Day One: Tuesday, June 21

Technical Program

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.

Opening General Session
Tuesday, June 21, 2022
8:30 a.m. – 10:00 a.m.

8:30 a.m. **Welcome and Moderator Introduction**
Beverley Stinson, AECOM

8:35 a.m. **WEF Welcome**
Ifetayo Venner, ARCADIS, WEF Board of Trustees

8:40 a.m. **Conference Co-Chair Panel: Integrating Perspectives on Challenges and Opportunities – What are the Next Solutions?**
Charles Bott, HRSD
Jeseth Delgado Vela, Howard University
Jose Jimenez, Brown and Caldwell
Blair Wisdom, Metro Water Recovery

9:15 a.m. **The Black, the White, the Green – The Purple and Yellow… Shifting from Wastewater to Resource Recovery**
Frank Rogalla, Aqualia

9:45 a.m. **Facilitated Q&A**

10:00 a.m. **Session Adjourns for Networking Break in Exhibition Hall**

The WEF Innovations in Process Engineering steering committee is very pleased to announce that Frank Rogalla will give the conference keynote. The presentation promises to be a practical and stimulating look at a resource recovery concepts. Frank is the Director of Innovation and Technology for Aqualia in Madrid, which manages water and environmental services for nearly 30 M people in 17 countries. In that position, he is leading large multidisciplinary projects, on biofuels from algae (www.all-gas.eu), sustainable desalination (www.midesH2020.eu), decentralized nutrient recovery (www.run4life-project.eu), anaerobic membrane bioreactors (www.life-memory.eu), purple photosynthetic bacteria (www.deep-purple.eu) and smart water economy (www.rewaise.eu).

Previously Frank worked as a global process leader in a large engineering and construction company, Black & Veatch, coordinating technical teams between London, Kansas City and the Asian offices (Singapore, Hong-Kong, Perth). After studying Environmental Engineering in Germany, he obtained his MSc with a Fulbright scholarship in the USA. He worked for 10 years in the development center of Veolia (formerly Compagnie Générale des Eaux, CGE) in Paris, France. He collaborated with Metcalf & Eddy in New York and with Severn Trent Services in Sao Paulo, Brazil, always responsible for technology transfer in large municipal or industrial infrastructure projects.

Session 01: Sidestream Bio-P
Tuesday, June 21, 2022
10:45 a.m. - 12:00 p.m.

10:45 a.m. **Invited Presentation - Recent Developments in Bio-P**
More information coming soon

11:00 a.m. **Exploring the Carbon Balance in a Sidestream Enhanced Biological Phosphorus Removal (S2EBPR) Demonstration Facility**
Leon Downing, James Barnard, Patrick Dunlap, Eric Redmond, Lucas Botero
Black & Veatch

11:15 a.m. **Re-calibrating our approach of modeling EBPR and S2EBPR processes**
Mark Miller, Varun Srinivasan, Jose Jimenez, Brown & Caldwell; Adam Klein; Jacqueline Jarrell, Charlotte Water; Peter Dold; James Barnard, Black & Veatch

11:30 a.m. **Facilitated Discussion**

12:00 p.m. **Session adjourns for lunch in exhibit hall**

Session 02: Do Membrane Aerated Biofilm Reactors have an Edge for Addressing Climate Change?
Tuesday, June 21, 2022
10:45 a.m. - 12:00 p.m.

10:45 a.m. **Process Intensification & GHG Emissions Reduction — Can they Coexist?**
Jeff Peeters, GE Water & Process Technologies; Wayne Bagg, Water Corporation; Sylvain Donnaz, Nadine Oschmann, SUEZ Water Technologies & Solutions; Matt Reeve; Andrew Shaw, Black & Veatch; Isabel Telles Silveira

11:00 a.m. **Nitrogen Removal and Nitrous Oxide Emissions from MABR Technology: Experiences from the Ejby Mølle WRRF**
Nerea Uri Carreño, Per Nielsen, VCS Denmark; Krist Gernaey, Danish Technical University; Xavier Flores-Alsina

11:15 a.m. **Membrane Aerated Biofilm Reactor Enables Low-SRT Nitrification and Improves Sludge Settleability: a long-term experimental study**
Amit Kaldate, Giuseppe Guglielmi, Suez Water Technologies & Solutions; Santofabio Corsino, Michele Torregrossa, University of Palermo; Moreno Di Pofi, Matt Reeve, Suez Water Technologies & Solutions

11:30 a.m. **Technical Brief: Ten Months of Results from a Full Scale MABR Sidestream Treatment System**
Gilad Yogev, Lotan Dagai, Neri Nathan, Ronen Shechter, Yuval Nevo, Fluence

11:35 a.m. **Facilitated Discussion**

12:00 p.m. **Session adjourns for lunch in exhibit hall**

Session 03: Ballasted Floculation and Encapsulated Biomass
Tuesday, June 21, 2022
10:45 a.m. - 12:00 p.m.

10:45 a.m. **Biological and Physical Selectors for the Formation and Retention of Mobile Biofilms, Densified-biological Flocs, and Aerobic Granules in Continuous-flow Wastewater Treatment Processes**
Joshua Boltz, Bruce Rittmann, Arizona State University; Glen Daigger, One Water Solutions, LLC

11:00 a.m. **Comparison of Ballasted Activated Sludge Technologies**
Thor Young, Tom Biagioli, Coenraad Pretorius, GHD

11:15 a.m. **Advancements in Process Intensification: Utilizing biocatalysts to increase the population of beneficial microorganisms within biological treatment processes**
Ajay Nair; Nikolaus Hlavacek; Vedansh Gupta; Fatemeh Shirazi; Ameen Razavi, Microvi Biotech Inc.

11:30 a.m. **Facilitated Discussion**

12:00 p.m. **Session adjourns for lunch in exhibit hall**

Session 04: Innovations in Sidestream Treatment
Tuesday, June 21, 2022
1:30 p.m. - 3:00 p.m.

1:30 p.m. **Full Scale Pilot of a Novel Struvite Precipitation System at the Provo WRP**
Eric Auerbach, Mike Broyles, Arcadis; Mudit Gangal, SUEZ - Water Technologies & Solutions; Shellie Turnbow, Matt Kessler, City of Provo Utilities; James Goldhardt, Coombs Hopkins; Matthew Militello,

1:45 p.m. **Commissioning the First Full-Scale Digestor Filtrate (Sidestream) Ammonia Removal Process in the West Coast Using Microvi MNE Technology**
Michael Falk, HDR Inc; Felipe Cartin Munoz; Nikolaus Hlavacek; Allyson Lutz; Ali Dorri; Ajay Nair; Ameen Razavi, Microvi Biotech Inc.

2:00 p.m. **Determining Inhibition Coefficients and Studying Gene Expressions for Sulfide, Nitrite, and Recalcitrant Carbon Toxicity for Better Design of Anammox Process**
Soklida Hong, University of Utah; Haydee De Clippeleir, DC Water; Ramesh Goel

2:15 p.m. **Evaluating a Revolving Algal Biofilm (RAB) to treat Anaerobic Digester Centrate at the Sioux City WWTP to reduce overall plant loading.**
Martin Gross, Max Gangestad, Jens Dancer, Gross-Wen Technologies

2:30 p.m. **Technical Brief: Post Aerobic Digestion (PAD) for Ammonia Removal: Lessons Learned from Full and Bench Scale Studies**
Eric Redmond, Black & Veatch; Fabrizio Sabba; Leon Downing, Black & Veatch; Patrick McNamara; Caitlin Ruff

2:35 p.m. **Facilitated Discussion**

3:00 p.m. **Session adjourns for networking break**

Session 05: Efficiency and Resource Recovery via Membranes and Biofilms
Tuesday, June 21, 2022
1:30 p.m. - 3:00 p.m.

1:30 p.m. **Why does Proper Simulation Matter in the Acronym Soup of Biofilm Systems? AGS, IFAS, MBBR**
Bruce Johnson, Jacobs

1:45 p.m. **An Evaluation of the Reported vs Effective Surface Area to Volume Ratios of Plastic Media Carriers**
Megan Bachmann, Stephanie Klaus, Justin Macmanus, Michael Parsons, HRSD; Haydee De Clippeleir, DC Water; Charles Bott, HRSD

2:00 p.m. **Anaerobic Biofilm Membrane Bioreactor for Wastewater Treatment**
Joshua Boltz, Bruce Rittmann, Robert Stirling, Arizona State University; Brian Roman, University of Washington; Yuhang Cai, Harbin University

2:15 p.m. **Potential of Using Hydrophobic Deep Eutectic Solvents as a Low Energy Extractant for Anhydrous Volatile Fatty Acid Recovery from Arrested Anaerobic Digesters for Easy Downstream Conversion and Utilization**
Xueyao Zhang, Virginia Tech; Yuxuan Zhang, University of Kentucky; Weihua Qing, New Jersey Institute of Technology; Jian Shi, University of Kentucky; Wen Zhang, New Jersey Institute of Technology; Zhiwu Wang

2:30 p.m. **Facilitated Discussion**

3:00 p.m. **Session adjourns for networking break**

Session 06: Densification and Granulation
Tuesday, June 21, 2022
1:30 p.m. - 3:00 p.m.

Facilitator: Chris deBarbadillo

This is a Technology Spotlight session. Format of this session will include quick, in-depth reviews on various technologies, presented by technical experts and utility representatives. Facilitated discussion with audience participation will follow in the remaining time at the end of the session, with additional time during breaks to continue those conversations.

Technology Reviews

Nuvoda
Jason Calhoun

Aqua Aerobics
Terry Reid

World Water Works
Dan Dair

Evoqua
Brett Woods

2:30 p.m. **Facilitated Discussion**

3:00 p.m. **Session adjourns for networking break**

Session 07: Nitrificaton: How Low Can DO Go?
Tuesday, June 21, 2022
3:45 p.m. - 5:00 p.m.

3:45 p.m. **Invited Presentation**
More information coming soon.

4:00 p.m. **When Less is More (GHGs): Comparing the carbon impact of common nitrogen treatment processes using ASM2d models demonstrates surprising tradeoff for low-DO processes**
Jon Liberzon, Tomorrow Water; Kwangtae You, UnU Inc.; David Rhu, Tomorrow Water; Jongrack Kim, Gijung Pak, Gahee Rhee, UnU Inc.

4:15 p.m. **Kinetic Parameterization of Nitrifiers Adapting to Low DO**
Tyler Kisling, Kyle Malin, Kester McCullough, HRSD; Tanja Rauch-Williams, Carollo Engineers; Stephanie Klaus, Christopher Wilson, Charles Bott, HRSD

4:30 p.m. **Technical Brief: A Novel Adaptation Strategy for Mainstream Partial Nitrification at Low Dissolved Oxygen Concentrations in an SBR Operated at Ambient Temperature**
Moomen Soliman; Ahmed Alsayed; Ahmed ElDyasti, York University

4:35 p.m. **Facilitated Discussion**

5:00 p.m. **Session adjourns for reception in exhibit hall**

Session 08: MABR/Membranes/Biofilms
Tuesday, June 21, 2022
3:45 p.m. - 5:00 p.m.

Facilitators: Stephanie Klaus, Isaac Avila

This is a Technology Spotlight session. Format of this session will include quick, in-depth reviews on various technologies, presented by technical experts and utility representatives. Facilitated discussion with audience participation will follow in the remaining time at the end of the session, with additional time during breaks to continue those conversations.

Technology Reviews

Amphibio Technologies
Francisco Valdes

Gross-Wen
Jens Dancer

Veolia
Brad Mrdjenovich

Suez
Jeff Peeters

PERC Water
Kyle Nelson, Tanner Devlin

Innovatreat
Jeff Danner

4:35 p.m. **Facilitated Discussion**

5:00 p.m. **Session adjourns for reception in exhibit hall**

Session 09: There's Something about Densification
Tuesday, June 21, 2022
3:45 p.m. - 5:00 p.m.

3:45 p.m. **Continuous Flow Sludge Densification: Biological and Physical Selection Strategies and Carbon Dynamics**
Jose Jimenez, Pusker Regmi, Brown and Caldwell; Belinda Sturm, University of Kansas; Joshua Boltz, Arizona State University

3:50 p.m. **Coupling a Continuous Upflow Selector with Feast/Famine Selection for a Smooth Startup of Continuous Flow Aerobic Granulation Reactors without Performance Interruption**
Zhaohui An, Virginia Tech

4:05 p.m. **Combining Metabolic, Kinetic and Physical Selection to Achieve Full-Scale Continuous Flow Densification of Activated Sludge at Robert W. Hite Treatment Facility**
Blair Wisdom, Isaac Avila, Metro Wastewater Reclamation District; Rudy Maltos, Metro Water Recovery; Ron Latimer, Alonso Griborio, Will Martin, Wendell Khunjar, Hazen & Sawyer

4:20 p.m. **Successful Full-Scale Continuous Flow Densification of Activated Sludge at Crooked Creek Water Reclamation Facility Without Physical Selection**
Ron Latimer, Hazen and Sawyer

4:35 p.m. **Facilitated Discussion**

5:00 p.m. **Session adjourns for reception in exhibit hall**