



INTENSIFICATION OF RESOURCE RECOVERY FORUM

August 10-12, 2017
Manhattan College
New York

2017

CONFERENCE PROGRAM

This forum is held by the Water Environment Federation, organized in partnership with the Water Environment & Reuse Foundation and the LIFT program, in cooperation with Manhattan College and BlueTech Research.



Intensification of Resource Recovery (IR²) Forum 2017

**August 10 – 12, 2017
Manhattan College
Riverdale, New York**



This conference is held by the Water Environment Federation, organized in partnership with the Water Environment & Reuse Foundation and the LIFT program, in cooperation with Manhattan College and BlueTech Research.

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FORUM STEERING COMMITTEE

Rob Sharp, Chair
Manhattan College

John Barber
Eastman Chemical Company

Charles Bott
Hampton Roads Sanitation District

Jeanette Brown
Manhattan College

Jeff Guild
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Jose Jimenez
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Grace Richardson
Alexandria Renew

Peter Schauer
Clean Water Services

Andrew Schuler
University of New Mexico

Chris Stacklin
OCSD

Jason Turgeon
US EPA

Art Umble
MWH Global

Blair Wisdom
MWRD of Denver Colorado

GENERAL INFORMATION FOR PARTICIPANTS

All events and programming will be held at Manhattan College. [4513 Manhattan College Parkway, Riverdale, NY 10471]

The technical program will be hosted in Kelly Commons Great Room 5ABC.

REGISTRATION

The Registration Desk is located in the Lee Hall Lobby and will be open from 1:00pm – 3:00pm on Thursday. Once the Welcome Session begins, registration will move to Kelly Commons Great Room 5ABC.

HOUSING

Single occupancy dorm housing will be provided in Lee Hall for each Forum participant for Thursday and Friday nights. You will be given your individual room key at the time of check-in at Forum Registration. Please let staff know if you have made housing reservations elsewhere.

ONSITE CONTACT INFORMATION

As a Forum participant, if you have any issue onsite please contact the following WEF Staff for assistance.

Laura Herman, WEF Manager, Education & Training
Email: lherman@wef.org
Mobile Phone: 412.352.7487

Norman Cochran, WEF Manager, Meetings
Email: ncochran@wef.org
Mobile Phone: 703.439.4639

WIRELESS INTERNET

Wireless internet is available throughout campus (including dorms) and is named JASPERNET. No password is required.

ON-CAMPUS PARKING FOR PARTICIPANTS

Limited parking is available for Forum participants in the parking garage on Manhattan College Parkway. Drivers must identify themselves to WEF staff in advance to receive overnight parking permits.

TRANSPORTATION

It will be the responsibility of each participant to plan and confirm travel both to and from Manhattan College. [4513 Manhattan College Parkway, Riverdale, NY 10471]

Public Transportation

Metro-North

- The Marble Hill, Spuyten Duyvil and Riverdale railroad stations are all near the College. The Marble Hill Station is the best choice for connecting with public transportation or taxi. For schedule information, call Metro-North at 212-532-4900 or visit mta.info.

MTA Subway

- Take the 1 train to Van Cortlandt Park-242 Street (last stop).
- Walk up the hill on W. 242nd Street to main gate on right.

Driving Directions

From Long Island

Robert F. Kennedy Bridge (Triborough Bridge)

- Follow signs to Major Deegan Expressway (I-87) North.
- Exit at Van Cortlandt Park South, bear right off the ramp and bear right onto Broadway.
- At second traffic light, turn left and then left again onto Manhattan College Parkway.
- Proceed up hill to main gate on right.

From New Jersey

George Washington Bridge

- Take Henry Hudson Parkway North to 239th Street exit (no commercial vehicles).
- At stop sign, proceed straight across intersection (monument on left), pass traffic light and bear right at fork onto Manhattan College Parkway.
- Proceed downhill to main gate on left.

From Airports

JFK

- Take Van Wyck Expressway North to Grand Central Parkway to Robert F. Kennedy Bridge (Triborough Bridge), and follow the Long Island directions (above).

LaGuardia

- Take Grand Central Parkway to Robert F. Kennedy Bridge (Triborough Bridge), and follow Long Island directions (above).

Newark Liberty

- Take N.J. Turnpike North to George Washington Bridge and follow the New Jersey directions (above).

*Information collected from Manhattan College website:
<https://manhattan.edu/admissions/visit/maps-directions.php>*

MEAL AND RECEPTION FUNCTIONS

Please advise staff as soon as possible if you have any special dietary requirements.

Thursday Evening Welcome Reception

Please join the Steering Committee, technical program presenters, and other participants for a welcome dinner and reception on the first floor of Kelly Commons. Join us for this casual ballpark themed event and network with other Forum participants over food and drink.

Thursday, August 10
Kelly Commons, 1st Floor
5:30pm – 7:30pm

Breakfasts and Luncheons

Breakfasts and luncheons will be provided for all Forum participants in **Locke's Dining Hall**.

Breakfasts

Breakfast will be held Friday and Saturday mornings, 7:15am-8:15am.

Luncheons

Friday, August 11
1:20pm – 2:45pm
Participants must enter Locke's Dining Hall prior to 2pm.

Saturday, August 12
12:00pm - 1:00pm

Friday Dinner Reception and Evening Keynote

Please join Forum participants in the **Smith Auditorium** for a reception and dinner buffet followed by special keynote presenter, Dr. Gerald H. Pollack, PhD.

Friday, August 11
6:00pm – 9:00pm

EMERGENCY PROCEDURES

Manhattan College Emergency Procedures

Call emergency services at 911 and campus security at 7333.

Communicate the details of the condition by providing the exact location and nature of the emergency.

Security Contact Information

Campus Security Office Phone

(718) 862-7240 *During office hours*

(718) 862-7500 *After hours, non-emergencies*

(718) 862-7333 *24-Hour emergency line*

Security Campus Location

Jasper Hall, 1st Floor

Office Hours

Monday - Friday

9:00am - 4:30pm

Campus security patrols 24/7.

CAMERA POLICY AND PUBLICITY NOTICE & RELEASE

Camera Policy

Photographing, videotaping, filming, or live-streaming the events of any technical session is strictly prohibited. Any attendee violating this policy will be required to relinquish the film or digital media and will be immediately removed from the conference.

WEF Publicity Notice & Release

During the Intensification of Resource Recovery Forum 2017, the Water Environment Federation (WEF), its employees and agents, will be photographing, videotaping, and audiotaping the programs and events of the conference. By voluntarily attending and participating in this Forum you grant an exclusive, royalty-free, non-revocable license to WEF to record your likeness and voice on video, audio, photographic, digital, electronic, or other mediums now or hereafter developed, including but not limited to print publications, videotapes, DVD, internet, live streaming, and podcasts, in and for all languages, for WEF's educational and promotional purposes throughout the entire world.

CONTINUING EDUCATION

Education Credits

Participants of this Forum who accurately document their participation will be issued continuing education credits. For technical presentations WEF will award Professional Development Hours (PDHs) at a rate of 1.0 PDH for every hour of participation. Please note that forum attendees are responsible for exploring continuing education requirements in their state to ensure that WEF credits are accepted by the appropriate authority.

To receive the certificate, attendees must be mindful of the following:

- *Request a continuing education credit form from the Registration desk or WEF Staff upon check in.*
- *Note the quantity of time spent in each session on the PDH form.*
- *Have PDH form initialed by WEF Staff beside each session attended.*
- *Return PDH form to WEF Staff at the conclusion of the forum. You will be required to present your photo ID upon submittal.*

The forms will be used to create certificates which will be mailed 8-10 weeks after the conclusion of the forum.

SPONSORSHIP INFORMATION

We would like to thank the following sponsor for their contribution to the conference and program.

Hazen

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Water Bottle Sponsor

LEADERS INNOVATION FORUM FOR TECHNOLOGY AT 5



Leaders Innovation Forum for Technology (LIFT) at 5

Five years ago, WE&RF and WEF launched LIFT (Leaders Innovation Forum for Technology) to help bring new water technology to the field quickly and efficiently. LIFT has grown dramatically. It now includes many tools to accelerate innovation into practice, including:

- **Water Technology Survey Visualization**
- **LIFT Utility Working Group**
- **Technology Scans**
- **LIFT Link**
- **Scholarship Exchange Experience for Innovation and Technology (SEE IT)**
- **FAST Water Test Bed Network**
- **University-Utility Partnerships**
- **Creating the Space to Innovate**
- **Collaborative Demonstration Projects**
- **LIFT Hubs and Affiliates**

For more information on these and other programs, visit: www.werf.org/lift

WEF and WE&RF would like to thank the founding Co-Chairs Dr. Charles Bott and Dr. Sudhir Murthy, the current Vice-Chair Jim McQuarrie, the LIFT Steering Committee, LIFT Working Group members, Technology Scan reviewers, LIFT technology providers, and all the dedicated volunteers and participants that have made this initiative and the progress of the last 5 years possible.

WEF and WE&RF look forward to continuing to work together with you to achieve LIFT's vision for a water sector that "exemplifies an exceptional culture of innovation where all water partners advance and implement new technology."

LIFT BY THE NUMBERS

LIFT BY THE NUMBERS



5 YEARS
and going



12 utility focus groups

with quarterly technical information exchanges



800 technology reviews

providing feedback and insight into technologies



technologies accelerated



30 technology web seminars

engaging more than 2,500 participants

32

travel scholarships awarded

allowing personnel to see and experience innovations in action



600

engaged volunteers

400 utility working group members and 200 technology experts actively participating in LIFT



15 featured facilities

highlighting excellence in global innovation



\$5.5 million

raised to fund innovation and pilots



testbed facilities

part of the FAST Water Network, connecting technology developers with technology users



150 utilities surveyed

to better understand industry priorities and interests

500

LIFT LINK connections



2 dedicated organizations



SESSIONS AT-A-GLANCE

Thursday, August 10

1:00 pm – 3:00 pm

Registration Open

3:00 pm – 4:30 pm

1: Welcome Session

4:30 pm – 5:15 pm

2: Quick Pitches & Poster Session

5:30 pm – 7:30 pm

Evening Welcome Reception

Friday, August 11

7:15 am – 8:15 am

Breakfast

8:30 am – 10:55 am

3: Intensifying Biological Processes

10:55 am – 11:15 am

Coffee and Poster Break

11:15 am – 1:20 pm

4: Innovations in Process Control

1:20 pm – 2:45 pm

Lunch

2:45 pm – 3:55 pm

5: Solids Processing

3:55 pm – 4:45 pm

Coffee and Poster Break

6:00 pm – 7:00 pm

Dinner Reception

7:00 pm – 9:00 pm

The Fourth Phase of Water

Saturday, August 12

7:15 am – 8:15 am

Breakfast

8:30 am – 11:45 am

6: Hydrolysis Showdown

12:00 pm – 1:00 pm

Lunch

1:15 pm – 2:45 pm

7: Implementing Innovation

TECHNICAL PROGRAM

The technical program will be hosted in Kelly Commons Great Room 5ABC.

----- THURSDAY, AUGUST 10 -----

Session 1: Welcome Session

Thursday, August 10
3:00pm – 4:30pm

Facilitator: Rob Sharp, *Manhattan College, 2017 Forum Chair*

3:00pm Welcome to Manhattan College and the IR² Forum 2017
Rob Sharp, Manhattan College

3:10pm Introduction to the LIFT Program
Jim McQuarrie, MWRD

3:20pm Emerging Directions in Resource Recovery Research
Kartik Chandran, Columbia University

3:30pm Facilitated Panel: Innovators and Implementers
Facilitated by Sudhir Murthy, *DCWATER*

- ❖ Innovators:
 - ❖ Matt Kuzma, *OSTARA*
 - ❖ Glenn Vicevic, *GE*
 - ❖ Elena Bailey, *Ovivo*
 - ❖ Andrew Findlay, *Microvi*

- ❖ Implementers:
 - ❖ Pam Elardo, *NYC Environmental Protection*
 - ❖ Peter Schauer, *Clean Water Services*
 - ❖ Jim McQuarrie, *MWRD*
 - ❖ Ya-Chi Tsao, *Philadelphia Water Department*

4:30pm Session Concludes

TECHNICAL PROGRAM

Session 2: Quick Pitches and Poster Session

Thursday, August 10

4:30pm – 5:15pm

Facilitator: Ana Peña-Tijerina, *City of Fort Worth, TX*

4:30pm Introduction by Facilitator

Quick Pitches (5 Minutes for Each Technology)

4:40pm Epic CleanTec - Redefining Urban Wastewater

Aaron Tartakovsky, *Epic Clean Tec*

4:45pm Captivator

George Smith, *Evoqua*

4:50pm Highly Efficient P Recovery from Thickened Sludge

Menachem Tabanpour, Gerhard Forstner, *Nutrient Recovery and Upcycling*

4:55pm Quick Wash

Mike Schmid, *Renewable Nutrients, LLC*

5:00pm Enabling Energy Neutral Wastewater Treatment with Class A Biological Hydrolysis

Glenn Vicevic, *GE Water & Process Technologies*

5:05pm Sampling and Monitoring System (SAMS) for Compliance Management

Pranam Joshi, *NJBSoft*

5:10pm SENTRY-AD: Real-Time Microbial Performance Monitoring in Anaerobic Systems

Jack Ambler, *Island Water Technologies*

5:15pm Session Adjourns

Following this session, Forum attendees are invited to participate in the Thursday Evening Welcome Reception, 5:30-7:30pm in Kelly Commons, 1st Floor.

TECHNICAL PROGRAM

----- FRIDAY, AUGUST 11 -----

Session 3: Intensifying Biological Processes

Friday, August 11
8:30am – 10:55am

Facilitator and Facilitated Discussion Leader: Diego Rosso, *University of California, Irvine*

In this session, each technology will be covered for a total of thirty minutes, broken down as follows: 10 minutes for presentation by the provider, 10 minutes from a utility representative, and 10 minutes devoted to Q&A.

8:30am Introduction by Facilitator

8:40am MicroNiche Engineering™ – Using Material Science to Unlock the Power of Biology

Andrew Findlay, *Microvi Biotechnologies, Inc.*
Jason Warner, *Oro Loma Sanitary District*

9:10am Advanced Biological Nutrient Recovery (ABNR)

Garrett Pallo, *Clearas*
Scott Rogers, *South Davis Sewer District*

9:40am Introduction of MABR and MBfR

Tom Johnson, *CH2M*

9:55am ZeeLung MABR – Simple, Low-Energy Process Intensification

Jeff Peeters, *GE Water & Process Technologies*
Judith Moran, *MWRD*

10:25am The Role of Membrane Aerated Biofilm Reactors (MABR) in Distributed Water Reuse

Ronen Schechter, *Emefcy*
Kiera Fitzgerald, *BlueCoast Water Solutions*

10:55am Session Concludes

TECHNICAL PROGRAM

Session 4: Innovations in Process Control

Friday, August 11
11:15am – 1:20pm

Facilitator: John Barber, *Eastman Chemical Company*
Facilitated Discussion Leader: Pusker Regmi, *Brown and Caldwell*

In this session, each technology will be covered for a total of twenty minutes, broken down as follows: 10 minutes for presentation by the provider and 10 minutes from a utility representative. A facilitated discussion at the end of the session will address questions for the entire panel.

11:15am Introduction by Facilitator

11:25am Introduction by Facilitated Discussion Leader

11:35am inCTRL's Monitoring&Control Platform
Leiv Rieger, *inCTRL Solutions Inc.*
Lina Belia, *Primodal Inc.*

11:55am AvN
Daniel Dair, *World Water Works*
Charles Bott, *Hampton Roads Sanitation District*

12:15pm BLU-X
Tim Braun, *Emnet*
Kieran Fahey, *City of South Bend, Indiana*

12:35pm NPXpress – Low Dissolved Oxygen Wastewater Treatment
Mark LeChevallier, *American Water*
Mark will be presenting both provider and utility perspectives

12:50pm Facilitated Discussion

1:20pm Session Adjourns for Lunch

This session is immediately followed by lunch 1:20-2:45pm provided in Locke's Dining Hall (in Thomas Hall).

TECHNICAL PROGRAM

Session 5: Solids Processing

Friday, August 11

2:45pm – 3:55pm

Facilitator: Glen Daigger, *University of Michigan*

Facilitated Discussion Leader: Jeanette Brown, *Manhattan College*

In this session, each technology will be covered for a total of thirty minutes, broken down as follows: 10 minutes for presentation by the provider, 10 minutes from a utility representative, and 10 minutes devoted to Q&A.

2:45pm Introduction by Facilitator

2:55pm Assessment of High Quality Biosolids Derived Products

Trudy Johnston, *Material Matters*

3:25pm Hydrothermal Processing

Jim Oyler, *Genifuel*

Paul Kadota, *Metro Vancouver*

3:55pm Session Concludes

When this session concludes, attendees are provided a coffee break in the session room to talk one-on-one with poster presenters before an afternoon free and dinner with an exciting program following later in the evening.

TECHNICAL PROGRAM

Friday Evening Program

Friday, August 11
6:00pm – 9:00pm

Following the dinner reception (6:00pm-7:00pm), the evening program will continue with our Keynote presentation.

The Fourth Phase of Water: Beyond Solid, Liquid, and Vapor

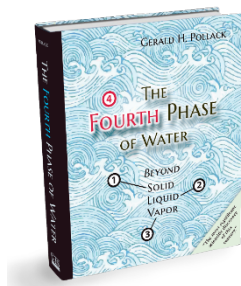
Gerald H. Pollack, PhD
University of Washington, Seattle
ghp@u.washington.edu
<http://faculty.washington.edu/ghp/>

School children learn that water has three phases: solid, liquid and vapor. But we have recently uncovered a *fourth* phase. This phase occurs next to water-loving (hydrophilic) surfaces. It is surprisingly extensive, projecting out from the surface by up to millions of molecular layers. And, its properties differ markedly from those of bulk water.

Of particular significance is the observation that this fourth phase is charged; and, the water just beyond is oppositely charged, creating a battery that can produce electrical current. We found that light charges this battery. Thus, water can receive and process electromagnetic energy drawn from the environment in much the same way as plants. Absorbed electromagnetic (light) energy can then be exploited for performing work, including electrical and mechanical work. Recent experiments confirm the reality of such energy conversion.

This energy-conversion framework seems rich with implication. Not only does it provide an understanding of how water processes solar and other energies, but also it may provide a foundation for simpler understanding natural phenomena ranging from weather and green energy all the way to biological issues such as the origin of life, transport, and osmosis.

The talk will present evidence for the existence of this phase of water — how come nobody's seen it before? It will also consider the broad implications of this phase for science, engineering, and health.



TECHNICAL PROGRAM

----- SATURDAY, AUGUST 12 -----

Session 6: Hydrolysis Showdown

Saturday, August 12
8:30am – 11:45am

Facilitator: Mohammed Abu-Orf, *Hazen and Sawyer*
Facilitated Discussion Leader: Dru Whitlock, *CDM Smith*

In this session, each technology will be covered for a total of thirty minutes, broken down as follows: 10 minutes for presentation by the provider, 10 minutes from a utility representative, and 10 minutes devoted to Q&A.

8:30am Introduction by Facilitator

8:45am PONDUS
Gerhard Forstner, *CNP – Technology and Biosolids Corp.*
Melissa Arnot, *Kenosha Water Utilities*

9:15am Low Temperature Thermal Alkaline Hydrolysis Process
Ajay Singh, *Lystek*
Greg Baatrup, *Fairfield-Suisun Sewer District*

9:45am SolidStream
Bill Barber, *Cambi, Inc.*

10:15am Exelys: High Solids Continuous Thermal Hydrolysis
Sudhakar Viswanathan, *Veolia*
Bjarne Bro, *Billund Vand A/S*

10:45am TurboTec® - The Next Generation Continuous Thermal Hydrolysis Technology
Danny Traksel, *Sustec*

11:15am Facilitated Discussion

11:45am Session Adjourns for Lunch

This session is immediately followed by lunch 12:00pm-1:00pm provided in Locke's Dining Hall (in Thomas Hall).

TECHNICAL PROGRAM

Session 7: Implementing Innovation

Saturday, August 12
1:15pm – 2:45pm

Facilitator: Rob Sharp, *Manhattan College*

**1:30pm The Borderless Water Utility & Marselisborg Energy Producing
WWPT Roadmap**
Claus Homann, *Aarhus Vand A/S, WEF Board of Trustees*

2:15pm Facilitated Discussion

2:30pm Wrap-Up and Closing Comments

2:45pm Forum Adjourns

MANHATTAN COLLEGE CAMPUS MAP



The campus buildings Forum participants should be familiar with are circled above, with explanation of their use indicated by color below.

- Lee Hall (housing): orange circle
- Kelly Commons (technical program and Thursday reception): pink circle
- Thomas Hall – Locke’s Dining Hall (breakfasts and lunches): white circle
- Smith Hall (Friday dinner reception and keynote): green circle

UPCOMING WEF EDUCATION & TRAINING EVENTS

WEFTEC 2017

September 30-October 4, 2017
Chicago, Illinois
www.weftec.org

Utility Management Conference 2018

February 20-23, 2018
San Antonio, Texas
www.wef.org/UtilityManagement

Odors and Air Pollutants Conference 2018

March 25-28, 2018
Portland, Oregon
www.wef.org/OdorsAir

Reuse & Disinfection Symposium 2018

March 25-27, 2018
Portland, Oregon
www.wef.org/ReuseDisinfection

Collection Systems 2018

April 8-11, 2018
Virginia Beach, Virginia
www.wef.org/CollectionSystems

Residuals and Biosolids Conference 2018

May 15-18, 2018
Phoenix, Arizona
www.wef.org/ResidualsBiosolids

WE&RF AND LIFT PROGRAMMING AT WEFTEC 2017

SATURDAY, SEPTEMBER 30

- WEF/WE&RF - Integrated Planning: A Solution for Your Utility? – *Workshop W13*

SUNDAY, OCTOBER 1

- WEF/WE&RF - Source Control and the Transformation of Your WRRF into a SWTF: Integrated DPR into the Water Resource Recovery Facility Paradigm – *Workshop W24*
- WEF/WE&RF - Fostering Innovation within Water Utilities – *Workshop W25*

MONDAY, OCTOBER 2

- Game On! LIFT Passport to Innovation, *Innovation Pavilion*
- Optimizing the Nutrient-Resource-Energy Nexus in a Carbon and Energy Constrained World, *Session 202*
- Technology Innovation and Demonstration Hubs Around the World, *Global Center*

TUESDAY, OCTOBER 3

- Utility Partnerships to Advance Technology: Stories from LIFT, *Innovation Pavilion*
- Balancing Flocculent and Granular Growth for BNR Processes (Knowledge Development Forum), *Session 404*
- Integrated Approach to Sustainable Water Management: Tools and Planning Frameworks to Enable Better Decision-Making, *Session 422*
- Bench-Scale Evaluation of the Genifuel Hydrothermal Processing Technology for Wastewater Solids, *Session 410, Presentation 1445*
- Tools and Resources for Moving Innovation into Practice, *Session 429, Presentation 1562*

WEDNESDAY, OCTOBER 4

- The Pursuit for Acceptable Exceptional Quality Biosolids, *Session 509*
- WE&RF Knowledge Development Forum: Charting New Research Territories, *Session 600*
- A New Era for the Chicago Area Waterway System: Updates from the Metropolitan Water Reclamation District of Greater Chicago and Argonne National Laboratory, *Session 613*

Intensification of Resource Recovery (IR²) Forum 2017: Overall Event Layout

Thursday 8/10 Arrival and Day 1	Friday 8/11 Day 2	Saturday 8/12 Day 3 and Departure
<p style="text-align: center;"><i>1:00pm-3:00pm</i></p> <p style="text-align: center;"><i>Registration Open & Check-in Lee Hall Lobby (moves to Kelly Commons at 3pm)</i></p> <p style="text-align: center;">Session 1: Welcome Session</p> <p style="text-align: center;">4:30pm-5:15pm</p> <p style="text-align: center;">Session 2: Quick Pitches & Poster Session</p> <p style="text-align: center;">5:30pm-7:30pm</p> <p style="text-align: center;">Thursday Evening Welcome Reception</p>	<p style="text-align: center;">7:15am-8:15am BREAKFAST</p> <p style="text-align: center;">8:30am-10:55am</p> <p style="text-align: center;">Session 3: Intensifying Biological Processes</p> <hr/> <p style="text-align: center;">Coffee and Posters 10:55am-11:15am</p> <p style="text-align: center;">11:15am-1:20pm</p> <p style="text-align: center;">Session 4: Innovations in Process Control</p> <hr/> <p style="text-align: center;">1:20pm-2:45pm LUNCH</p> <p style="text-align: center;">2:45pm-3:55pm</p> <p style="text-align: center;">Session 5: Solids Processing</p> <hr/> <p style="text-align: center;">3:55pm-4:45pm Coffee and Posters</p> <p style="text-align: center;">4:45-6:00pm</p> <p style="text-align: center;">AFTERNOON BREAK – FREE</p> <p style="text-align: center;">6:00pm-7:00pm Dinner Reception</p> <p style="text-align: center;">7:00pm-9:00pm</p> <p style="text-align: center;">The Fourth Phase of Water Dr. Gerald H. Pollack, PhD</p>	<p style="text-align: center;">7:15am-8:15am BREAKFAST</p> <p style="text-align: center;">8:30am-11:45am</p> <p style="text-align: center;">Session 6: Hydrolysis Showdown</p> <hr/> <p style="text-align: center;"><i>Coffee in Room: 10:00am – 10:30am</i></p> <hr/> <p style="text-align: center;">12:00pm-1:00pm LUNCH</p> <p style="text-align: center;">1:15pm-2:45pm</p> <p style="text-align: center;">Session 7: Implementing Innovation</p>

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and the most innovative companies from around the world.
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REGISTER NOW



MCCORMICK PLACE CHICAGO
CONFERENCE SEP 30 – OCT 4, 2017
EXHIBITION OCT 2–4, 2017

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YEARS
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