

Poster Program

Poster Session 1

Monday, 2 December 2019 - 13:00-14:00

Room – Orion/Pleiades Room

Poster Session 2

Tuesday, 3 December 2019 - 13:00-14:00

Room - Orion/Pleiades Room

All posters with an odd number (P.01, P.03, P.05...) will be presented from 13:00-14:00, **Monday, 2 December 2019.**

All posters with an even number (P.02, P.04, P.06...) will be presented from 13:00-14:00, **Tuesday, 3 December 2019.**

- [P.01] **Withdrawn**
- [P.02] **Pre-treatment of oilfield brine by adsorption on hydrophobic nanosilica-coated sunflower biomass in fixed bed columns**
E. Knapik*, J. Stopa, *AGH University of Science and Technology, Poland*
- [P.03] **Extraction of both magnesium and lithium from high Mg/Li ratio brines using a novel method**
H.Y. Wang*, B.Q. Du, Y.J. Zhao, M. Wang, *Qinghai Institute of Salt Lakes, Chinese Academy of Science, China*
- [P.04] **Preliminary techno-economic analysis of simultaneous desalination and hydrogen production powered by renewable energy**
J-C. Lee*, H. Lim, *UNIST, Republic of Korea*
- [P.05] **Electrochemical adsorption and desorption of cesium ions at prussian blue deposited carbon nanofibers electrodes**
S. Kim*, J-H. Park, *Daegu Gyeongbuk Institute of Science and Technology (DGIST), Republic of Korea*
- [P.06] **Fouling characteristics of fresh water and seawater compartments in a reverse electrodialysis process for salinity gradient power generation under natural water conditions**
K. Chon*^{1,2}, H. Rho², J. Nam³, E. Jwa³, N. Jeong³, J. Cho², ¹*Kangwon National University (KNU), Republic of Korea*, ²*Ulsan Institute of Science and Technology (UNIST), Republic of Korea*, ³*Korea Institute of Energy Research (KIER), Republic of Korea*
- [P.07] **High proton conducting crosslinked sulfonated polyphenylsulfone membranes using crosslinker and water solvent**
J.D. Kim*, S. Matsushita, *National Institute for Materials Science (NIMS), Japan*
- [P.08] **Evaluation of a three-stage chemical cleaning of heterogeneous membranes after long-term electrodialysis for treating an effluent from the electroplating industry**
K.S. Barros*^{1,2}, V. Pérez-Herranz², D.C.R. Espinosa¹, ¹*University of São Paulo, Brazil*, ²*Universitat Politècnica de València, Spain*
- [P.09] **Non-invasive membrane fouling diagnosis using earth field nuclear magnetic resonance**
Y.L. Chien*¹, N.W. Bristow¹, J.S. Vrouwenvelder², M.L. Johns¹, E.O. Fridjonsson¹, ¹*University of Western Australia, Australia*, ²*King Abdullah University of Science and Technology, Saudi Arabia*
- [P.10] **Withdrawn**
- [P.11] **Upgraded to oral**
- [P.12] **Withdrawn**
- [P.13] **Water splitting for suppression of inorganic scaling in reverse electrodialysis (RED) system**
J-H. Han, *Korea Institute of Energy Research, Republic of Korea*
- [P.14] **Quantitation of transparent exopolymer particles (TEP) in biofouling studies**
X. Li*, L. Skillman, D. Li, W. Ela, *Murdoch University, Australia*
- [P.15] **Numerical study on optimization of reverse osmosis membrane cleaning depending on the seasonal variation of feed water quality**
S.J. Lim*¹, J. Kim², J.H. Kim¹, ¹*Gwangju Institute of Science and Technology, Republic of Korea*, ²*Korea Water Resources Corporation, Republic of Korea*

- [P.16] **High-performance polyethersulfone-nanohybrid hollow fiber membranes: Excellent antifouling property and amoxicillin removal efficiency**
A. Modi*, J. Bellare, *Indian Institute of Technology Bombay, India*
- [P.17] **Efficient removal of dichlorophenol using polyethersulfone-iron oxide-graphene oxide composite hollow fiber membranes**
A. Modi*, J. Bellare, *Indian Institute of Technology Bombay, India*
- [P.18] **Mitigation of membrane scaling by resonance vibration in submerged hollow fiber membrane distillation process**
Y.K. Park*, J.H. Ju, J.H. Choi, Y.J. Choi, S.H. Lee, *Kookmin University, Republic of Korea*
- [P.19] **Preparation, characterization and performance studies of polysulfone/homopolymer/copolymer blend ultrafiltration membrane**
H. Patel*, K. Patel, M. Joshi, B. Saini, D. Vaghani, *Pandit Deendayal Petroleum University, India*
- [P.20] **Hydrophilicity and antibacterial effects enhanced by modification of titanium dioxide and silver nanoparticles on PVDF membrane**
S. Sairiam*, K. Samree, P. Srithai, *Chulalongkorn University, Thailand*
- [P.21] **Monitoring performance of hollow fibre membrane modules using benchtop MRI technology during fouling and cleaning stages**
B. Yan*¹, N.W. Bristow¹, S.J. Vogt¹, J.S. Vrouwenvelder², M.L. Johns¹, E.O. Fridjonsson¹, ¹*University of Western Australia, Australia*, ²*King Abdullah University of Science and Technology, Saudi Arabia*
- [P.22] **Electrodialysis application to concentrate cobalt, chromium, manganese and magnesium from a synthetic sulphate solution from lateritic ore processing**
G.C. Feijoo¹, K.S. Barros*^{1,2}, T. Scarazzato¹, J.A.S. Tenório¹, D.C.R. Espinosa¹, ¹*University of São Paulo, Brazil*, ²*Universitat Politècnica de València, Spain*
- [P.23] **Effect of baffles on heat and mass transfer inside flat sheet and hollow fiber membrane distillation (MD) modules**
J.H. Choi*, J.H. Ju, Y.J. Choi, Y.G. Park, S.H. Lee, *Kookmin University, Republic of Korea*
- [P.24] **The case study of MBR application for the managements of aquaculture water quality**
M-J. Hwang, I. Kwon, S-H. Yun, J-M. Cha, T. Kim, E-S. Kim*, *Chonnam National University, Republic of Korea*
- [P.25] **Two-in-one module for integrated treatment of wastewater using forward osmosis and membrane distillation: Process control for constant flux operation**
J.Y. Lee*, J.H. Choi, Y.J. Choi, S.H. Lee, *Kookmin University, Republic of Korea*
- [P.26] **Hyperbranched polymer integrated membrane for the removal of arsenic in drinking water**
D. Vlotman¹, T. Ndlovu², J. Ngila¹, S. Malinga*¹, ¹*University of Johannesburg, South Africa*, ²*University of Swaziland, Swaziland*
- [P.27] **Effect of support net on the performance of a novel cylindrical air gap membrane distillation system**
V.T. Shahu*, S.B. Thombre, *VNIT, India*
- [P.28] **Fabrication and evaluation of high throughput and low energy consumption membrane module**
Z. Thong*, K.S. Ng, S.T. Ooi, L.M. Goh, C. Gudipati, *Nanyang Technological University – Ntuitive Pte Ltd, Singapore*
- [P.29] **Design of a compact UF flat sheet membrane module prototype for water purification in rural communities**
T. van Geel*¹, A. Dutta¹, M.F. Bopape^{1,2}, B. van der Bruggen^{1,2}, ¹*KU leuven, Belgium*, ²*Tshwane University of Technology, South Africa*
- [P.30] **Effect of doping graphene and silica on the properties of cation exchange membrane**
J.S. Yuan*, S.S. An, Y.Y. Zhao, S. Zhang, *Hebei University of Technology, China*
- [P.31] **Technology translation case study for novel low pressure nanofiltration membranes, from laboratory scale to commercial scale for industrial applications**
S. E*¹, M.S. Qua¹, T.P.D. Aung¹, K. Mottaiyan¹, C. Gudipati¹, C. Liuz, R. Wang², ¹*Separation Technologies Applied Research and Translation (START) Centre, Nanyang Technological University – NTuitive Pte Ltd, Singapore*, ²*Singapore Membrane Technology Centre, Nanyang Environment and Water Research Institute, Nanyang Technological University, Singapore*
- [P.32] **Effects of salinity and fouling on the removal of pharmaceutical and personal care products by nanofiltration**
Y.L. Lin*, Y.C. Hsu, *National Kaohsiung University of Science and Technology, Taiwan*

- [P.33] **Porous membranes from PSU-PDMS block copolymers: Preparation and properties**
J. Meier-Haack*, W. Butwilowski, K. Schlenstedt, T. Oddoy, *Leibniz-Institut für Polymerforschung Dresden e.V., Germany*
- [P.34] **Perforated graphene membrane for enhanced water desalination**
S.P. Patole*, A.C. Lokhande, I.A. Qattan, *Khalifa University of Science and Technology, United Arab Emirates*
- [P.35] **Prediction of solutes separation in nanofiltration using Donnan-steric partitioning pore model**
A. Saavedra¹, H. Valdés*², F. Laras¹, E. Alarcón^{3,4}, ¹*Universidad de Santiago de Chile, Chile*, ²*Universidad Católica del Maule, Chile*, ³*Universidad Católica del Maule, Chile*, ⁴*Universidad Tecnológica de Chile, Chile*
- [P.36] **Hierarchical flower-like MoS₂ nanocomposite PVDF membrane with enhanced permeability for effective dyes rejection**
X.P. Wang*, C. Wu, S.J. Xia, *State Key Laboratory of Pollution Control and Resources Reuse, Tongji University, China*
- [P.37] **High selective ultrafiltration membranes with single covalent organic framework uniformly embedded in the surface pores by in-situ synthesis**
C. Wu*, X.P. Wang, S.J. Xia, *Tongji University, China*
- [P.38] **Scaling up across membrane distillation configurations made easy by the membrane distillation coefficient**
A. Achilli*¹, I. Marquez², M. Hardikar¹, A.E. Saèz¹, ¹*University of Arizona, USA*, ²*Central Michigan University, USA*
- [P.39] **Withdrawn**
- [P.40] **Permeate flux enhancement in pressure and ultrasound assisted forward osmosis process for seawater desalination**
Y. Choi*¹, T-M. Hwang², S. Lee¹, ¹*Kookmin University, Republic of Korea*, ²*Korea Institute of Construction Technology, Republic of Korea*
- [P.41] **Pilot-scale evaluation of reverse osmosis (RO)/pressure retarded osmosis(PRO) hybrid system for energy saving seawater desalination**
T.M. Hwang*¹, J.W. Koo¹, S.H. Nam¹, E.J. Kim¹, T.S. Park², Y.G. Park², W.I. Lee², ¹*Korea Institute of Civil Engineering and Building Technology, Republic of Korea*, ²*GS Engineering & Construction, Republic of Korea*
- [P.42] **Feasibility of a novel integrated hydrate based carbon capture and seawater desalination technology**
A. Kumar*, M. L. Johns, E. F. May, Z. M. Aman, *University of Western Australia, Australia*
- [P.43] **Concentration of industrial wastewater by forward osmosis using thermoresponsive draw solutes**
D. Wang, P. Liu*, C. Ho, G. Lin, T. Yang, M. Huang, T. Liang, R. Horng, *Industrial Technology Research Institute, Taiwan*
- [P.44] **Effect of residual commercial antiscalant in reverse osmosis brine treatment by membrane distillation: Membrane wetting and scaling**
Z. Yan, F. Qu*, *Guangzhou University, China*
- [P.45] **Experimental and numerical evaluation of air gap membrane distillation process using graphene/polyvinylidene fluoride composite membrane**
Y.C. Woo¹, S.H. Jung², L.D. Tijing³, H.K. Shon³, H. Moon⁴, W.G. Shim*², ¹*Korea Institute of Civil Engineering and Building Technology, Republic of Korea*, ²*Sunchon National University, Republic of Korea*, ³*University of Technology Sydney, Australia*, ⁴*Chonnam National University, Republic of Korea*
- [P.46] **Applicability of membrane distillation combined with an novel solar absorber for decentralized water supply**
K.G. Song*, J. Kim, J. Shin, J. Cho, H.J. Lee, W.J. Choi, *Korea Institute of Science & Technology, Republic of Korea*
- [P.47] **Experimentation, modeling, and optimization of axial flow hollow fiber module for forward osmosis process**
H. Teklu*, D.K. Gautam, S. Subbiah, *Indian Institute of Technology Guwahati, India*
- [P.48] **Technical-economic comparison of emerging technologies for seawater desalination**
A. Saavedra¹, H. Valdés*², J. Moraga³, O. Acosta⁴, ¹*Universidad de Santiago de Chile, Chile*, ²*Universidad Católica del Maule, Chile*, ³*M&F Consultores, Chile*, ⁴*Gestionare Consultores, Chile*

- [P.49] **2D nanomaterials incorporated in/on electrospun nanofiber membrane for membrane distillation**
Y.C. Woo*¹, J-S. Choi¹, K-D. Park¹, H.K. Shon², ¹*Korea Institute of Civil Engineering and Building Technology (KICT), Republic of Korea*, ²*University of Technology Sydney, Australia*
- [P.50] **Experimental and theoretical studies on inorganic fouling adsorption in membrane distillation**
W-G. Shim¹, J-S. Choi², K-D. Park², Y.C. Woo*², ¹*Sunchon National University, Republic of Korea*, ²*Korea Institute of Civil Engineering and Building Technology (KICT), Republic of Korea*
- [P.51] **Solar-powered continuous water desalination and salt harvesting by spatially isolating salt crystallization from steam generation**
Y. Xia*¹, Q. Hou¹, H. Jubaer¹, Y. Li¹, Y. Kang¹, S. Yuan¹, H. Liu¹, L. Gao², H. Wang¹, X. Zhang¹, ¹*Monash University, Australia*, ²*South East Water Corporation, Australia*
- [P.52] **Membrane degradation of forward osmosis (FO) in treating multi-effect distillation (MED) brine: Comparison between cellulose triacetate (CTA) and thin-film composite (TFC) membranes**
Y. Yang*, Y-Z. Sun, J-G. Yu, *East China University of Science and Technology, China*
- [P.53] **Effective NaCl rejection of reduced graphene oxide membranes by moderate thermal-reduction in air: The roles of 2-dimensional nanochannels and nanowrinkles**
S. Yuan*, C. Selomulya, X. Zhang, *Monash University, Australia*
- [P.54] **Effect of the transport competition between EDTA and hydroxyl ions on the water splitting and electroconvection at anion-exchange membranes**
K.S. Barros*^{1,2}, E.M. Ortega², V. Pérez-Herranz², D.C.R. Espinosa¹, ¹*University of São Paulo, Brazil*, ²*Universitat Politècnica de València, Spain*
- [P.55] **Membrane application for contaminants and color removal from palm oil mill effluent: Challenges and way forward**
H. Che Man*¹, A. Mohamed^{1,2}, A.I. Idris³, K.F. Yunos¹, Z. Zainal Abidin¹, M.R. Mohd Yusof⁴, ¹*Universiti Putra Malaysia, Malaysia*, ²*Ahmadu Bello University, Nigeria*, ³*Segi University, Malaysia*, ⁴*MJIT, Malaysia*
- [P.56] **Potential of PIM-TMN-Trip membrane for purification of fluids**
P. Stanovsky¹, A. Zitkova¹, B. Gandara², N. McKeown², P. Izak*¹, ¹*Czech Academy of Sciences, Czech Republic*, ²*University of Edinburgh, UK*
- [P.57] **Application of dissolved air flotation (DAF) and Liquid Ferrate on mitigation of algal organic matter (AOM) during algal blooms**
A. Alshahri*, L. Fortunato, N. Ghaffour, T. Leiknes, *KAUST, Saudi Arabia*
- [P.58] **Evaluation of Adenosine Triphosphate(ATP) bioluminescence assay for monitoring microbial water quality in gravity driving membrane(GDM) process**
J.W. Lee, N.H. Nam, E.J. Kim, J.W. Koo, T.M. Hwang*, *Korea Institute of Civil Engineering and Building Technology, Republic of Korea*
- [P.59] **Development of low-voltage-driven cation exchange membrane system for polluted water purification using ethylene glycol dimethacrylate cross-linking 4-vinylpyridine ion exchange resins as a new ion exchange resin for phosphoric acid adsorptive removal**
Y.C. Kim*^{1,2}, H. Inoue², ¹*Tokyo Korean School, Japan*, ²*Keio University, Japan*
- [P.60] **Reducing sugar from alkaline peroxide pre-treated biomass: Effect of process parameters on crystallinity index**
S. Sardar*, A. Das, S. Saha, C. Mondal, *Jadavpur University, India*
- [P.61] **Determining the efficacy of novel static mixers based on TPMS architectures and their potential for membrane pretreatment**
M. Ouda, O. Al-Ketan, N. Sreedhar*, M. Ali, R. Alrub, H. Arafat, *Khalifa University of Science and Technology, United Arab Emirates*
- [P.62] **Development of organosilica RO membrane incorporating hydrophilic POSS filler**
Y. Amaike*¹, K. Yamamoto¹, T. Kozumaz, Y. Kaneko², T. Gunji¹, ¹*Tokyo University of Science, Japan*, ²*Kagoshima University, Japan*
- [P.63] **Development of graphene oxide and functionalised graphene oxide supported high flux thin film composite sea water reverse osmosis membranes**
R.S. Bhoje*¹, P.R. Nemade¹, A.K. Ghosh^{1,2}, ¹*Institute of Chemical Technology, India*, ²*Bhabha Atomic Research Center, India*
- [P.64] **High performance reverse osmosis (RO) membrane via co-solvent interfacial polymerization**
R.H. Hailemariam¹, Y.C. Woo², K-D. Park², J-S. Choi*^{1,2}, ¹*Korea Institute of Civil Engineering and Building Technology (KICT), Republic of Korea*, ²*University of Science & Technology (UST), Republic of Korea*

- [P.65] **Can we trust the spec and projection data of reverse osmosis membrane modules?**
N. Kim, J. Jeon, S. Kim*, *Pukyong National University, Republic of Korea*
- [P.66] **A review on reverse osmosis desalination**
S. Mestri, *Swansea University, UK*
- [P.67] **Preparation and evaluation of bridged organosilica RO membranes with an aromatic moiety**
K. Yamamoto*, I. Saito, T. Gunji, *Tokyo University of Science, Japan*
- [P.68] **Recovery of lithium from salt lake brine by nanofiltration**
Y. Li*¹, H.Y. Wang¹, Y.J. Zhao¹, M. Wang¹, ¹*Qinghai Institute of Salt Lakes, Chinese Academy of Sciences, China*, ²*University of Chinese Academy of Sciences, China*, ³*Beijing University of Chemical Technology, China*
- [P.69] **The zeta potential of DK nanofiltration membrane**
M. Wang*¹, Y. Li¹, H.Y. Wang¹, Y.J. Zhao¹, ¹*Qinghai Institute of Salt Lakes, Chinese Academy of Sciences, China*, ²*University of Chinese Academy of Sciences, China*, ³*Beijing University of Chemical Technology, China*
- [P.70] **Preparation of lithium hydroxide from salt lake brine by bipolar membrane electrodialysis**
Y.J. Zhao*^{1,2}, H.Y. Wang¹, Y. Li^{1,3}, M. Wang¹, ¹*Chinese Academy of Sciences, China*, ²*Beijing University of Chemical Technology, China*, ³*University of Chinese Academy of Sciences, China*
- [P.71] **Environmental assessment of reverse electrodialysis-seawater reverse osmosis hybrid concept**
C. Tristán*, M. Rumayor, A. Dominguez-Ramos, M. Fallanza, R. Ibáñez, I. Ortiz
University of Cantabria, Spain