

11th IWA Specialist Group Conference on Wastewater Pond Technologies

DRAFT PROGRAMME

Monday 21st March

10.00 – 17.00	<p>Design of Modern Wastewater Stabilization Ponds Systems</p> <p>We will also be hosting a free 1-day, specialist course prior to the conference sessions on the 21 March 2016. That course is mainly aimed at Young Water Professionals, who already know or work with waste stabilization pond systems and want to achieve a higher degree of specialisation in the field, as well as other researchers and professionals specifically interested in this topic. Places are limited so please ensure you book your place when you register.</p>
17.00 – 17.30	Registration
17.30 - 18.00	Inaugural
18.00 – 19.00	Drinks Reception

Tuesday 22nd March

8.30 – 9.00	Registration
Room 1	
9.00 – 9.40	Guest Speaker: Bioenergy Generation in WSP
9.40 – 10.00	Guest Speaker: Bioenergy Opportunities from Algal Biomass
10.00 – 10.20	<p>Energy recovery in high rate algal pond used for domestic wastewater treatment</p> <p>Assemany, P.P., Calijuri, M.C., de Souza, M.H.B, de Aguiar do Couto, E., Department of Civil Engineering, Núcleo de Pesquisas Ambientais Avançadas – nPA, Universidade Federal de Viçosa, Brazil</p>
10.20 – 10.40	<p>The application of anaerobic digestion ponds for UK domestic wastewater treatment</p> <p>Cruddas, P.H., Jefferson, B. and McAdam, E.J., Cranfield Water Science Institute, Cranfield University, UK</p>
10.40 11.00	<p>Algal Urban Wastewater Treatment</p> <p>Khandan, N. N., Henkanatte-Gedera, S. M, Selvaratnam, T., Civil Engineering Department, New Mexico State University, USA</p>

11.00 – 11.20	Coffee Break
11.20 – 11.40	A mechanical model for sunlight inactivation of viruses and bacteria in waste stabilization ponds Nelson, K.L., Nguyen, M.T. and Silverman, A.S., Civil and Environmental Engineering, University of California, USA
11.40 – 12.00	Mechanisms of naturally occurring enzymatic virus removal Inglis, A.R. and Weaver, L., Department of Chemistry, University of Canterbury, New Zealand
12.00 – 12.20	Modeling virus removal in wastewater treatment ponds Vannoy, K.J. ¹ , Verbyla, M.E. ¹ , Mihelcic, J.R. ¹ , Oakley, S.M. ² ¹ University of South Florida, USA, ² California State University, USA
12.20 – 12.40	Inactivation and damage on bacteriophage MS2 by ammonia in human excreta Oishi, W. ¹ , Decrey, L. ² , Tezuka, R. ¹ , Sano, D. ¹ , Kohn, T. ² and Funamizu, N. ¹ ¹ Department of Environmental Engineering and Science, Hokkaido University, Japan, ² Laboratory of Environmental Chemistry, School of Architecture, Civil and Environmental Engineering (ENAC), École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
12.40 – 13.00	Virus associations with particles in stabilization pond systems: settling or no settling? Verbyla, M.E. and Mihelcic, J.R., University of South Florida (USF), USA
13.00 – 14.00	Lunch
14.00 – 15.00	Guest Speaker: Emerging Challenges for Wastewater Reuse in WSP Systems
15.00 – 15.20	Quantitative microbial risk assessment applied to unrestricted irrigation with waste stabilization ponds effluents – evaluating the exposure modelling of the WHO guidelines Matangue, M.A.T. and Bastos, R.K.X. Universidade Federal de Viçosa, Departamento de Engenharia Civil. Viçosa-MG, Brazil
15.20 – 15.40	Microbial source tracking to improve management options for reusing water treated by waste stabilization ponds Stratton, H.M. ^{1,3} , Purushotorman K. ³ , Christie, M. ^{1,3} , Lemckert, C. J. ^{1,2} , Roiko, A. ^{1,4} , ¹ Smart Water Research Centre, Griffith University, Australia, ² School of Engineering, Griffith University, Australia, ³ School of Natural Sciences, Griffith University, Australia, ⁴ School of Medicine, Griffith University, Australia
15.40 – 16.00	Coffee Break
16.00 – 16.20	Wastewater irrigation of energy crops (<i>pennisetum purpureum</i>) with effluent from waste stabilization pond systems V. M. Saraiva ¹ , A. L. C. Araújo ^{1,2} , M. A. Camargo-Valero ^{3,4} , ¹ Department of Natural Resources, Federal Institute for Education, Science and Technology of Rio Grande do Norte, Brazil, ² Post-Graduation Program of

	Sanitary Engineering, Federal University of Rio Grande do Norte, Brazil, ³ School of Civil Engineering, University of Leeds, UK, ⁴ Departamento de Ingeniería Química, Universidad Nacional de Colombia, Colombia
16.20 – 16.40	Microalgae biofilm in soil: nitrogen loss and crop productivity Jackeline de Siqueira Castro, J. ¹ , Calijuri, M.L. ¹ , de Assis, I.R. ² , Assemany, P.P. ¹ , Ribeiro, V.J. ² , ¹ Department of Civil Engineering: Universidade Federal de Viçosa, Brazil, ² Soil Department, Universidade Federal de Viçosa, Brazil
16.40 – 17.00	
Room 2	
10.00 – 10.20	Diversity of algae communities associated with a high rate algal bioremediation leachates for landfill system Sardi-Saavedra, A. ¹ , Peña-Salamanca, E. ² , Madera-Parra, C. ² , Cerón-Hernández, V. ¹ , Peña-Varon M. R. and Mosquera J, ³ , ¹ Universidad del Valle - Instituto Cinara, ² Universidad del Valle-Escuela EIDENAR, ³ Universidad del valle, Escuela de Estadística, Columbia
10.20 – 10.40	Plankton characterization in a UASB reactor-polishing pond series system Bastos, R.K.X. and Magalhães, A.S., Universidade Federal de Viçosa, Departamento de Engenharia Civil, Brazil
10.40 – 11.00	Ocurrence of cyanobacteria and microcystins in waste stabilization ponds in northeast of Brazil Araújo, F. ¹ ; Lima, W. R. de ² ; Becker, V. ¹ ; Camargo-Valero M. A. ^{3,5} ; Araújo, A. L. C. ^{2,4} , ¹ Laboratório de Recursos Hídricos e Saneamento Ambiental, Departamento de Engenharia Civil, Centro de Tecnologia. Universidade Federal do Rio Grande do Norte, Brazil, ² Programa de Pós-Graduação em Engenharia Sanitária, Departamento de Engenharia Civil, Centro de Tecnologia. Universidade Federal do Rio Grande do Norte, Brazil, ³ School of Civil Engineering, University of Leeds, UK, ⁴ Department of Natural Resources, Federal Institute for Education, Science and Technology of Rio Grande do Norte, Brazil, ⁵ Departamento de Ingeniería Química, Universidad Nacional de Colombia, Colombia
11.00 – 11.20	Coffee Break
11.20 – 11.40	Evaluation of treatment efficiency and duckweed production in the polishing of stabilization pond WWTP effluent de Oliveira Garcia, D.C., Albertin, L.L. and Matsumoto, T., UNESP – Univ Estadual Paulista, Engineering College of Ilha Solteira, Civil Engineering Department, Brazil

11.40 – 12.00	<p>Optimization of microalgae cultivation in high rate ponds with biofilm growth</p> <p>de Assis, L.T., Calijuri, M.L., Assemany, P.P., de Aguiar do Couto, E., ¹Department of Civil Engineering, Núcleo de Pesquisas Ambientais Avançadas – nPA, Universidade Federal de Viçosa, Brazil</p>
12.00 – 12.20	<p>Algae removal from wastewater stabilization ponds using upward vertical flow roughing filters</p> <p>Caminha, O.R.S.M.¹, Brandão, C.S.S.^{2,1,2} Universidade de Brasília, Brazil</p>
12.20 – 12.40	<p>Biomass recovery from algal ponds by Dissolved Air Flotation (DAF)</p> <p>D. M. Torres¹, A. C. Brito², R. Oliveira³, A. L. C. Araújo^{2,4}, M. A. Camargo-Valero^{5,6}, ¹Department of Natural Resources, Federal Institute for Education, Science and Technology of Paraíba, Brazil, ²Post-Graduation Program of Sanitary Engineering, Federal University of Rio Grande do Norte, Brazil, ³Department of Civil Engineering, Paraíba State University, Brazil, ⁴Department of Natural Resources, Federal Institute for Education, Science and Technology of Rio Grande do Norte, Brazil, ⁵School of Civil Engineering, University of Leeds, UK, ⁶Departamento de Ingeniería Química, Universidad Nacional de Colombia, Sede Manizales</p>
12.40 – 13.00	<p>Analysis of sludge drying from stabilization ponds WWTP using the forced air convection and thermal infrared lamps</p> <p>de Souza Leite, L., Matsumoto, T., ¹Universidade Estadual Paulista, Faculdade de Engenharia de Ilha Solteira, Departamento de Engenharia Civil, Brazil</p>
13.00 – 14.00	Lunch
15.00 – 15.20	<p>Solar radiation (PAR, UV-A, UV-B) penetration in a shallow maturation pond operating in a tropical climate</p> <p>Dias, D.F.C. and von Sperling, M., Department of Sanitary and Environmental Engineering, Federal University of Minas Gerais, Brazil</p>
15.20 – 15.40	<p>Inclusion of pond walls to enhance solar exposure and pathogen removal</p> <p>Hawley, A. and Fallowfield, H., Health and Environment Group, School of the Environment, Flinders University, South Australia</p>
15.40 – 16.00	Coffee Break
16.00 – 16.20	<p>Optimising wastewater ponds for effective pathogen removal</p> <p>Weaver, L, Webber, J., Karki, N., Thomas, K., Mackenzie, M., Lin, S., Inglis, A., and Williamson, W., Institute of Environmental Science & Research Ltd, New Zealand</p>
16.20 – 16.40	<p>Design tool for novel WSP system configurations in continental climates</p> <p>Heaven, S., Clarke, D., Lock, A.C., Faculty of Engineering and The Environment, University of Southampton, UK</p>

16.40 – 17.00	Solar radiation - driver of innovations in pond design and process technologies Rudoph, K.U. and Weil, S., Institute of Environmental Engineering & Management, Witten/Herdecke University, Germany
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Wednesday 23rd March

Room 1	
9.00 – 9.40	Guest Speaker: Life cycle assessment for nutrient recovery in WSP systems
9.40 – 10.00	Guest Speaker: Opportunities for nutrient recovery in WSP systems
10.00 – 10.20	Nitrogen removal in polishing ponds with sludge accumulated during 10 years of operation Rodrigues, V.A.J. ¹ , Mac Conell, E.F.A. ¹ , Dias, D.F.C. ¹ , von Sperling, M. ¹ , de Araújo, J.C. ¹ , Vasel, J.L. ² , ¹ Department of Sanitation, Federal University of Minas Gerais, Brazil, ² Department of Science and Environmental Management, University of Liege, Belgium
10.20 – 10.40	Evaluation of removal of ammonia through natural volatilization in wastewater treatment systems by facultative ponds and shallow maturation ponds Sundefeld Júnior, G.C., Rossete, A.L.R.M., Montes, C.R., Melfi, A.J. and Piveli, R.P., University of Sao Paulo, Brazil
10.40 – 11.00	Nitrification in pilot-scale High Rate Algae Pond (HRAP) operated as sequencing batch for anaerobic effluent treatment Rada-Ariza, A.M. ¹ , Alfonso-Martínez A. ¹ , Leshem U. ² , Lopez-Vazquez C.M. ¹ , Lens P.N.L. ¹ , Van der Steen N.P. ¹ , ¹ UNESCO-IHE, Department of Water Science and Engineering, The Netherlands, ² Aquanos Ltd, Israel
11.00 – 11.20	Coffee Break
11.20 – 11.40	
11.40 – 12.00	Further contributions to the understanding of nitrogen removal in waste stabilization ponds Bastos, R.K.X. and Rios, E.N., Universidade Federal de Viçosa, Departamento de Engenharia Civil, Brazil
12.00 – 12.20	Ecology of duckweed ponds used for nutrient recovery from wastewater Teles, C. C. ¹ , Mohedano, R. A. ¹ , Belli Filho, P. ¹ , Tonon, G. ¹ , Lopes, A.M.B. ¹ , Costa, R.H.R. ¹ , ¹ Federal University of Santa Catarina, Department of Sanitary and Environmental Engineering, Brazil

12.20 – 12.40	<p>Triggering luxury uptake of phosphorus in waste stabilization pond microalgae</p> <p>Sells, M., Shilton, A. and Brown, N., School of Engineering and Advanced Technology, Massey University, New Zealand</p>
12.40 – 13.00	<p>Phosphorous recovery via biological algal uptake by <i>Chlamydomonas reinhartii</i> under mixotrophic conditions</p> <p>Yulistyorina, A., Department of Civil Engineering, University of Leeds, UK</p>
13.00 – 14.00	Lunch
14.00 – 15.00	Guest Speaker: Algal biomass cultivation
15.00 – 15.20	<p>Experience of the design and operation of algal growth facilities for laboratory-scale research</p> <p>Robert, K.P., Heaven, S., Banks, C.J., Faculty of Engineering and Environment, University of Southampton, UK</p>
15.20 – 15.40	<p>Studying the microbial dynamics of microalgal photobioreactors treating municipal wastewater</p> <p>K. Mohammed^{2*}, S.Z. Ahammad^{1,3}, P.J. Sallis¹, and C.R. Mota⁴, ¹School of Civil Engineering and Geosciences, Newcastle University, UK, ²Department of Civil Engineering, Bayero University, Nigeria, ³Department of Biochemical Engineering and Biotechnology, Indian Institute of Technology Delhi, India, ⁴Departamento de Engenharia Sanitaria e Ambiental, Universidade Federal de Minas Gerais, Brazil</p>
15.40 – 16.00	Coffee Break
16.00 – 16.20	<p>Raceway operation for efficient algal biomass cultivation</p> <p>Mendoza, J.L.¹, Banks, C.J.¹, Heaven, S.¹, Ación, F.G.², Molina, E.²</p> <p>¹University of Southampton, UK, ²University of Almeria, Almeria, Spain</p>
16.20 – 16.40	<p>Algal recycling enhances algal productivity and settleability in <i>Pediastrum boryanum</i> pure cultures</p> <p>Park, J.B.K.¹, Craggs, R.J.¹ and Shilton, A.N.², ¹National Institute of Water and Atmospheric Research Ltd, New Zealand, ²School of Engineering and Advanced Technology, Massey University, New Zealand</p>
16.40 – 17.00	<p>Wastewater treatment and biomass production in high rate algal ponds: An overview of the study at the Western Treatment Plant, Melbourne Water</p> <p>Fallowfield, H., Taylor, M., Baxter, K., Lewis, J. and Buchanan, N., ¹Health and Environment Group, School of the Environment, Flinders University, Australia</p>

Room 2	
10.00 – 10.20	<p>Hydrodynamic characterization of shallow unbaffled and baffled maturation ponds using tracers (saline and radioactive)</p> <p>Passos, R.G., Dias, D.F.C., von Sperling, M., Department of Sanitation and Environment, Federal University of Minas Gerais, Brazil</p>
10.20 – 10.40 (23)	<p>Dynamic modeling of a complete pond system</p> <p>Chauvon, G.², Jupsin, H¹, Van de Wouwer, A², von Sperling, M.³, Vassel, J-L¹, ¹Unité: Assainissement et Environnement, Département Sciences et Gestion de l'Environnement, Université de Liège, Belgium, ²University of Mons, Belgium, ³Department of Sanitary and Environmental Engineering; Federal University of Minas Gerais, Brazil</p>
10.40 – 11.00 (64)	<p>Energy transfer model for a facultative pond used for municipal wastewater treatment</p> <p>Peña, M.R., and Zapata, A.M, ¹Universidad del Valle, Instituto Cinara, Colombia</p>
11.00 – 11.20	<p>Coffee Break</p>
11.20 – 11.40 (34)	<p>Performance evaluation and the influence of the operating conditions of stabilization ponds systems in real scale</p> <p>Cordero, M.F.E.¹, von Sperling, M.¹ and Verbyla, M.E.², ¹Department of Sanitary and Environment Engineering, Federal University of Minas Gerais, Brazil, ²University of Florida, USA</p>
11.40 – 12.00 (17)	<p>Impact of the daily stratification/destratification cycle on maturation pond disinfection efficiency – a numerical and field study</p> <p>Lemckert C. J.^{1,2}, Stratton H.M.^{1,3}, Roiko A.^{1,4}, ¹Smart Water Research Centre, Griffith University, Gold Coast, Queensland, Australia, ²School of Engineering, Griffith University, Gold Coast, Queensland, Australia, ³School of Natural Sciences, Griffith University, Gold Coast, Queensland, Australia, ⁴School of Medicine, Griffith University, Gold Coast, Queensland, Australia</p>
12.00 – 12.20 (43)	<p>Comparison of the performance of high rate algal ponds fed wastewater and wastewater enriched with CO2 recovered from biogas at Melbourne Water, Western Treatment Plant</p> <p>Fallowfield, H.¹, Taylor, M.¹, Baxter, K.², Lewis, J.² and Buchanan, N.², ¹Health and Environment Group, School of the Environment, Flinders University, South Australia, ²Melbourne Water Corporation, Australia</p>
12.20 – 12.40 (42)	<p>Chemical removal in selected waste stabilisation pond systems in Western Australia: implications for water recycling</p> <p>Linge, K.L.¹, Gruchlik, Y.¹, Liew, D.¹, Joll, C.A.¹, Papparini, A.², Busetti, F.¹, Ryan, U.², Cadee, K.¹, Lethorn, A.³, ¹Curtin Water Quality Research Centre, Curtin University, Australia, ²School of Veterinary and Life Sciences, Murdoch University, Australia, ³Water Corporation of Western Australia, Australia</p>

12.40 – 13.00 (66)	<p>Operational disturbance as a result of stormwater discharge to a seasonally loaded WSP</p> <p>Miranda, J.L.C., Heaven, S., Mann, D. and Banks, C., Faculty of Engineering and the Environment, University of Southampton, UK</p>
13.00 – 14.00	<p>Lunch</p>
15.00 – 15.20	<p>GHG emissions from algal facultative ponds under tropical conditions</p> <p>Silva, J.P.¹, Caicedo, F.¹, Lubberding, H.J.², Peña, M.R.¹, H.J.^{2,3},¹Facultad de Ingenieria, Universidad del Valle, Colombia, ²UNESCO – IHE Institute for Water Education, Netherlands, ³UNESCO Regional Science Bureau for Asia and the Pacific, Indonesia</p>
15.20 – 15.40	<p>Does duckweed ponds used for wastewater treatment emit or sequester Greenhouse Gases (GHG)?</p> <p>Tonon, G., Mohedano, R. A., Teles, C. C., Lopes, A.M.B., Costa, R.H.R. Belli Filho, P., ¹Federal University of Santa Catarina, Department of Sanitary and Environmental Engineering, Brazil</p>
15.40 – 16.00	<p>Coffee Break</p>
16.00 – 16.20	<p>BOF steel slag and apatite in full-scale constructed wetlands for sustainable phosphorus removal</p> <p>Fonseca, N.^{1,2}, Cripps-Germain, E. ², Pearce, P. ², Dotro, G. ¹, Jefferson, B¹. ¹School of Energy, Environment and Agrifood, Cranfield University, UK ²Thames Water Utilities Ltd, UK</p>
16.20 – 16.40	<p>Gaining agency approval of high rate algal ponds for rural wastewater treatment in South Australia: lessons learned</p> <p>Young, P., Buchanan, N., and Fallowfield, H., Health and Environment Group, School of the Environment, Flinders University, South Australia</p>