

The 12th IWA Leading Edge Conference on Water and Wastewater Technologies



Conference Programme

30 MAY – 3 JUNE, 2015
HONG KONG SCIENCE PARK,
HONG KONG

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CONFERENCE PROGRAMME

Saturday, 30 May 2015

11:30	Registration Opens
13:30 – 17:30	Technical Visits

Sunday, 31 May 2015

11:30	Registration Opens		
13:30 – 17:30	Workshop 1 Innovations to create and scale up a sanitation industry	Workshop 2 Water Sensitive Cities: designing and planning for water resilient societies with diversified water supply	Workshop 3 Food Waste: From Waste to Resource

WORKSHOP SESSIONS

Workshop 1

Innovations to create and scale up a sanitation industry

Organiser: Bill & Melinda Gates Foundation

Objective: Update progress on lead technologies in the reinvent of the toilet portfolio.

Workshop 2

Water Sensitive Cities: designing and planning for water resilient societies with diversified water supply

Organisers: Jurg Keller (Australia); Valerie Naidoo (South Africa) and Guanghai Chen (Hong Kong, China)

Objective: Discuss broader integration of different water sources of varying quality, and feasibility of implementation towards a water secure future.

Workshop 3

Food Waste: From Waste to Resource

Organisers: George A Ekama (University of Cape Town, South Africa); Guanghai Chen (Hong Kong, China)

Objective: Present and discuss experiences in the bioprocessing of organic waste for biological production of fuels and high value commodities

30min	Reinventing the sanitation industry to better servicing the poor in developing countries. Dr. Doulaye Kone
25min	Development of Distributed and Integrated off-grid Wastewater Treatment Systems for Use in the Developing World. Prof. Michael R. Hoffmann
25min	Microbial Fuel Cells and their role in Sanitation Prof. Ioannis Ieropoulos
25min	Size Matters: Creating Toilet Business at scale vs. Scaling up? Prof. Muhammad Sohail (Khan)
25min	The biochar omni processor, a transportable sludge management solution. Dr. Brian von Herzen

15min Break

25min	Global Market assessment and market size of reinvented toilet and sanitation Dr. Sarah Cairns-Smith and Dr. Haley Hill
60min	Overall discussion and wrap-up: Approach for scaling up innovation (60 min). Doulaye Kone (moderator).

15 min	Stormwater Management in Hong Kong. Mr Yiu-kwong HO.
15 min	Overview of the state of uptake of sustainable urban drainage systems in South Africa – Challenges and Opportunities. Dr Kirsty Carden
20 min	“Rainwater’s fine but I won’t use recycled water”: the role of community in diversified water supplies. Prof Kelly Fielding and Dr Shihu Hu
40 min	Panel Discussion: Facilitated by Valerie Naidoo

15min Break

20 min	Long Term Experience of seawater toilet flushing practice / Case study of triple water supply at HK International Airport. Ms Mabel Lam and Dr Samuel Chui.
15min	Water sensitive Design: Alternative Water Supply and preparing for the Future in South Africa. Dr Valerie Naidoo
15min	How to create a direct potable water recycling solution while avoiding the ‘toilet-to-tap’ issue? Prof Jurg Keller
40min	Panel Discussion: Facilitated by Jurg Keller

30 min	Food Waste: From Waste to Resource Ms Francesca Giroto
40 min	Commodities from municipal solid waste. Prof Bill Clarke
40 min	Pretreatments for anaerobic codigestion in sewage treatment facilities. Prof Vincenzo Belgiorno
40 min	Bioconversion of Food Wastes to Biofuel and Animal Feed through Insect Farming. Prof Samir Khanal

15min Break

30 min	The advantages and disadvantages of food waste discharge to sewer: A case study on the Sha Tin WWTP. Prof George Ekama
30 min	Panel discussion. All 5 speakers

Monday, 1 June 2015

08:00	Registration Opens
08:45	Opening Addresses Mark van Loosdrecht, Programme Committee Chairman of LET2015 Helmut Kroiss, President of the International Water Association Tony F Chan, President of the Hong Kong University of Science and Technology Wong Kam-sing, JP, Secretary for the Environment of the Hong Kong Special Administrative Region Government Allen Ma Kam-sing, Chief Executive Officer of Hong Kong Science and Technology Parks Corporation
09:30	Total water management in Hong Kong Chi Ming Chan, Deputy Secretary for Development (Hong Kong, China)
10:15	Morning Tea/Coffee
10:45	Recent advances in membrane filtration systems for water purification in Japan Yoshimasa Watanabe, Chuo University (Japan)
11:30	Enlightment from the strategy for making wastewater new resources Yi Qian, Tsinghua University (China)
12:15 – 13:30	Lunch
13:30	Promoting public acceptance of water reuse: insights, challenges and future directions Kelly Fielding, University of Queensland (Australia)
14:15	Building confidence in adopting new technologies Harry Seah, PUB (Singapore)
15:00	Leading edge but market failure – From new technology to successful product Reinhard Hübner, SKion GmbH (Germany)
15:45 – 16:15	Afternoon Tea/Coffee
16:15 – 18:00	Poster Session

Tuesday, 2 June 2015

08:00	Registration Opens	
08:30	SESSION 1: ALTERNATIVE WATER SOURCES Chairs: How Yong Ng and Chii Shang	SESSION 2: TREATING COMPLEX INDUSTRIAL WASTEWATERS Chairs: Pedro Alvarez and Rene Rozendal
09:00	Keynote (1): Water Cycle Management for Efficient and Safety Water Reuse Xiaochang Wang, Xi'an University of Architecture and Technology (China)	Keynote (1): Treatment of refractory industrial wastewater using chemical oxidation and biological treatment John Crittenden, Georgia Institute of Technology (USA)
09:15	Photothermal Nanocomposite Membrane For Low Cost Desalination By Solar Membrane Distillation Q.Li, J.Wu, J.Xu and P.Szemraj (USA)	Treatment Of Tannery Wastewater For Reuse By Physical-chemical Processes And A Membrane Bioreactor J.Fettig, V.Pick and N.V.Phuoc (Germany)
09:30	Dual-layer Electrospun Nanofibrous Membrane For Direct Contact Membrane Distillation H.K.Shon, L.D.Tijing, Y.Woo, M.Yao and K.J.An (Australia)	An Integrated-Thinking Design For Biological C, N, S Removal From TFT-LCD Wastewaters L.Whang, Y.Wu and P.Liu (Chinese Taiwan)
10:00 – 10:30	Discussions	Discussions
10:30	Morning Tea/Coffee	
11:00	Keynote (2): Sustainable Water Resources to Meet Challenge Wing Kee Kam, Water Supplies Department (Hong Kong, China)	Keynote (2): License to Operate - challenges to the Mining Industries Yeonuk Choi, BARRICK (Canada)
	Application Of Hybrid FO/RO In Brackish Water Purification System Optimization: A Case Study Y.F.Xie, W.D.Wang and M.Esparra (USA)	Advanced Biological Treatment Of Coal-Based Wastewaters F.S.Lupton, A.Antolovich and Alan Greenberg (USA)

11.15	A Ten Liter Microbial Desalination Cell Packed With Ion-Exchange Resin To Enhance Desalination K.Zuo, J.Cai, S.Liang, S.Wu, C.Zhang, P.Liang and X.Huang (China)	Scale-up Of PN-anammox/AOP Process For N And Refractory COD Removal From Industrial Wastewater M.Ruscalleda, A.Anfruns, A.Vilà, J.Gabarró, M.D.Balaguer and J.Colprim (Spain)
11.30	Discussions	Discussions
12:00 – 13:00	Lunch	
13:00	SESSION 3: DIRECT POTABLE REUSE Chairs: Harry Seah and Gary Amy	Session 4: INTEGRATED CHEMICAL AND BIOLOGICAL TREATMENT Chairs: Bruce Rittmann and Satoshi Okabe
13:30	Keynote (1): DPR Processes: Equivalency of Advanced Treatment Trains Rhodes Trussell, Trussell Technologies, Inc. (USA)	Keynote (1): Anaerobic Fluidized Bed Membrane Bioreactor Jaeho Bae, Inha University (Korea, the Republic)
13:45	Monitoring Reverse Osmosis Membrane Integrity For Direct Potable Reuse Applications J.G.Jacangelo, A.Subramani, S.Gray and M.Carn (USA)	Enhancing The Membrane Flux Of An Anaerobic Membrane Reactor By Using Adsorbents And Precipitants D.C.Stuckey, and Q.Zhang and S.Singh (United Kingdom)
14:00	Direct Potable Reuse In Windhoek, Namibia J.Lahnsteiner, P.du Pisani, J.Menge and J.Esterhuizen (Austria)	Graphene-Coated Hollow Fiber Membrane As Cathode Electrode In Anaerobic Electrochemical Membrane Bioreactor P.E.Saikaly, C.M.Werner, K.Katuri, W.Chen, Z.Lai and G.Amy (Saudi Arabia)
14:30 – 15:00	Discussions	Discussions
15:00	Afternoon Tea/Coffee	
15:30	Keynote (2): An Australian Perspective on DPR: Technologies, Sustainability and Community Acceptance Ian Law, IBL Solutions (Australia)	Keynote (2): Hydrogen-based Membrane Biofilm Reactor Robert Nerenberg, University of Notre Dame (USA)
15:45	Water Quality Assessment For Direct Potable Use Of Reclaimed Wastewater Using A Transcriptome-based Bioassay S.Okabe, L.C.Tan, H.Hara-Yamamura and T.Fukushima (Japan)	Complete Perchlorate Reduction Using Methane As The Sole Electron Donor And Carbon Source H.Zhao, Y.Luo, R.Chen and B.Rittmann (China)
16:00	Health Risk Assessment Of Organic Micropollutants In Greywater For Potable Use J.P.van der Hoek and R.Etchepare (The Netherlands)	Intimate Coupling Of Photocatalysis And Biofilm Biodegradation B.Rittmann, G.Li, S.Park and M.Marsolek (USA)
16:30	Discussions	Discussions
	End of Day	

Wednesday, 3 June 2015

08:30	SESSION 5: E-TECHNOLOGY IN URBAN WATER MANAGEMENT Chairs: Carlos Campos Callao and Jurg Keller	SESSION 6: RESOURCE RECOVERY FROM WASTEWATER Chairs: Peter Cornel and Aijie Wang
09:00	Keynote: Smart Technologies for efficient operation of water systems :From a concept to reality David Duccini, SUEZ Environnement (France)	Keynote: Used-water: A source for renewable energy, heat, nutrients and water Peter Cornel, TU Darmstadt (Germany)
09:15	Leveraging Big Data For Intelligent, Utility Management G.Wong (USA)	Upgrading And Methanisation Projects At WWTP Avedøre D.Thornberg and L.K.Nielsen (Denmark)
09:30	An EDSS For Wastewater Treatment Selection Successfully Bridged The Gap From Science To Market A.Castillo, V.Gómez, M.Garrido-Baserba, J.Porro, J.Comas and M.Poch (Spain)	Biochemical And Biofuel Recovery From Cassava Ethanol Wastewater In China L.Xie, Z.Yin, C.Ji and Q.Zhou (China)
10:00 – 10:30	Discussions	Discussions
	Morning Tea/Coffee	

10:30	Smart Urban Drainage Systems: Towards A Quality-based Management B.Barillon, R.Lopez Roldan, J.Llorca Porcel and D.Granger (France)	Biogas Upgrading Using Membranes And Ammonia Rich Wastewater: An Energy And Nutrient Recovery Nexus E.J.McAdam, A.McLeod and B.Jefferson (United Kingdom)
10:45	Innovative integration of urban water and wastewater operations through whole-of-system optimisation. Keshab Sharma, Lisha Guo, Ilje Pikaar, Jurg Keller and Zhiguo Yuan (Australia)	Size Matters! The Case Of A Full Scale Pilot For P-recovery From Digestate In Belgium S.Geerts, A.Marchi and M.Weemaes (Belgium)
11:00	Autonomous Monitoring And Control Platform For Wastewater Processes Powered By MES P.Ledezma and J.Keller (Australia)	Total Environmental Profile Of Processes For P Recovery From Sewage Sludge, Liquor And Ash With LCA C.Remy, P.Jossa, C.Kabbe and B.Lesjean (Germany)
11.15	Maximum Anaerobic Co-digestion Performance Through Low Cost Optimum Substrate Blending And Control J.Lema, S.García-Gen and J.Rodríguez (Spain)	Production Of Polyhydroxyalkanoates(PHA) From Treated Industrial Effluent And Their Characteristics Y.F.Tsang and D.He (Hong Kong,China)
11.30	Discussions	Discussions
12:00 – 13:00	Lunch	
	SESSION 7: WATER TECHNOLOGY FOR DENSELY POPULATED AND RAPIDLY GROWING CITIES Chairs: Guanghao Chen and Beverley Stinson	SESSION 8: GRANULAR SLUDGE PROCESS Chairs: Mark van Loosdrecht and Mari Winkler
13:00	Keynote (1): Water Technology for Densely Populated and Rapidly Growing Cities Henry Tam, Drainage Services Department (Hong Kong, China)	Keynote (1): Extracellular polymers from granular sludge Yuemei Lin, TU Delft, (The Netherlands)
13:30	New Microorganisms, New EBPR For Tropical Coastal Cities H.Wang, D.Wu, R.Liu and G.H.Chen (Hong Kong, China)	A Case For Aerobic Sludge Granulation: From Pilot To Full Scale J.Li (China)
13:45	Mainstream Deammonification With ANITA Mox Process R.Lemaire, M.Christensson, S.Piveteau, S.Hemmingsen, F.Veuillet, P.Zozor, J.Ochoa, X.Chen and L.Pelletier (France)	Anaerobic Granular Sludge From Full-scale Reactors Contains Alginate-like Exopolysaccharides G.Gonzalez-Gil, L.Thomas, A.H.Emwas, P.N.L.Lens and P.E.Saikaly (The Netherlands)
14:00	Discussions	Discussions
14:30 – 15:00	Afternoon Tea/Coffee	
15:00	Keynote (2): Building future-oriented China wastewater treatment plant---from conceptual to practical Kaijun Wang, Tsinghua University (China)	Keynote (2): Microbiology and Granular Sludge Damien Batstone, University of Queensland (Australia)
15:30	Anaerobic Membrane Bioreactor (AnMBR) And Mainstream Anammox For Domestic Wastewater Treatment M.Rattier, S.Hu, C.Hertle, D.Batstone and J.Keller (Australia)	Scale Up Of An Anammox Based Process (ELAN®) For The Treatment Of Fish Canning Effluents A.Val del Río, J.Vázquez-Padín, N.Morales, R.Fernández, A.Pedrouso, J.L.Campos, A.Mosquera-Corral, R.Méndez, P.Icaran, F.Sánchez-Miel and F.Rogalla (Spain)
15:45	Towards Practical Application Of Mainstream Deammonification For Urban Wastewater Treatment I.Mozo, L.Lacoste, S.E.Vlaeminck, B.Barillon and L.Graveleau (France)	Modelling of simultaneous methane and ammonium removal in an anoxic as well as aerated granular sludge reactor M.K.H.Winkler, C.M.Castro-Barros, L.T.Ho and E.I.P.Volcke (Belgium)
16:00	Discussions	Discussions
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- 104 **Experimental Study Of Direct Contract Membrane Distillation (DCMD): A New Approach Of Operation Scale.**
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- 112 **Wetlands Treating Concentrate For Environmental Restoration: From Pilot To Full-scale, Goodyear AZ.**
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- 118 **Impacts Of Intensive Ground Water Use From Industries And Potential Alternative Water Resou.**
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- 202 **Dynamic Alternative Analyzer For Complex Industrial Wastewater Treatment Alternative Evaluation.**
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- 203 **Effect Of HRT On The Performance Of MBR System For Highly Toxic Coke Wastewater Treatment.**
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- 204 **Ozone Treatment Of Beverage Plant Wastewater Containing Colorants: Pilot And Scalability Study.**
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- 205 **Arsenate removal from groundwater by modified alkaline residue.**
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- 207 **Evaluating Influences Of Wastewater Composition On The Growth Of M. Parvicella By GCxGC-qMS And QPCR.**
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- 210 **Numerical Analysis For MCr Process To The Shale Gas Produced Water Treatment.**
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- 213 **An Innovative Marine Sediment Membrane Bioreactor For The Treatment Of Pharmaceutical Wastewater.**
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- 216 **Development And Testing Of A Fouling Model For A MBR System Using Both Static And Rotating Membranes.**
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- 217 **Metal-Organic Framework As Novel Photocatalysts: Opportunity And Challenge.**
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- 220 **Membranes - Standardised Qualification and Key Performance Indicators .** A. Hauser, S. Pattanayak. (Singapore)
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- 303 **Adsorption Removal Of Amantadine In Reclaimed Water At Trace Level By Carbonaceous Materials.**
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- 304 **Removal Of Biocide From Reverse Osmosis Concentrate By Ozonation During Potable Reuse.**
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- 305 **Aptamer Based E-coli Detection In Waste Waters By SWCNTs Modified Biosensor System.**
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- 306 **Toxicogenomics Analysis Reveals Distinct Impact Of Various Disinfection Processes On Effluent.**
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- 307 **A Novel Biofiltration For Taste And Odour Removal In Potable Water.**
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- 308 **The Basic Study For Direct Membrane Filtration Of Primary Effluent Using UF And RO Membranes.**
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- 404 **Effect Of Effluent Organic Matter On Ozonation Of Bezafibrate.**
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- 405 **Effect Of Mixing Strength On Particle Destabilization In Coagulation Process - A Pilot Study.**
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407	Influence Of Plant On Performance Of A Pilot Bioelectrochemical System For Sediment Remediation. H. Zhai, M. Ji, B. Liu, W. Zhao (China)
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409	Biological Enhancement By Phosphate Addition For Organic Matter Removal In MBR Systems. Y. Zhang, Y. Wang (China)
410	Modelling and verification of optimal operation conditions for fast and stable nitrification of high-strength ammoniac wastewaters in a continuous reactor. H. Khan, W. Bae (Korea, Democratic People's Republic of)
411	Optimization Of Electro-chemical Treatment Of Wastewater From Wet Scrubber. C. Park, E. Jo, S. Park, I. Yeo, J. Cha, J. (Korea)
412	Effects Of Coexistence Of TiO2 And ZnO Nanoparticles On Nitrosomonas Europaea. R. Yu, J. Wu, M. Liu, L. Chen (China)
413	Valuation Of OSA Process And Folic Acid Addition As Excess Sludge Minimization Alternatives Applied. C. Martins, V. Velho, S. Ramos, A. Pires, E. Duarte, R.(Brazil)
414	Pharmaceutical Removal In A Submerged Anaerobic Membrane Bioreactor With Powdered Activated Carbon. D. Stuckey, Y. Xiao, H. Yaohari, C. De Araujo, C. Sze (United Kingdom)
415	Integrated Biological And Chemical Process For Phosphorus Removal From Sewage In SBR. C. Voltolini, R. Mohedano, N. Neumann, H. Hoffmann, R. Costa (Brazil)
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417	Control Of Dissolved Organic Nitrogen Using A Biofilter In The Drinking Water Treatment Process. H. Zhang, X. YU(China)
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419	Performance Of A Novel In-situ Sludge Reduction Process In A Full-scale Wastewater Treatment. Z. Zhou, L. Jiang. (China)
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424	A Denitrifying Bioelectrochemical System With High Denitrification Rates And Water Pre-disinfection. N. Pous, S. Puig, M. Balaguer, J. Colprim (Spain)

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428	Role Of Internal Electron Donors Generated By UV Photolysis For Accelerating Pyridine Biodegradation. B. Rittmann, Y. Tang, Y. Zhang (United States)
429	Full-scale Implementation Of A Vertical Membrane Bioreactor For Recycling Of Municipal Wastewater. S. Chae, J. Chung, Y. Heo, S. Kang, S. Lee, H. (United States)
430	A Bioreactor Integrated System For Decentralized Rural Domestic Wastewater Treatment. E. Xie, R. Jing, A. Ding, J. Dou, L. Zheng (China)
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