovery Design Committee and has served on a number of Water Environment Research Project Advisory Committees.



Zhongtian (ZT) Li is currently a postdoctoral researcher in the Lab for Sustainable Manufacturing at the Purdue University. During 2016 to 2021, Li has worked as a technical manager and a project manager with the Centrisys Corporation-CNP Division. Li received his Ph.D. in Civil and Environmental Engineering (2016) from the University of California, Los Angeles in 2016.



Brad Mrdjenovich (mur-jen-O-vich) has almost 15 years of experience working on a variety of water and wastewater treatment projects. His specialties include BNR, side and mainstream deammonification, and thermal hydrolysis. He is currently Veolia's regional manager overseeing their biological, biosolids, and bioenergy treatment technologies.

SPEAKER BIOGRAPHIES

Session 7: Sidestream Treatment

Tuesday, June 15, 2021, 1:00 p.m. - 1:30 p.m. ET (UTC -4)



Sydney currently works for Hazen and Sawyer in Virginia Beach as an Assistant Engineer. She previously attended the University of Delaware where she received a BS in Environmental Engineering with a focus in Water Quality and Water Resources. Sydney graduated from Virginia Tech in 2020 with a MS degree in Environmental Engineering. During her graduate studies, Sydney researched at the Struvite Recovery Facility at Hampton Roads Sanitation District (HRSD).



Colin is a Wastewater Technologist with Jacobs in Denver, CO. He specializes in nutrient removal, nutrient recovery, process optimization/intensification, and process modeling. Colin also placed an emphasis on integrating statistical methods into process and economic evaluations.

SPEAKER BIOGRAPHIES

Session 8: Novel Treatment

Tuesday, June 15, 2021, 2:00 p.m. - 2:30 p.m. ET (UTC -4)



Jeseth Delgado Vela is an Assistant Professor in the Civil and Environmental Engineering Department at Howard University. Her research applies tools in molecular biology to develop sustainable and cost-efficient urban water treatment. She is interested in understanding microbial community interactions to improve the urban water cycle. She received her PhD and master's degree the University of Michigan. She received her bachelor's degree in Civil Engineering from the University of Texas at Austin in 2012.



Sandeep is the Global Practice and Technology Leader for Innovation and Applied Research for Black and Veatch, Water. He has a PhD from Tufts University and a BC in Chemical Engineering from Cornell University. Sandeeps research foci are centered on enhancing nutrient and resource management within WRRFs to expand their utility within a broader circular economy.



Synthia Parveen Mallick is a PhD candidate at the Civil, Construction and Environmental Engineering Department at Marquette University. She got an MS in Environmental Engineering at Lamar University, TX in 2017. During her masters study she developed a method for humic substances isolation from high strength industrial wastewater to characterize UV quenching substances from landfill leachates. She is currently working on nutrients conversion and recovery for her dissertation. Her research interest encompasses physical-chemical treatment, nutrients recovery, and sustainable treatment.

SPEAKER BIOGRAPHIES

Session 8: Novel Treatment

Tuesday, June 15, 2021, 2:00 p.m. - 2:30 p.m. ET (UTC -4)



Sadaf Mehrabi is a fourth-year PhD candidate in Environmental Engineering at Western University, London, ON, Canada. Her PhD research focuses on Enabling Low Energy and Carbon-demand processes to remove total nitrogen from municipal wastewater using Membrane Aerated Biofilm Reactors (MABRs). She is an active member of WEF and WEAO by being the co-president of Western Student Water Chapter. She is also the recipient of several academic awards such as the Ken Thompson Scholarship from Canadian Water Resources Association.



Dr. Evans is a Senior Process Engineer with HDR based in Iowa. He works extensively on municipal and industrial wastewater systems including planning and design work. His experience focuses extensively on process evaluation of high-strength streams and nutrient removal processes. He applies wastewater simulators for detailed evaluations including sizing, optimization, controls options, and sidestream impacts.

SPEAKER BIOGRAPHIES

Session 8: Novel Treatment

Tuesday, June 15, 2021, 2:00 p.m. - 2:30 p.m. ET (UTC -4)



Dr. Leon Downing is a Principal Process Engineer and Innovation Leader with Black & Veatch from Madison, Wisconsin. Downing provides technology leadership in support of Black & Veatch process engineering and applied research projects globally. Dr. Downing has spent the last 15 years working with process and operational changes focused on energy efficiency, nutrient removal, and resource recovery.



Peter Vanrolleghem obtained his degrees in Bio-engineering and PhD in Environmental Technologies from Ghent University (Belgium). He is full professor at Université Laval's Civil and Water Engineering Department in Quebec City (Canada) and his research team, modelEAU, focuses on urban wastewater systems and tackles challenges such as nutrient removal and recovery, fate of micropollutants and emissions of greenhouse gases, by developing and using mathematical models, automated monitoring stations, process control and in-house pilot- and full-scale experimental work.



Eric Redmond is a process engineer with Black Veatch. He graduated from the University of Iowa with a Masters of Environmental Engineering. His primary focus is whole plant nutrient management and low energy nutrient removal.

SPEAKER BIOGRAPHIES

Session 9: CFD Modeling

Wednesday, June 16, 2021, 11:00 a.m. - 11:30 a.m. ET (UTC -4)



Chris deBarbadillo has over thirty years of experience in wastewater treatment and currently serves as Plant Optimization Practice Leader for Black & Veatch. Her experience includes a number of years working as a process engineer, performing detailed assessments for wastewater treatment facilities to optimize performance and develop upgrade and expansion strategies. Most recently, she worked for a utility where she focused on commissioning, operations, and optimization of biosolids and sidestream deammonification processes as well as R&D efforts oriented toward next-generation nutrient removal process improvements.



Dave Kinnear is a wastewater process engineer in Charlotte, NC, with more than 32-years of experience working on modeling wastewater treatment systems with expertise in clarification.



Dr. Griborio specializes in the planning, analysis and design of municipal and industrial wastewater facilities. He has worked in aerobic and anaerobic treatment of wastewaters for more than 20 years and combines ample experience in project management with specialized experience in wastewater process engineering and civil/mechanical design.

SPEAKER BIOGRAPHIES

Session 9: CFD Modeling

Wednesday, June 16, 2021, 11:00 a.m. - 11:30 a.m. ET (UTC -4)



Dr. Wim Audenaert is co-founder and CEO of AM-TEAM. He obtained MSc and PhD degrees in environmental engineering at Ghent University (Belgium). AM-TEAM provides cutting edge simulation services to end users, consultants and technology vendors in the global water industry.



Edward A. Wicklein has 21 years of experience in design and analysis of hydraulic facilities using numerical models. He has conducted hundreds of computational fluid dynamic (CFD) studies of municipal and industrial water and wastewater facilities. He has additional experience with physical modeling, and field data collection for physical and numerical model calibration. He is actively involved in both the IWA Working Group on CFD Modeling and the Hydraulic Intitule Pump Intake Hydraulics Committee.

SPEAKER BIOGRAPHIES

Session 10: Data Analytics

Wednesday, June 16, 2021, 2:00 p.m. - 3:00 p.m. ET (UTC -4)



Amit Kaldate is Domain Leader with SUEZ and has extensive 20 years of experience in design, commercialization and growth of technologies. He received his Ph.D. in Environmental Engineering from University of Illinois, Urbana-Champaign. As a professional member, he has been an active participant in committees (WEFTEC Program, WEF Innovations in Process Engineering Steering, WRF Energy Advisory) and task forces (e.g. WEF MOP8, MOP31, Utility of the Future). He was part of the team that developed the LIFT (Leaders Innovation Forum for Technology) Program.



Blair Wisdom is the Director of Technology and Innovation at the Metro Wastewater Reclamation District in Denver, Colorado where she has worked since 2016. Prior to that, she spent 9 years at Black & Veatch as a Process Engineer. She is also a co-chair for this Virtual Event.



Keaton Lesnik, PhD, is co-founder and Chief Executive Officer at MAIA Analytica, where he heads the research, development, and implementation of data-driven software platforms to support improved operational decision-making and workforce training within the water and wastewater industries. Dr. Lesnik has 12 years of experience working on wastewater projects as technical expert beginning from early work pioneering the use of machine learning to model complex environmental biotechnologies.

SPEAKER BIOGRAPHIES

Session 10: Data Analytics

Wednesday, June 16, 2021, 2:00 p.m. - 3:00 p.m. ET (UTC -4)



Josh Goldman-Torres is an environmental engineer with the Technology and Innovation Department at Metro Wastewater Reclamation District (MWRD). Prior to that he worked as a consulting engineer for 8 years with a focus on disinfection, data analytics, and piloting. One of his major areas of focus at MWRD is data utilization, visualization, process optimization, and process optimization. He hopes to contribute heavily to the digital transformation of the water and wastewater industry.



Greg Budzynski is a Control Systems Analyst at Metro Wastewater Reclamation District in Denver, Colorado. He obtained his B.S. in Electrical Engineering at Missouri University of Science Technology and has since worked in the field of automation and controls. The wide variety of technology required within control systems have captured his interests in automated process control. The most exciting parts have been the opportunity for innovation and to create robust solutions that elevate work. He currently spends the rest of his time at home with his wife, two young boys, and two large dogs.

SPEAKER BIOGRAPHIES

Session 10: Data Analytics

Wednesday, June 16, 2021, 2:00 p.m. - 3:00 p.m. ET (UTC -4)



Ali is a Treatment Process Engineer at HRSD in Norfolk, VA and a PhD Candidate at Virginia Tech. She has M.S. in Environmental Engineering from Virginia Tech and B.S. in Civil Environmental Engineering from the Virginia Military Institute. She is a licensed Professional Engineer and Class 1 Wastewater Works Operator in the state of Virginia.



Daniel is a senior process engineer at Dynamita SARL, from Budapest, Hungary. He holds an MSc in Bioengineering from the Budapest University of Technology and Economics. His main research interests are mass transfer and aeration model development. He has previously worked in process design of municipal and industrial WRRFs and also has experience in operational supervision and pilot-scale experimentation.



Mr. Bruce Johnson is a wastewater technology fellow with Jacobs located in Denver. He has been doing wastewater treatment design for over 30 years, the last 24 of which has been with CH2M/Jacobs where he has held the roles of wastewater process and simulation global technology leader. He has been active outside of Jacobs both in WEF and IWA. Within WEF, he has led and contributed the development of a number of MOPs and helped found the MEGA group. Within IWA, Mr. Johnson is a past scientific chair of WWTmod and a founding member of the IWA Design and Operations Uncertainty Task Group.

SPEAKER AND MODERATOR DIRECTORY
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Wim Audenaert <i>Session 09</i>	Alessandro Di Biase <i>Session 04</i>	Joe Husband <i>Session 07</i>
Philippe Anstotz <i>Technology Spotlight</i>	Leon Downing <i>Session 02, 08</i>	Bruce Johnson <i>Session 10</i>
Erika Bailey <i>Technology Spotlight</i>	Eric Evans <i>Session 08</i>	Amit Kaldate <i>Session 10</i>
Daniel Bencsik <i>Session 10</i>	Bryce Figdore <i>Session 01</i>	Dave Kinnear <i>Session 09</i>
Raj Bhattarai <i>Session 06</i>	Colin Fitzgerald <i>Session 07</i>	Wendell Khunjar <i>Session 02, 06</i>
Joshua Boltz <i>Session 03</i>	Rahil Fofana <i>Session 02</i>	Stephanie Klaus <i>Session 02, 04</i>
Amos Branch <i>Session 05</i>	Nicole Forney <i>Session 02</i>	Keaton Lesnik <i>Session 10</i>
Jeanette Brown <i>Session 06</i>	Alexandria Gagnon <i>Session 10</i>	Zhongtian Li <i>Session 07</i>
Greg Budzynski <i>Session 10</i>	Joshua Goldman-Torres <i>Session 10</i>	Jordan Lind <i>Technology Spotlight</i>
Tim Constantine <i>Session 01</i>	Sydney Goy <i>Session 07</i>	Zebo Long <i>Session 01</i>
Martha Dagnew <i>Session 01</i>	Alonso Griborio <i>Session 09</i>	Chris Maher <i>Session 05</i>
Glen Daigger <i>Session 01, 03</i>	Ditte Hansen <i>Session 03</i>	Synthia Parveen Mallick <i>Session 08</i>
Chris deBarbadillo <i>Session 09</i>	Matthew Higgins <i>Session 05, 06</i>	Kester McCullough <i>Session 02, 04</i>
Jeseth Delgado Vela <i>Session 08</i>	Dwight Houweling <i>Session 01</i>	Sadaf Mehrabi <i>Session 08</i>

SPEAKER AND MODERATOR DIRECTORY

Brad Mrdjenovich
Session 07

Adrian Romero
Session 06

Patrexia Tampon
Session 04

Khoa Nam Ngo
Session 04

Diego Rosso
Session 06

Nerea Uri Carreño
Session 01

Gregory Pace
Session 03

Domenico Santoro
Session 05

Peter Vanrolleghem
Session 08

Anand Patel
Session 04

Sandeep
Sathyamoorthy
Session 06, 08

Eric Walling
Session 06

Matt Poe
Technology Spotlight

Peter Schauer
Session 03

Ed Wicklein
Session 09

Ray Porter
Technology Spotlight

Hannah Stohr
Session 05

Blair Wisdom
Session 10

Tanja Rauch-Williams
Session 04

Belinda Sturm
Session 03

Paul Wood
Session 02

Eric Redmond
Session 02, 08

Sam Sylvetsky
Technology Spotlight

Thor Young
Technology Spotlight

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McCormick Place, Chicago, IL and Online

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Exhibition: October 18-20, 2021

WEFTEC Online: November 16-18, 2021

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