## WEDNESDAY SEPTEMBER 23

#### PRE-CONFERENCE EVENT

2:00-5:00 pm Basics of FO Technology

Prof. Jeffrey McCutcheon, University of

Connecticut

Carl Lundin, CDM Smith



# IFOA ABOUT US

The IFOA is an international non-profit industry association with a singular focus on commercializing Forward Osmosis technology.

It is composed of members from private companies, industry professionals, research and academic organizations.

#### **IFOA Purpose:**

- + Advocating for the global adoption, understanding and benefits of forward osmosis.
- + Establishing and promoting forward osmosis industry standards, specifications, procedures and terminology.
- + Providing a professional network for information exchange on all topics related to forward osmosis.
- + Providing a single industry voice between its membership and the general public.
- + Encouraging cooperation between industry and government institutions for acceptance, regulation and performance standards for forward osmosis.

# IFOA MEMBERSHIP

#### Company

\$1,000/year Includes four memberships for individuals from the same company. Additional individuals can be added at \$250/person/year.

#### Individual

\$300/year Individual membership give

Individual membership gives access to all the standard benefits for a single person.

#### **Student**

\$50/year

An individual membership available to verified students of accredited colleges and universities (must have student email).

#### **CONTACT US**

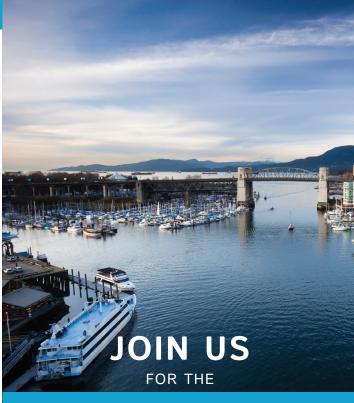
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### THURSDAY SEPTEMBER 24

8:30 – 8:45 am Welcome Remarks from the Organizers Session 1: FO Membrane Innovations Session Chair: Prof. Jeffrey McCutcheon, University of Connecticut, USA. Carbon Nanotube Membrane for 8:45 - 9:20 am Forward Osmosis Dr. Seul Ki Youn, Department of Mechanical and Process Engineering, ETH Zürich, Switzerland The Short and Fat Hollow Fiber 9:20 - 9:55 am FO Membrane Module Hidehiko Sakurai, Toyobo, Japan **BREAK & POSTER SESSION** 9:55 - 10:20 am **Session 2: Wastewater Treatment Studies** from Around the Globe Session Chair: Oliver Geschke, Aguaporin, Denmark Municipal Wastewater Concentration by 10:20 - 10:55 am Forward Osmosis: Trace Organic Solutes Rejection and Biogas Production Study J. C. Ortega-Bravo, Universidad de La Frontera, Chile KWR Watercycle Research Institute, Netherlands Ghent University, Belgium Study of Interaction Between Textile 10:55 – 11:30 am Dyes and CTA FO Membrane in Dyeing Wastewater Treatment Mohammad Karimi. Amirkabir University of Technology, Iran Performance of Thin Film Composite 11:30 - 12:05 pm Membranes at Different Draw Solution Concentrations for Forward Osmosis Applications in Abu Dhabi Sahar Dear, Masdar Institute, United Arab Emirates 12:05 –1:35 pm **LUNCH Session 3: Commercialization Challenges** Session Chair: Carl Lundin, CDM Smith, USA Practical Applications of Forward Osmosis 1:35 - 2:10 pm Peter Nicoll, Modern Water, UK Forward Osmosis: Challenges & 2:10 - 245 pm Opportunities for Commercialization Dr. Shan Yong, Veolia, France/USA 2:45 – 3:00 pm **BREAK** Roundtable Discussion: What are the 3:00-4:30 pm relevant markets for FO? Hard questions for a small industry poised for rapid growth. Discussion Leader: Greg Wetterau, CDM Smith, USA Panelists: Oliver Geschke, Aquaporin, Denmark Bill Harvey, Modern Water, UK Olgica Bakajin, Porifera Inc., USA Gary Carmignani, Trevi Systems, USA



# IFOA GALA DINNER

# AT GROUSE MOUNTAIN

THE PEAK OF VANCOUVER

FOR A GONDOLA RIDE

AND

SUNSET BANQUET
OVERLOOKING VANCOUVER

#### THURSDAY EVENING

Meet at hotel lobby.

First bus at 4:45 pm to explore the mountain resort.

Second bus at 6:00 pm.

Hors d'oeuvres and dinner at 7:00 pm.

## FRIDAY SEPTEMBER 25

# Session 4: From Academic Studies to Applications

Session Chair: John Webley, Trevi Systems, USA

9:00–9:35 am Theoretical Investigation and Design of Integrated Forward Osmosis–Reverse Osmosis (FO–RO) Hybrid System for

Seawater Desalination
Prof. Sangho Lee, School of Civil and Env.
Engineering, Kookmin University, South Korea

Science and Technology, Australia; Ghent University,

9:35 – 10:10 am Practical Considerations for the Scalability of Pressure Assisted Osmosis Systems
Gaetan Blandin, UNESCO Centre for Membrane

Belgium

10:10–10:45 am Experimental Investigation of Power Production by Pressure Retarded Osmosis with a Commercial Semi-Permeable Membrane

Guillaume Clairet, H2O Innovation, Canada

10:45 – 11:00 am **BREAK** 

**Session 5: FO Basics: Draw Solutions**Session Chair: Bill Harvey, Modern Water, UK

11:00–11:35 am Development of Switchable Polarity

Solvent Draw Solutes

Dr. Aaron D. Wilson, Idaho National Laboratory, USA

11:25–12:10 am System Level Design Implications in

Forward Osmosis, Benefits and Drawbacks of Electrical vs Thermal Draw Solution

Regeneration

John Webley, Trevi Systems, USA

12:10 – 1:40 pm **LUNCH** 

Session 5: Challenges with Water Reuse Session Chair: Olgica Bakajin, Porifera Inc.,

USA

1:40 – 2:15 pm Permitting for Direct Potable Reuse and the Role of FO

Greg Wetterau, CDM Smith, USA

 $2:15-2:50 \ pm$  Small Foot Print, Low Energy FO for Reuse

of Challenging Industrial Wastes Erik Desormeaux, Porifera Inc., USA

2:50 – 3:25 pm Transfer of NASA FO Research and

Technology Development to Terrestrial Applications: Grey Water Reuse & Industrial Applications

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Michael Flynn, NASA Ames Research Center, USA

3:25 - 3:45 pm WRAP-UP AND LOOK AHEAD