



Preconference Workshops Monday, June 20

Updated as of May 17, 2022

**June 20-23
Hyatt Regency Miami
Miami, Florida, USA**

#WEFProcessEng

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

Pre-Conference Workshops

(Additional fees apply)

Workshop A: Particles and Colloids: The Next Frontier in Intensifying Water Resource Recovery

Monday, June 20, 2022

8:30 a.m. – 5:00 p.m.

Moderators: Peter Vanrolleghem, Université Laval; Kendra Sveum, Loudoun Water;
Jose Jimenez, Brown and Caldwell

In the water industry, particles and colloids (P&Cs) are everywhere: a resource to be recovered at preliminary/primary stage (front), a driver of reaction rates for the secondary treatment (middle), and a liability to be removed in the final effluent for high-end water reuse (end). The real science and engineering of P&Cs is often oversimplified and, in most cases, poorly understood. Kinetic modeling parameters to account for particle behavior like P&C surface chemistries, size, density and composition are mostly neglected, and current methods for characterizing P&C are rudimentary at best.

This workshop seeks to advance our understanding of how best to apply modern P&C science to engineered water systems as well as identify new areas for exploration. This workshop will consider the broad problems and opportunities of P&Cs ranging from physical and chemical to biological reactions associated with P&C. In addition, the program will be focused on the most interesting and exciting P&C science and research innovation opportunities for treatment process design, operation and intensification.

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Workshop B: Developing a Framework for Successful Implementations of Digital Twin for Process Improvements

Monday, June 20, 2022

8:30 a.m. – 5:00 p.m.

Coordinator: Tanush Wadhawan, Dynamita

Speakers: Charles Bott, HRSD; John Copp, Primodal; Varun Srinivasan, Brown & Caldwell; Bruce Johnson, Jacobs; Jeffrey Sparks, HRSD; Alyssa Mayer, Hazen and Sawyer; Simon Baker, AECOM; Sudhir Murthy, NEWHub Corp

This workshop will encourage discussion and knowledge sharing of current and innovative thought process and practice around applying digital twin for process improvements (DTPIs). The goal will be to find consensus on establishing a framework for designing, piloting, and commissioning DTPIs at wastewater treatment facilities. For decades, instrumentation and process models have played an essential role in advancement of wastewater technologies. The predictive nature of process models, which considers the physical, chemical, and biological reactions, provides insights that otherwise are difficult, time consuming and, sometimes impossible to comprehend. Recent advancements both in instrumentation, process models, and artificial intelligence-based data driven model has encouraged utilities and consultants to explore possibilities of deploying DTPIs. However, there is no clarity on the definitions, different types of implementations, and capabilities when it comes to DTPIs. There is a need to identify a unified framework for successful implementations of DTPIs. A panel of utility, consultants, and technology experts will present their experiences in designing, piloting, and commissioning DTPIs.

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Workshop C: Process Intensification – Getting 10 Gallons out of a 5-gallon Bucket

Monday, June 20, 2022

8:30 a.m. – 12:00 p.m.

Coordinator: Fidan Karimova, Water Environment Federation

Over 80% of the US population currently lives in urban areas and this number is expected to reach 90% by 2050. Increased population pressure translates to increased demand on water resource recovery facilities (WRRFs) with less land available to expand to treat wastewater for an ever growing community. In addition, WRRFs located in coastal zones must contend with sea level rise shrinking the available footprint for future facilities. Process intensification at WRRFs will be key to maintain sustainable growth and continue to meet demands in smaller footprints. This workshop will highlight intensification opportunities at every step of a WRRF. This workshop will be divided into three segments, with each one covering a different area of the WRRF process, spotlighting advancements in intensification through technology, academia, and utility lenses. Each segment will have its own MC to help facilitate discussion and promote attendee interaction.

This session will be organized by the Research and Innovation Steering Engagement (RISE) Working Group and will incorporate updates from the corresponding RISE Focus Groups for mainstream wastewater treatment and solids treatment topics.

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Workshop D: The Next Generation of Nutrient Recovery

Monday, June 20, 2022

1:30 p.m. – 5:00 p.m.

Coordinator: Wendell Khunjar, Hazen and Sawyer

Speakers: Blair Wisdom, MWRD; Gayathri Ram Mohan, Gwinnett County Department of Water Resources; Jeff Prevatt, Pima County Regional; Matthew Poe, HRSD; Roland Cusick, University of Illinois

Ten years on from the inception of the WRF Nutrient Recovery Challenge Project, numerous utilities have undertaken projects to implement full-scale nutrient recovery at Water Resource Recovery Facilities. It is therefore appropriate to revisit the state of the art with respect to the nutrient recovery paradigm and identify how advancements in technology as well as operational experience can be used to inform the next generation of utilities who will pursue this path. Accordingly, the overarching purpose of the workshop is to convey the state of science of nutrient recovery, lessons learned from the full-scale implementation of nutrient recovery systems, ongoing challenges and successful innovative process control and design strategies that can be used to enhance performance and capacity of nutrient recovery systems. Speakers in this session will focus on addressing key questions related to the following topic areas:

- State of challenges for Next Generation Nutrient Recovery
- Perspectives on factors that influence recovery efficiency
- Practice experience with design, and operation of nutrient recovery facilities
- Ongoing lessons and experiences with optimization efforts
- What challenges continue to exist for existing technologies
- What the next generation of nutrient recovery should look like