Monday May 22nd	
10:00	**Registration opens**
11:00–16:00	**Workshop on Circular Desalination: Value Chains and Sustainability** Organised by Assistant Professor Dimitris Xevgenos, TU-Delft
18:00	**Reception at Parklane Hotel**
Tuesday morning May 23rd	
08:00	**Registration**
09:00	**Opening Ceremony** **Keynote presentations**
11:00	**Exhibition opening**
11:30	**Panel session Shining a light on Health and Safety Challenges in Desalination Plants**
13:00	**Lunch**

Tuesday afternoon May 23rd					
ROOMS	**A**	**B**	**C**	**D**	**E**
14:00–15:40	**Session 1 SWRO plants operation**	**Session 2 Sustainability: Economic, social and environmental issues**	**Session 3 Thermal systems and cogeneration**	**Session 4 Brine mining and valorizarion**	**Session 5 Desalination for drinking water/ultrapure water production**
14:00	**16** Monitoring and assessing fouling potential along the pre-treatment of an SWRO desalination plant in the Middle East ***Almotasembellah Abushaban***, *Sergio G. Salinas-Rodriguez, Delia Pastorelli, Jan C. Schippers, Maria D. Kennedy*	**19** Reverse osmosis plants environmental performance index ***Amr Mohamed Seoudy***, *Hatem Mohamed Seoudy*	**182** Cogeneration of water and electricity by combining advanced membrane distillation with concentrated solar power ***B. Ortega-Delgado***, *J.A. Andrés-Mañas, P. Palenzuela, G. Zaragoza*	**22** Integrated system for creating value of discharge brine ***Ammar A. Alnuman*** *i, Eslam Alwaznani*	**158** SWRO desalination as the sole contributor to drinking water sustainability in Cyprus – 25 years of experience ***Aristos Loucaides***, *Erineos Koutsakos, Christie Stylianou, Louisa Christodoulou*
14:20	**151** Ten years operation of UF and RO Limassol Desalination Plant in Cyprus – challenges and performance ***Maria Angeles Perez Macia***, *Lorena Barbera Campos, Erineos Koutsakos, Menahem Priel, Carmit Ram*	**190** Desalination biomonitoring using biological responses of transplants of the seagrass *Posidonia oceanica* *Fabio Blanco-Murillo, Lázaro Marín-Guirao, Jose Luis Sánchez-Lizaso,* ***Claudio A. Sáez***	**199** Power and heat allocation methods used to evaluate the fresh water cost from different power and desalination cogeneration technologies *O. Zeitoun,* ***J. Orfi***, *S.U.D. Khan, H. AlAnsary*	**68** Sea4Value. Moving lab design and construction for seawater brine valorization ***N. Hernández***, *M. Sauchelli, J. Arévalo, V. Monsalvo, F. Rogalla*	**99** Hollow fibre nanofiltration for ion removal in drinking water treatment ***Juan Arevalo***, *Marc Sauchelli, Lyvia Mendes, Antonio García, Ignacio Díez, Ignacio Martín, Victor Monsalvo, Frank Rogalla*
14:40	**159** Renovating and re-operating a 12-year-old SWRO desalination plant – the Larnaca plant experience ***Erineos Koutsakos***, *Menahem Priel, Vasilis Panagi*	**34** Case study: Directly comparing OPEX and CO_2 emissions associated with phosphonate and dendrimer antiscalants at Ashkelon SWRO plant ***Mike Sinfield***, *Daniela Vidal, Stephen P. Chesters, Shai Driezin*	**169** Enhancing of efficiency in CSP-MED desalination system ***Amr Mohamed Mahmoud***, *Ahmad Saeed Abdrahim Al Ghamdi*	**108** Towards brine valorisation and internal chemicals production in seawater desalination plants ***A. Campione***, *D. Pastorelli, A. Cipollina, F. Vicari, A. Tamburini, G. Micale*	**115** Expansion of the first integrated UF-RO plant after more than 25 years of successful operation *Herman Smit,* ***Irina Zaikina***, *Bram Martijn, Almohanad Abusultan*
15:00	**160** Maintain SWRO desalination plants for prolonged periods in stand by mode – the Limassol plant experience ***Erineos Koutsakos***, *Carmit Cram, Menahem Priel, Kypros Michai*	**1** Active children and civic responsibility can reduce water waste in the community ***Hen Friman***, *Ifaa Banner*	**4** Role of zero-liquid discharge protocol in power generation plants to realize environmental regulation and enhancing operational performance of the desalination systems ***Mohamed A. Ismail***	**146** Towards brine valorisation and internal chemicals production in seawater desalination plants ***A. Campione***, *D. Pastorelli, F. Vicari, A. Tamburini, A. Cipollina, G. Micale*	**9** Retrofit in an ultrapure water treatment plant for a thermosolar power plant in the south of Spain ***Rafael Buendía-Candel***, *Patricia Terrero-Rodríguez, Alfonso Angel Pozo-Redondo, Elena Campos-Pozuelo, Raúl Lemes-de León, Domingo Zarzo-Martínez*
15:20	**111** Evaluation of second generation TFN SWRO membranes with industry's highest salt rejection at Dhekhelia SWRO pilot study in Cyprus ***Alvaro Lagartos***, *Olga Sallangos, Christodoulos Christodoulos*	**130** Steps for optimizing energy and water consumption in the operation of reverse osmosis systems with a focus on chemical treatment ***Daniel J. Freeman***, *R.K. Gonzalez, G. Bavister, F. Finlayson*	**124** Experimental evaluation of MED at high top brine temperatures with no divalent ions in feed water ***Juan Miguel Serrano***, *Lidia Roca, Diego-César Alarcón-Padilla, Patricia Palenzuela*	**84** Towards sustainable desalination – circular economy and carbon capture in reject brines ***Yitzhak Jacobson***, *Jacob Silverman, Debora Bard, Ido Borochovsky, Boaz Lazar*	**109** A study on pressure loss and contamination analysis ultrapure water supply piping using computational fluid dynamics ***Hyeongrak Cho***, *Song Lee, Yongjun Choi, Sangho Lee*
15:40–16:00	**Coffee break**				
16:00–18:00	**Session 6 Pretreatment/Filtration**	**Session 7 Electrodialysis/ Electrodialysis reversal**	**Session 8 Renewable energy powered desalination**	**Session 9 Brine valorization/brine concentration**	
16:00	**8** Validation of different filtration media for pretreatment of the RO process in Alicante desalination plant ***Rafael Buendía-Candel***, *Helena Montero-Madrid, Jochen Kallenberg, Sofia Pastor Gonzalez, Elena Campos-Pozuelo, Patricia Terrero-Rodríguez, Domingo Zarzo-Martínez*	**46** Semi-batch electrodialysis reversal: a simplified architecture and control method for flexible, low-cost, off-grid desalination ***Jonathan T. Bessette***, *S.R. Pratt, J. Tran, A.G. Winter*	**11** Membrane thermal systems for affordable renewable desalination ***John Webley***, *Michael Greene, Igor Kiryakin*	**17** SWRO brine characterization in the Canary Islands (Spain) and open testbed brine valorization platform (DESAL+ LIVING LAB) ***Ángel Rivero-Falcón***, *Baltasar Peñate Suárez*	

16:20	**144** Ultrafiltration as pre-treatment for seawater RO desalination – SUEZ experience ***Emmanuelle Filloux***, *I. Le Moigne, A. Brehant, Delia Pastorelli*	**195** Electrodialysis with bipolar membranes for the sustainable production of chemicals from seawater brines at pilot plant scale *C. Cassaro, G. Virruso, A. Culcasi, A. Cipollina,* ***A. Tamburini***, *G. Micale*	**168** Zero carbon/environmental champion: conversion of thermal desalination plant to seawater reverse osmosis plant *Khaled Almedbel, Fawzi Al Saidi, Tariq Nada, Sami Al Harbi, Mohsen Alsalmi,* ***Wael Mamon Khaldi***, *Abdulraheem Al Thobiti, Majed Khaldi, Amir Hasdi*	**145** Reducing climate change impacts by chemicals production through brine valorisation in seawater desalination plants ***R. Serra***, *F. Vicari, E. Judenne, E. Victor*
16:40	**75** Biological oxygen-dosed activated carbon (BODAC) filtration: a promising technology for fouling prevention in RO membranes ***Sara Ribeiro Pinela***, *Amanda Larasati, Roel J.W. Meulepas, Maria Cristina Gagliano, Robbert Kleerebezem, Harry Bruning, Huub H.M. Rijnaarts*	**196** An experimental investigation of ion transport properties and membrane selectivity using multi-ionic solution in electrodialysis with bipolar membrane ***Antonia Filingeri***, *Julio Lopez, Andrea Culcasi, Andrea Cipollina, José Luis Cortina, Alessandro Tamburini, Giorgio Micale*	**107** Experimental results of a wind driven reverse osmosis desalination prototype ***F. Greco***, *R. de la Garza Cuevas, A. Jarquin Laguna*	**134** Designing for the future: a value-sensitive approach to integrated desalination and brine treatment ***Rodoula Ktori***, *Mar Palmeros Parada, Mark van Loosdrecht, Dimitris Xevgenos*
17:00	**161** Simultaneous operation of UF/SWRO and dual media/SWRO desalination plants (Larnaca vs. Limassol SWRO plants in Cyprus) ***Erineos Koutsakos***, *Menahem Priel, Carmit Cram, Tasos Demosthenous*	**112** LIFE INDESAL: Improving efficiency and circularity of seawater desalination with a novel integrated process *Luca Sbardella, German Santos, Inmaculada Ortiz, Simon Grasman,* ***Olga Ferrer***, *Jorge Malfeito*	**141** Experimental investigation of the performance of a flat sheet RO membrane in a test cell under variable feed flow rate and pressure – Simulation of operation with renewable energy ***E. Dimitriou***, *G. Papadakis*	**135** Experimental assessment of a membrane element to implement an osmotic assisted reverse osmosis process (OARO) ***Rafael González-Almenara***, *Lourdes García-Rodríguez, David Sánchez*
17:20	**56** Suitability of clayey soils from Jalore and Jodhpur, Rajasthan, India, for the production of 3-litre ceramic water filters *S. Duhan, S.K. Adari, N. Kanwar, S. Gupta, A.K. Nighojkar, M. Ahmad, P.K. Dammala, M. Chhabra,* ***A.K. Plappally***	**116** Concentration of saline water in a hybrid membrane system ***M. Turek***, *K. Mitko*	**89** Combination of pressure retarded osmosis (PRO) with capacitive deionization (CDI) driven by solar power: effect of feed water properties ***Seoyeon Lee***, *Hyeongrhak Jo, Sangho Lee*	**136** Optimized design of seawater reverse osmosis desalination with brine concentration ***Jesús Montes-Sánchez***, *Rafael González-Almenara, Lourdes García-Rodríguez, David Sánchez*
17:40	**42** Long-term reliability assessment of ceramic water filters: strength and electro-kinetic parameter studies ***Meraj Ahmad***, *Sunil Duhan, Raj Kumar Satankar, Usha K Aravind, Anand Plappally*	**70** Enhanced oil recovery – polymer flooding produced water desalination by high temperature electrodialysis ***Lukas Václavík***, *Richard Kondáš*	**41** The planning and implementation of a solar energy array in wastewater treatment ***Hen Friman***	**200** Corrosion-resistant polymer-based evaporator for brine concentration ***Jan-Hendrik Imholze***, *Heike Glade*
18:00	**Poster session**			

Wednesday morning May 24th				
8:30–9:40	**Utilities panel session "Keeping It Safe" and "Security and Sources"**			
ROOMS	**A**	**B**	**C**	**D**
9:40–11:20	**Session 10 Membrane distillation I**	**Session 11 Biofouling**	**Session 12 Novel materials, processes and applications I**	**Session 13 Energy recovery/Energy consumption**
09:40	**57** Air gap membrane distillation (AGMD) unit with an internal gap circulating fan for water desalination ***Dahiru U. Lawal***	**36** BioPhree: next generation solution to remove and re-use phosphate; no more biofouling in membrane systems? ***Pim de Jager***, *Raimonda Busiauskaite, Koos Baas*	**94** Recent development of the reverse osmosis membranes: challenges and novel materials ***Shuren Chou***, *Gan Yi, Zhiwei Chen, Jie Shen, Zhiqiang Pei*	**14** Industrial applications of high-pressure membrane processes – Demonstration and evaluation of energy recovery at 120 bar ***Christine Kleffner***, *Gerd Braun, Eric Kadaj, Angel Abajas Errasti*
10:00	**131** A detailed numerical analysis of the performance of air gap membrane distillation using PVDF and PTFE membranes *Kabbir Ali,* ***Mohamed Ibrahim Hassan Ali***, *Hassan A. Arafat*	**38** Pretreatment selection to control membrane desalination biofouling: method development ***Yasmeen M. Nadreen***, *Ratul Das, Thomas Altmann, Johannes S. Vrouwenvelder, Graciela Gonzalez-Gil*	**96** Novel feed spacer designs for efficient spiral wound modules ***S. Kerdi***, *A. Qamar, J.S. Vrouwenvelder, N. Ghaffour*	**55** Danfoss MPE 70 active ERD – field installations and operation results ***Francisco Jiménez-Castellanos***, *Francisco Javier Lorenzo Moral*
10:20	**58** Early wetting detection in membrane distillation based on electrically-conductive membrane spacers ***A. Alpatova***, *A. Qamar, M. Alhaddad, S. Kerdi, H.S. Son, N. Amin, N. Ghaffour*	**132** The link between concentration polarization in seawater reverse osmosis and membrane biofouling — how to control membrane biofouling ***Harvey Winters***, *Jared Fulton, Marisol Garcia*	**23** Novel ultrafiltration polyether sulfone membranes incorporated with graphene oxide and acacia gum: preparation and antifouling properties *Ahmad Najjar,* ***Viktor Kochkodan***	**129** Energy recovery system: long-term assessment, improvement and evolution to next generation ERD ***Rolando A. Bosleman***, *David Kim-Hak*
10:40	**18** Performance evaluation of a hybrid solar membrane esalination with a polyimide porous film ***Kazuo Murase***, *Kousuke Oda, Raia Yamada*	**165** Functions of multispecies sessile bacteria on reverse osmosis membrane dictates biofilm characteristics rather than microbial community structure *Noya Ran, Gil Sorek, Revital Sharon-Gojman,* ***Moshe Herzberg***, *Osnat Gillor*	**186** New high rejection reverse osmosis elements: Experimental study showing improved rejection ***Guillem Gilabert Oriol***, *Claudia Niewersch, Mireia Font, Javier Dewisme, Guillem Navarro, Daniel Algar, Harith Al-Omar*	**156** DWEER energy recovery system – Larnaca operation experience and optimization ***Beat Schneider***, *Erineos Koutsakos, Menahem Priel, Antonis Kydonakis*
11:00	**47** A comparison of hybrid batch-operated membrane distillation and osmotically-assisted reverse osmosis for solar-powered zero-liquid-discharge applications ***V. Fthenakis***, *Z. Zhang, A.A. Atia, J.A. Andrés-Mañas, G. Zaragoza*	**152** RO membrane protection facilitated by direct, accurate, and automatic measurement of ultra-low range chlorine residual ***B.J. Verdonk***, *V.B. Malkov*	**127** Innovation beyond product specifications: the advantage of superior membrane durability in reverse osmosis installations worldwide ***Guillem Gilabert-Oriol***, *Harith Alomar, Maria Angeles Perez Macia, Daniela Drössler*	**175** Process optimization for ion-exchangers system as a pre-treatment to 2nd pass at Via-Maris (Palmachim) desalination plant ***Elad Barak***
11:20–11:40	**Coffee break**			
11:40–13:40	**Session 14 Membrane distillation II**	**Session 15 Biofouling and intakes**	**Session 16 Novel materials, processes and applications II**	**Session 17 Energy efficiency/Water-energy nexus**
11:40	**105** Photothermal membrane distillation for seawater desalination ***Marcello Pagliero***, *Antonio Comité, Camilla Costa, Ilaria Rizzardi*	**183** FilmTec™ SW30XFR-400/34 – A case study showing biofouling reduction achieved in a Desalination installation ***Guillem Gilabert-Oriol***, *Hardik Pandya, Maria Pérez*	**148** Innovative remineralization process for desalinated water: one year of operation at Al Hondoq Desalination Plant, Gozo *Nicholas Charles Nelson, Antonella De Luca*	**40** High-pressure pumps for maximum energy efficiency *Francisco Javier Lorenzo Moral,* ***Georg Herborg***, *Francisco Jiménez-Castellanos*
12:00	**102** Treatment of concentrated brines using sweeping gas membrane distillation ***Marco Tagliabue***, *Filomena Castaldo, Marcello Pagliero, Andrea Iebole, Antonio Comite*	**154** Testing of DuPont™ B-Free™ technology in Arabic Gulf water at Sharjah Electricity and Water Authority (SEWA) Hamriyah Desalination Plant ***Gerard Massons***, *Guillem Gilabert-Oriol, Marc Slagt, Rajesh Balakrishnan, Hardik Pandya, Alaa Elsayed, Harith Al-Omar*	**79** A novel semi-empirical model for lifetime prediction of gravity based ceramic filter and permeability estimation *S. Gupta,* ***S. Duhan***, *S. Sarkar, P. Munsi, A.K. Plappally*	**83** Condition monitoring for axial piston pumps ***Georg Herborg***, *Francisco Jiménez-Castellanos*

12:20	**126** Minimizing brine discharge by membrane distillation: challenges and opportunities ***Abdul-Kareem Turaani***, *Avner Ronen, Edo Bar-Zeev*	**44** Cleaning of seawater inlet pipelines based on both pigging and chemical dosing *Simon Bell,* ***Paul Newbury***	**5** Operating experience of a new generation of reverse osmosis spiral-wound membrane elements by Membranium at power industry facilities ***V.G. Dzyubenko***, *A.K. Borodastov*	**120** Performance of a high-pressure, high recovery batch RO system ***Ebrahim Hosseinipour***, *Somayeh Karimi, Philip Davies*
12:40	**93** Ammonia recovery from wastewater by membrane distillation crystallization using reverse osmosis brine ***Hyungho Park***, *Juyoung Lee, Yongjun Choi, Sangho Lee*	**133** Impact of sewage outbursts and jellyfish swarms on seawater reverse-osmosis desalination ***Edo Bar-Zeev***, *Eyal Rahav*	**51** Hydraulic injection desalination – a breakthrough for this millennia ***Thomas Altmann,*** *Eusebi Nomen, Alex Hanganu, Justin Robert, Ratul Das*	**118** From energy storage devices to electrochemical water desalination ***J.J. Lado***, *E. García-Quismondo, N. Hernández, J. Arévalo, V. Monsalvo, F. Rogalla*
13:00	**65** Hierarchical superhydrophobic composite membrane for enhanced distillation with excellent fouling resistance ***Prexa Shah***, *Youmin Hou, Michael Kappl, Hans-Jürgen Butt*	**188** Jellyfish - an unexpected threat for seawater intakes ***H.J.G. Polman***, *S.C. Wilson, T. Huane*	**122** Metal plating wastewater treatment using hybrid semi batch-batch reverse osmosis (HSBRO) ***S. Karimi***, *R. Engstler, E. Hosseinipour, S. Barbe, P.A. Davies*	**143** A fresh look at mega-scale SWRO: using brine-staged reverse osmosis to optimize energy efficiency and membrane performance *Eli Oklejas, Juan de Beristain,* ***Rory Weaver***
13:20	**187** Preliminary results for batch operation with membrane distillation modules in V-AGMD for brine concentration ***I. Requena***, *J.A. Andrés-Mañas, G. Zaragoza*	**61** The harmful algae blooms (HABs) and desalination in the Arabian Gulf: a mutual interaction between intakes and outfalls ***Aiman Eid Al-Rawajfeh***	**189** Design, manufacturing and functionalization of electrospun ultrafine nanocoatings with surface modification by magnetron-sputtering, plasma-treatments and nanocarbons ***Noemi Fiaschini***, *Luis Alexander Hein, Antonio Rinaldi, Nùria Portolés, Lorenzo Bautista, Asa Eitan, Viatcheslav Freger, Hilla Shemer, Carlos Del Castillo*	**73** Integrated modelling of future energy-water systems using minimum liquid discharge (MLD) strategies ***Nikhil Dilip Pawar***, *Manuel Wetzel*
13:40–14:40	**Lunch**			

Wednesday afternoon May 24th				
ROOMS	**A**	**B**	**C**	**D**
14.40–15.40	**Session 18 SWRO plants operation/performance**	**Session 19 Forward osmosis**	**Session 20 Membrane processes/ membranes for water treatment**	**Session 21 Wastewater treatment**
14:40	**157** Microbiological monitoring of SWRO desalination plants during prolonged standby periods - the Cyprus challenge and experience gained during the past 10 years *Erineos Koutsakos,* ***Aristos Loucaides****, Louisa Christodoulou, Christie Stylianou, Kypros Michail*	**27** Saline wastewater treatment by forward osmosis-nanofiltration hybrid process using continuous draw solute regeneration ***Ketan Mahawer****, S.K Gupta*	**13** Identification and quantification of membrane material deformation occurring at high-pressure operation of spiral-wound elements ***Christine Kleffner****, Gerd Braun*	**153** Nanofiltration innovation: performance of new FilmTec™ NF270-440 element in municipal wastewater operation ***Gerard Massons****, Guillem Gilabert-Oriol, Claudia Niewersch, Zoe Zhou*
15:00	**50** RO-TRACK: Data driven predictive analytics for seawater reverse osmosis desalination plants *Muhammad Ghifari Ridwan, Thomas Altmann, Ahmed Yosri,* ***Ratul Das***	**101** Development of the commercial-sized hollow fiber forward osmosis (FO) membrane module and its commercial applications ***Joomi Han****, Yuki Miura, Takahito Nakao, Shohei Goda, Masahiro Yasukawa*	**2** Synthesis of UiO-66 metal organic framework impregnated thin-film nanocomposite membrane for the desalination via pressure assisted osmosis ***Rajesha Kumar Alambi****, Mansour Ahmed, Garudachari Bhadrachari, Safiyah Al-Muqahwi, Mansour Al-Rughaib, Jibu P. Thomas*	**140** Performance study of the sequencing batch reactor (SBR) plant of domestic wastewater at Ibn Tofail university campus in Morocco ***Sakina Belhamidi****, Anass Messoud, Mohamed Taky, Azzedine Elmidaoui*
15:20	**103** Sustainable antiscalant for municipal reverse osmosis plants *M.C. Royo,* ***N. Adroer****, J. Aumatell, E. Cortada, A. Vega, O. Villanueva, P. Rodrigo, D. Gutiérrez, I. Marian*	**179** Graphene quantum dots-embedded thin-film composite forward osmosis membrane with advanced nanofiber substrate for desalination ***Haleema Saleem****, Syed Javaid Zaidi, Pei Sean Goh, Ahmad Fauzi Ismail*	**26** Development of hollow fiber membranes with highly enhanced compaction resistance for osmotically assisted reverse osmosis and its commercial applications ***Takahito Nakao****, Shohei Goda, Yuki Miura, Masahiro Yasukawa*	**106** Ultra-tight capillary UF in fit-for-purpose water treatment systems in the biochemical industry ***L. Vredenbregt****, L. Rodenkam Melchiorsen, J. Jaehrig, M. Lesscher*
15:40	**180** Multi-criteria analysis for sustainable development of desalination plants in Chile ***Iván Sola****, José Luis Sánchez-Lizaso, Domingo Zarzo, Claudio Sáez*	**43** Feasibility of poly (vinyl alcohol)/poly (diallyldimethylammonium chloride) polymeric network hydrogel as draw solute for forward osmosis process ***Ali Altaee****, Senthilmurugan Subbiah, Ananya Bardhan*	**110** Fundamental troubleshooting practices for BWRO systems across various industries in Europe with TFN membranes ***Alvaro Lagartos****, Raul Santos*	**71** Potential of cactus *Opuntia ficus indica* as sustainable green flocculant in the treatment of textile wastewater by coagulation-flocculation process ***Belkacem Merzouk****, Mohammed Hamidou, Billal Khemila*
16:00–16:20	**Coffee break**			
16:20–17:20	**Session 22 Brine management and recovery**	**Session 23 Pretreatment**	**Session 24 Membranes for water treatment**	**Session 25 Reverse osmosis and nanofiltration**
16:20	**6** Treatment of mining discharges with RO with concentrate utilization and heavy metals harvesting ***A.G. Pervov****, Htet Zaw Aung, D.V. Spitsov*	**147** Dissolved air flotation systems: advantages for RO pre-treatment and recent improvements ***R. Caball****, D. Pastorelli, C. Barbe*	**64** Hydrogel membrane for wastewater treatment ***Ali Altaee****, Ibrar Ibrar, Lilian Alsaka, Alaa H. Hawari*	**53** Performance model for reverse osmosis ***Ahmed Yousry****, Muhammad Chiari Ridwan, Sarika Patil, Ratul Das, Thomas Altmann*
16:40	**80** Natural treatment based on willows for concentrate of reverse osmosis ***Emmanuel Van Houtte****, Thomas Rogier, Jonas Van Eeghem, Vincent Winnock de Grave, Johan Verbauwhede*	**52** Effectiveness of ceramic ultrafiltration membranes as pre-treatment for SWRO ***Ratul Das****, Aatman Shah, Ali Ben Haj Hamida, Thomas Altmann*	**117** The next generation of multi-capillary PES in-out ultrafiltration membrane ***Jan Rädel****, Christian Staaks, Pedro Cortes Reyes, Khalid Suleiman M. Al Ameen, Michael Hoffmann, Michaela Krug, Guillem Gillabert Oriol, Harith Alomar, Martin Heijnen*	**121** Multi-stage NF for use in greenhouse cooling and irrigation: experimental results and prospects ***Paris Pasqualin****, Philip Davies*
17:00	**92** Analysis and control of silica fouling in high recovery semi-batch RO process ***Juyoung Yun,*** *Song Lee, Hyeongrak Cho, Yongjun Choi, Sangho Lee*	**172** Sustainable desalination showcasing the submerged UF membranes pre-treatment at the Adelaide desalination plant *Huw Alexander Lazaredes, Javier Artal González, Rimon Gergawy,* ***Guillem Gilabert-Oriol***	**125** Biomimetic reverse osmosis membrane for brackish water desalination ***J. Arevalo****, L. Mendes, J. Benecke, K. Hanh, V. Monsalvo, F. Rogalla*	**184** Lessons learned in the construction of an 18.3 MGD sulphate removal process (SRP) system for oil field production ***Alan R. Daza****, Shaleena Smith*
19:00	**GALA DINNER Leaving the venue at 17:45**			

Thursday morning May 25th				
8:30–9:40	**Innovation Workshop**			
ROOMS	**A**	**B**	**C**	**D**
9:40–11:20	**Session 26 Membrane fouling I**	**Session 27 Contaminant removal**	**Session 28 Offshore desalination and hydrogen production**	**Session 29 Machine learning and digitization**
09:40	**7** Reversing severe membrane fouling, the methodology of developing an ideal CIP protocol when nothing seems to work *Joshua Utter,* ***Daniele Strongone***	**72** Experiences of desalination for agriculture in Spain: technology, economics and innovation ***Patricia Terrero****, Domingo Zarzo*	**178** Membrane design of a subsea desalination system ***Borja Blanco****, Beatriz Garcia, Jo Jernsletten, Guillem Gilabert-Oriol, Verónica García-Molina*	**63** Machine learning framework for efficient and predictive reverse osmosis desalination *Najat Amin,* ***Adnan Qamar****, Sarah Kerdi, Ratul Das, Thomas Altmann, Johannes S. Vrouwenvelder, Noreddine Ghaffour*
10:00	**33** Quantification of cTEP in raw and membrane feed waters with LC-OCD (liquid chromatography – organic carbon detection – organic nitrogen detection) ***Stefan A. Huber***	**3** Boron removal through water softening in presence of ettringite ***M. Tagliabue****, M. Baric, N. Zubin, G. Marra, S. Perucchini, C. Mazzara, E. Lagrotta*	**82** Subsea desalination - significant energy savings and greatly reduced environmental impact ***Christian Abelsson****, Alexander Fuglesang*	**88** A machine learning deployment to a large seawater reverse osmosis plant to save energy ***Mike Dixon****, Nick Herold, Miller Truby, Katie Higgins, Sandro Hansen*
10:20	**91** Effect of the main hardness cations (calcium and magnesium) on formation of colloidal silica and silica-rich nanoparticles, as well as membrane fouling during reverse osmosis treating brackish water ***Esmaeil Sarabian****, Greg Birkett, Steven Prat*	**164** Boron rejection with RO facilitated by direct, accurate, and automatic measurement of boron ***B.J. Verdonk****, L. Navarro*	**139** Offshore green hydrogen production and the challenges for desalination ***Tom Ruiter****, Heike Glade*	**54** Intelligent framework for coagulant dosing optimization in industrial-scale desalination ***Muhammad Ghifari Ridwan****, Ratul Das, Thomas Altmann*
10:40	**113** Application of LG NanoH2O™ second generation thin-film nanocomposite membranes for wastewater treatment in a steel plant *Lihua Wang, Younghoon Ko, Tayu Wu, Yasushi Maeda,* ***Beatriz Calderon***	**15** Treatment of groundwater characterized with elevated molybdenum level by adsorption using carbide-derived carbon ***Yehia Manawi****, Simjo Simson, Jenny Lawler, Viktor Kochkodan*	**170** Utilize hydrogen from electrochlorination ***Ahmad Al Ghamdi****, Amr Mahmoud, Basil Al-Rajhi*	**150** DuPont Water App: Transforming the digital space of desalination ***María Ángeles Pérez-Maciá****, Guillem Gilabert-Oriol, Javier Suárez, Laura Galindo, Veronica Garcia-Molina, Rafael Buendia Candel*
11:00	**10** Fabrication of anti-fouling thin-film composite forward osmosis membranes with functionalized TiO2-PES nanocomposite substrate for the treatment of oily wastewater ***Fawzi Banat****, Parashuram Kallem, Ravi P. Pandey, Ruchi Gaur, Shadi W. Hasa*		**49** Fuel cell combined with turbine and then integrated with reverse osmosis (RO) ***Abdulrahman Alharbi***	
11:20–11:40	**Coffee break**			
11:40–12:40	**Session 30 Membrane fouling II**	**Session 31 Post treatment and distribution**	**Session 32 Modelling/simulation**	**Session 33 Mineral recovery/brine concentration**
11:40	**166** Unraveling pH effects on UF membrane fouling by extracellular polymeric substances: Adsorption and conformation analyzed with localized surface plasmon resonance *Noya Ran, Revital Sharon-Gojman, Sara Larsson, Osnat Gillor, Meagan S. Mauter,* ***Moshe Herzberg***	**30** Magnesium supplementation of drinking water ***Christopher Michael Fellows****, Seungwon Ihm*	**31** Two-dimensional ion transport modelling of water desalination by reverse osmosis system considering the real roughness membrane effect ***Fernan David Martinez Jimenez****, Bastiaan Blankert, Cristian Picioreanu*	**201** Minimum liquid discharge desalination: a pilot study in Lampedusa island *F. Vassallo, C. Morgante, C. Cassaro, G. Virruso, D. Diamantidou, N. Van Linden, G. Scelfo, A. Tamburini, S. Randazzo, A. Trezzi, A. Cipollina,* ***G. Micale****, D. Xevgenos*
12:00	**181** Fouling of reverse osmosis membrane with effluent organic matter: componential role of hydrophobicity ***N. Stein****, R. Sharon-Gojman, M.S. Mauter, R. Bernstein, M. Herzberg*	**163** Remineralization of desalinated water with calcium carbonate: a comparative study for a 281 MLD SWRO plant ***A. De Luca****, J. Martin, N. Nelson, D. Pastorelli*	**35** Three-dimensional concentration-polarization modelling of trace-ions in reverse osmosis membrane processes ***Santiago Cespedes****, Fernan Martinez-Jimenez, Felipe Salto-Quintana, Bastiaan Blankert, Cristian Picioreanu*	**202** Ultra-high recovery multi-effect distillation for nearly-liquid discharge desalination *Giuseppe Scelfo, Alessandro Trezzi, Fabrizio Vassallo, Andrea Cipollina, Vittorio Landi, Christina Xenogianni, Alessandro Tamburini, Dimitris Xevgenos,* ***Giorgio Micale***

12:20	**185** Design of intermittently operated reverse osmosis autonomous experimental system for rapid anti-fouling membrane coating development *B. Truong, T. Piluk, R.F. Liang,* ***Marina Freire-Gormaly***	**149** Retrofit of lime dosing systems in Europe for post-treatment of desalinated water ***Nicholas Charles Nelson****, Antonella De Luca*	**48** SDE-A model to predict salt rejection by weakly charged RO/BWRO membranes ***B. Blankert****, F.D. Martinez, J.S. Vrouwenvelder, C. Picioreanu*	**203** Metal-organic-framework-based nanofiltration membranes for selective multi-cationic recovery from desalination brines *C. Morgante, V. Boffa, X. Ma, J. Lopez, J. Cortina, A. Cipollina, A. Tamburini,* ***G. Micale***
12:40	**69** Analysis of fouling potential in capacitive deionization (CDI) in the presence of organic matters and hardness ions ***Yesol Kim****, Hyeongrak Cho, Yongjun Choi, Jaewuk Koo, Sangho Lee*	**25** From dams to water distribution systems: requirements and suitable solutions ***Elisa Reggiani***	**174** Improvement in brine recovery application thanks to FilmTec™ SWBR-100 element and FilmTec™ SWBR-200 element modelling ***David Arias Peña****, Guillem Gilabert-Oriol, Maria Pérez Macia, Harith Al-Omar, Claudia Niewersch, Gerard Massons*	**204** Pilot scale production of highly pure $Mg(OH)_2$ compound from real saltworks bittern *G. Battaglia, L. Ventimiglia, F.P.M. Viggiano, A. Cipollina, A. Tamburini, G. Micale*
13:00	**114** Membrane fouling characterization of a full-scale brackish water reverse osmosis desalination plant in Morocco: membrane autopsy ***Hicham Boulahfa****, Mohamed Taky, Azzedine Elmidaoui*		**95** Cost-based optimization of a forward osmosis/crystallization/reverse osmosis hybrid process with high-temperature operation ***Jeongwoo Moon****, Joon Ha Kim, Kiho Park*	**206** Advanced adaptable desalination evaporator design with polymer-based heat exchanger for brine concentration and optimized evaporator performance *Panagiotis Pappas,* ***Dimitrios Xevgenos***
13:20–14:20	**Lunch**			
14:20	**CLOSING CEREMONY** **Miriam Balaban Outstanding Technical Published Paper" and the "Miriam Balaban Innovation Award". Sponsored by ACWA Power** **Loeb Award** **Best poster award**			

Friday morning May 26th	
	Desalination Site Visit (maximum 50 people) **Course by Dr. Philip Davies and Dr. Guillermo Zaragoza**

POSTERS	
12	Multivariate statistical analysis of the physicochemical behavior of the shallow aquifer of Gadaïne-Ain Yaghout area (Eastern Algeria) ***Abdelhamid Khedidja***, *Imen Dib, Wahid Chattah, Ali Athamena*
20	El Tor seawater reverse osmosis desalination plant 30,000 m^3/d ***Amr Mohamed Seoudy***, *Hatem Mohamed Seoudy*
21	Calculation of structural loads of an RO skid during operation ***Amr Mohamed Seoudy***, *Hossam Kamal*
24	Removal of atrazine from water by micellar enhanced ultrafiltration with nonionic-cationic surfactant mixtures ***Olga Kochkodan***, *Viktor Kochkodan*
28	Valorization of used water in irrigation, case of the step of Sidi Merouane, Wilaya of Mila, east Algeria ***Ali Athamena***, *Abdelhamid Khedidja, Halima Belalite, Aissam Gagaai, Malika Athamena*
29	Effect of the agriculture on the quality of groundwater in the alluvial aquifer of the Tadjenanet area (Eastern Algeria) ***Abdelhamid Khedidja***, *Ali Athamena, Imen Dib*
32	Development of a novel glasses based on phosphate and its application as a promising adsorbent for crystal violet dye removal ***Rida El-Bardai***, *Driss Rair, Touria Jermoumi, Abdelkrim Chahine, Abdelghani Hsini, Abdelillah Shaim*
37	The microbial growth potential of antiscalants used in seawater desalination *Ghadeer Hasanin, Ana Maria Mosquera, Abdul-Hamid Emwas, Thomas Altmann, Ratul Das, Paulus J. Buijs, Johannes S. Vrouwenvelder,* ***Graciela Gonzalez-Gil***
39	Integrated oxy-combustion power generation with carbon capture and humidification dehumidification desalination cycle ***Binash Imteyaz***, *Furqan Tahir*
45	Co-design of an off-grid community desalination system in the Navajo Nation ***Melissa Brei***, *Jimmy Tran, Jeffrey Costello, Amos G. Winter V*
59	Can 1D modeling approach sufficiently describe the membrane performance? ***Felipe Salto Quintana***, *Fernan David Martinez Jimenez, Bastiaan Blankert, Cristian Picioreanu*
60	The pH influence in concentration-polarization model on RO membranes ***F. Salto-Quintana***, *S. Cespedes, F. Martinez-Jimenez, B. Blankert, C. Picioreanu*
62	Forward feed multi effect desalination system driven by twin-screw compressor with water injection ***Osman Shamet***, *Mohamed A. Antar*
66	Use of an innovative-based solution of wastewater reuse for the large-scale reforestation and afforestation process of the green dam in Algeria ***Mustapha Adjadj***, *Nadjib Drouiche, Saliha Fortas, Wahid Zanndouche, Rafika Khacheba, Abbes Hamani, Naima Benmouhoub*
67	Development and investigation of novel nanofiltration cellulose derivatives/Zn-based metal-organic frameworks membranes for heavy metal removal ***A.V. Penkova***, *A.I. Kuzminova, M.E. Dmitrenko, A.A. Zolotarev*
74	Near-ZLD BWRO recovery based on monovalent selective ED ***J. Gilron***, *M. Elimelech*
76	Optimized ultrafiltration membranes as pretreatment for seawater reverse osmosis desalination ***A. Pacak***, *L. Vredenbregt*
77	Digitalization of reverse osmosis water vending machines ***R.Y. Mudryk***, *Y.O. Orestov, T.Y. Mitchenko*
78	Water reuse in the textile industry with integrated treatments: membranes and advanced oxidation processes *K. Ayedi, V. Innocenzi,* ***M. Prisciandaro***
81	Modeling of brine submarine discharge before and after a diffuser installation ***S.P. Pereira***, *J.L. Sánchez-Lizaso, P.C.C. Rosman, I.E. Lima Neto, A. Loya-Fernández*
85	Effect of the modification of polyphenylsulfone substrate membrane with Pluronic block copolymers on the performance of thin film composite membranes for nanofiltration ***T.V. Plisko***, *K.S. Burts, A.V. Penkova, A.V. Bildyukevich*
86	Experimental evaluation of UVC-LED pre-treatment for biofouling mitigation in reverse osmosis systems ***Noshin Karim***, *Amy Bilton*
90	Analysis of release of effluents with negative boiance in natural water bodies ***Melissa Fontenelle Rodrigues***, *Paulo Cesar Colonna Rosman, Silvano Porto Pereira*
97	Improved performance of vacuum membrane distillation process ***Suhaib M. Alawad***, *Atia E. Khalifa*
98	Effect of active control of tightening forces on the behavior of electrodialyzers ***Jan Tomek***, *Natália Václavíková*
100	Structural and characterization assessment of clay ceramic water filter materials from locations near to the Thar Desert in India ***S. Duhan***, *S. Gupta, A.K. Agrawal1, A.K. Plappally*
104	Cooling tower blow down water recycling ***George Brik***, *Lisa Brands*
119	Capacitive deionization of water ***Yury Volfkovich***
123	Plastic problems of reverse osmosis ***A.V. Tyvonenko***, *S.L. Vasilyuk, T.Ye. Mitchenko*
128	A numerical analysis of the electromagnetic field effect on direct contact membrane distillation performance *Kabbir Ali, Ahmad A. Alwan, Emad Alhseinat,* ***Mohamed Ibrahim Hassan Ali***
138	Water resources and physico-chemical properties of the Mio-Pliocene aquifer complex of the M'léta plain (southern part of the Sebkha d'Oran, western Algeria) ***Mohammed Khelifa***, *Abdelhamid Khedidja, Mansour Hamidi*

142	Innovative hybrid dairy wastewater system assisted by an intelligent information algorithm tool for quality prediction of the outlet water and support in decision making for sustainable practice ***E. Dimitriou***, *G. Spyrou, G. Papadakis, A. Aktypis, E. Tsakalidou, D. Vagenas, Z. Saita, O. Mavrikios, D. Dimitrakopoulou, S. Drosis*
155	Oil pollution cleanup with an environment-friendly separation process ***Radee D. Al-Rewaily***
162	Kinetic and isotherm modeling of adsorption of Rhodamine 6G dye onto mesoporous materials *Houda Douba,* ***Ourida Mohammedi***, *Benamar Cheknane*
167	Low-cost solar powered greywater treatment unit for parks and horticulture ***Yousuf Jamal***, *Abid Mehmood, Noor Haleem*
171	Footprint of desalination plants in Algeria ***Hakim Baloul***, *Mourad Amitouche*
173	The effect of coagulants on physicochemical parameters of industrial wastewater ***M.K. Abu-Arabi***, *K.J. Al-Muhanna*
176	Performance of three anion-exchange membranes in fluoride ions removal by electrodialysis ***Mustapha Tahaikt***, *Fatima Zahra Addar, Sarra Kitanou, Mohamed Taky, Azzedine Elmidaoui*
177	Membrane bioreactor (MBR) in Moroccan domestic wastewater treatment: Performance and process modeling ***Sarra Kitanou***, *Mustapha Tahaikt, Hind Hajji, Mohamed Taky, Azzedine Elmidaoui*
191	Cellulose acetate/nano-zinc oxide bio-composites: the functional and antibacterial characteristics ***Ibrahim O. Althobaiti***
192	Fouling mitigation using variable square wave superimposed on nominal pressure with triangular feed pipe ***Mostefa Ghassoul***
193	New methodology for calculating the production of biogas in livestock wastewater treatment systems *Tania Garcia-Ramirez, Alejandro Ramos-Martin, Saulo Brito-Espino, Carlos Mendieta-Pino, Nicolau Chirinza Rafael Penicela, Francisco Javier Marrero Ponce,* ***F.A. Leon-Zerpa***
194	Study for the evaluation of the processes of reuse and recycling of reverse osmosis components and membranes in the Canary Islands and Macaronesia ***F.A. Leon-Zerpa***, *B. Peñate-Suarez, F.J. Roo-Filgueira, J.A. De La Fuente-Bencomo, A. Ramos-Martin, T. Tavares*
197	Implementation and design of an electrical characterization system for membrane capacitive deionization units in water treatment, with teaching purpose ***F.A. Leon-Zerpa***, *J.J. Santana-Rodriguez, A. Ramos-Martin, C.A. Mendieta-Pino, V. Henriquez-Concepcion*
198	Design, research, and development of surface tension equipment with teaching purpose ***F.A. Leon-Zerpa***, *T. Garcia, C.A. Mendieta-Pino, A. Ramos-Martin*
205	Comparative analysis of various nuclear desalination computation ***Salah Ud-Din Khan***, *Mothanna Alsharif, Jamel Orfi*