# Poster Sessions

## *Session 1:*

**Wednesday, 4th July 2018**

**Poster setting up: 8:00 - 8:30**

**Poster session: 17:10-18:30**

**Themes: Gas Separation; Pervaporation and Membrane Distillation; Membrane Bioreactors; Membrane Fouling.**

| Poster ID | Title and authors |
|---|---|
| **P-W-01** | **Preliminary evaluation of the influence of selected matrix components on micro- and ultrafiltration treatment of produced water**<br>El-Majid Yusuf [a], Dario Spinna [b], Marco Maschietti [b], Katherine Huddersman [a], Jens Muff [b*]<br>*([a] De Montfort University Leicester, United Kingdom<br>[b] Aalborg University Esbjerg, Denmark)* |
| **P-W-02** | **$CO_2$ separation over $H_2$ by amine-containing polymeric membranes: Interplay between gas transport properties and amine structures**<br>Koki Minezaki [a], Ikuo Taniguchi [a,b*], Kae Kinugasa [b]<br>*([a] Graduate School of Integrated Frontier Sciences, Kyushu University, Japan<br>[b] International Institute for Carbon-Neutral Energy Research (WPI-I$^2$CNER), Kyushu University, Japan)* |
| **P-W-03** | **Enhanced Gas Separation Performance in Metal-Organic Framework Mixed-Matrix Membranes**<br>Gongping Liu, Jianwei Yuan, Jiajia Sun, Jie Shen, Wanqin Jin*<br>*(State Key Laboratory of Materials-Oriented Chemical Engineering, Jiangsu National Synergetic Innovation Center for Advanced Materials, College of Chemical Engineering, Nanjing Tech University, 5 Xinmofan Road, Nanjing 210009, P. R. China.)* |
| **P-W-04** | **Polymer Composite Membrane for Gas Separation**<br>Cheol Hun Park [a], Min Su Park [a], Byung Ju Park [a], Jong Hak Kim [a*]<br>*([a] Department of Chemical and Biomolecular Engineering, Yonsei University, 262 Seongsanno, Seodaemun-gu, Seoul 120-749, South Korea)* |

**P-W-05** **Synthesis of high-performance gas separation SAPO-34 membrane by using dry rolling seeding process**

Syed Fakhar Alam, Min-Zy Kim, Young Jin Kim, Pankaj Sharma, Churl-Hee Cho*
*(Reaction & Separation Nanomaterials Laboratory, Graduate School of Energy Science & Technology, Chungnam National University, 99 Daehak-ro, Yuseong-gu, Daejeon 34134, Republic of Korea)*

**P-W-06** **Synthesis, Characterization and gas transport properties of stable UiO-66-naph membrane**

Yamig Zhang, Rong Xu, Qi Zhang, Jing Zhong*
*(Key Laboratory of Advanced Catalytic Materials and Technology, School of Petrochemical Engineering, School of Petrochemical Engineering, Changzhou University, China)*

**P-W-07** **Hybrid membranes of nanostructrual copolymer and ionic liquid for carbon dioxide capture**

Kihoon Kim [a], Jung Yup Lim [a], Na Un Kim [a], and Jong Hak Kim [a] *
*([a] Affiliation : Department of Chemical and Biomolecular Engineering, Yonsei University, 50 Yonsei-ro, Seodaemun-gu, Seoul 03722, South Korea)*

**P-W-08** **Development of tough inorganic/organic double network ion gels for $CO_2$ separation membranes**

Tomoki Yasui[a], Eiji Kamio[a] and Hideto Matsuyama[a]*
*([a]Center for Membrane and Film Technology, Department of Chemical Science and Engineering, Kobe University, 1-1 Rokkodai-cho, Nada-ku, Hyogo, 657-8501, Japan)*

**P-W-09** **Preparation of Polystyrene/Sodium Alginate Mixed Matrix Membranes Using Particulate Template Method and Their Application in Gas Separation**

Ming-Hong Lin[a], Shing-Yi Suen[a]*
*([a] Department of Chemical Engineering, National Chung Hsing University, Taichung, Taiwan)*

**P-W-10** **A Hydrogen Permeability Study of Pd Coated α-$Al_2O_3$ Hollow Fiber Membrane by Electroless Plating**

Soo-Min Lim[a], Min-Chang Shin[a], Jung-Hoon Park[a]*
*([a] Dongguk University, Department of Chemical Engineering)*

**P-W-11** **Characterization for $Ag^+$ exchanged *BEA zeolite membrane**

Fujimaki N. [a] , Sakai M. [b], Matsukata M. [a, c*]
*([a] Department of Applied Chemistry School of Advanced Science and Engineering, Waseda University, 3-4-1, Okubo, Shinjuku, Tokyo, 169-8555, Japan.*
*[b] Research Organization for Nano & Life Innovation, Waseda University, 3-4-1, Okubo, Shinjuku, Tokyo, 169-8555, Japan.*
*[c] Waseda Research Institute for Science and Engineering, 3-4-1, Okubo, Shinjuku, Tokyo, 169-8555, Japan.)*

**P-W-12** **Structural change of CHA-type aluminophosphate membrane under HF-free synthesis conditions**

H. Fukuda [a] , M. Seshimo [b*], M. Matsukata [a,c*]
*([a] Department of Applied Chemistry School of Advanced Science and Engineering, Waseda University, 3-4-1, Okubo, Shinjuku, Tokyo, 169-8555, Japan.*
*[b] Inorganic Membrane Research Center, Research Institute of Innovative Technology for the Earth, 1-7, Seika-cho, Sourakugun, Kyoto, 619-0237 Japan.*
*[c] Waseda Research Institute for Science and Engineering, 3-4-1, Okubo, Shinjuku, Tokyo, 169-8555, Japan.)*

**P-W-13** **Influence of ZSM-5 membrane structure on permselectivity**

G. Kobayashi[a], K. Matsumoto[a], M. Seshimo[b], M. Matsukata[a, c*]
*([a] Department of Applied Chemistry School of Advanced Science and Engineering, Waseda University, 3-4-1, Okubo, Shinjuku, Tokyo, 169-8555, Japan.*
*[b] Inorganic Membrane Research Center, Research Institute of Innovative Technology for the Earth, 1-7, Seika-cho, Sourakugun, Kyoto, 619-0237 Japan.*
*[c] Waseda Research Institute for Science and Engineering, 3-4-1, Okubo, Shinjuku, Tokyo, 169-8555, Japan.)*

**P-W-14** **Development of zeolite membranes for high temperature hydrogen separation**

M. Sakai[a], K. Yoshihara[b], M. Matsukata[b,c*]
*([a] Research Organization for Nano & Life Innovation, 3-4-1, Okubo, Shinjuku, Tokyo, 169-8555, Japan.*
*[b] Department of Applied Chemistry School of Advanced Science and Engineering, Waseda University, 3-4-1, Okubo, Shinjuku, Tokyo, 169-8555, Japan.*
*[c] Waseda Research Institute for Science and Engineering, 3-4-1, Okubo, Shinjuku, Tokyo, 169-8555, Japan.)*

**P-W-15** **Network size control and gas permeation properties of triethoxysilane (TRIES)-derived membranes**

Tsukasa Tanaka[a], Masakoto Kanezashi[a *], Hiroki Nagasawa[a], Toshinori Tsurua
*([a] Department of Chemical Engineering, Hiroshima University, 1-4-1 Kagamiyama, Higashi-Hiroshima, 739-8527, Japan)*

**P-W-16** **Effect of presence of hydrocarbons for natural gas purification using zeolite membranes investigated by molecular simulation**

Fumiya Hirosawa and Hiromitsu Takaba*
*(Department of Environmental chemistry and Chemical Engineering, School of Advanced Engineering, Kogakuin University, Tokyo, Japan)*

**P-W-17** **Determination of gas diffusion coefficients of rubbery materials using some NMR techniques**

Hiroaki Yoshimizu*, Asami Miyashiro
*(Graduate school of Engineering, Nagoya Institute of Technology, Gokiso-cho, showa-ku, Nagoya, Aichi, 466-8555, Japan)*

**P-W-18** **The higher-ordered structures, molecular mobilities, and transport properties of syndiotactic polystyrene characterized by NMR methods**

Hiroaki Yoshimizu*, Mika Ito
*(Graduate school of Engineering, Nagoya Institute of Technology, Gokiso-cho, showa-ku, Nagoya, Aichi, 466-8555, Japan)*

**P-W-19** **Characterizations of the relationship between higher-ordered structures and gas transport properties of poly methyl methacrylate by means of Xe-129 NMR**

Hiroaki Yoshimizu*, Eriko Nishiguchi
*(Graduate school of Engineering, Nagoya Institute of Technology, Gokiso-cho, showa-ku, Nagoya, Aichi, 466-8555, Japan)*

**P-W-20** **Polysulfone mixed matrix hollow fiber membranes using zeolite templated carbon as performance enhancement filler for gas separation**

Rika Wijiyanti[a], Triyanda Gunawan[a], Afifah Nur Ubaidillah[a], Zulhairun Abdul Karim[b,c], Ahmad Fauzi Ismail[b,c], Nurul Widiastuti[a]*
*([a] Department of Chemistry, Faculty of Science, Institut Teknologi Sepuluh Nopember, Sukolilo, Surabaya 60111, Indonesia*
*[b] Advanced Membrane Technology Research Center (AMTEC), Universiti Teknologi Malaysia, 81310 UTM Skudai, Johor Darul Ta'zim, Malaysia*

*[c] Department of Energy Engineering, Faculty of Chemical and Energy Engineering, Universiti Teknologi Malaysia, 81310 UTM Skudai, Johor Darul Ta'zim, Malaysia)*

**P-W-21** **Innovative dynamic liquid bubble membrane separation system for $CO_2$ separation from natural gas**

Kateřina Setničková [a], David K. Wang [b], Yi-Fan Chu [c,d], Hui-Hsin Tseng [c,d,*], Petr Uchytil [a,*]

*([a] Eduard Hála Laboratory of Separation Processes, Institute of Chemical Process Fundamentals of the CAS, v. v. i., Czech Republic*
*[b] The University of Sydney, School of Chemical and Biomolecular Engineering, Darlington, New South Wales 2006, Australia*
*[c] Department of Occupational Safety and Health, Chung Shan Medical University, Taichung, Taiwan, ROC*
*[d] Department of Occupational Medicine, Chung Shan Medical University Hospital, Taichung, Taiwan, ROC)*

**P-W-22** **Multi-stage membrane cascade and process optimization for $CO_2$ capture from post-combustion flue gas**

Jung Hyun Lee[a] , Jong-Ho Moon[a], Dahun Lee[a], Woong Jin Oh[a], Jin-Kuk Kim[b], Jeong-gu Yeo[a]*

*([a] Korea Institute of Energy Research, Daejeon 34129, South Korea*
*[b] Hanyang University, Seoul 04763, South Korea)*

**P-W-23** **Thermosetting polybenzoxazine resins based membranes for pervaporation separation**

Yu-Ting Chen, Yi-Ling Liao, Ying-Ling Liu*

*(Department of Chemical Engineering, National Tsing Hua University, #101, Sec. 2, Kuang Fu Road, Hsinchu 30013, Taiwan)*

**P-W-24** **Pervaporation of methyl acetate and methanol by a high-flux membrane and energy analysis by Aspen Plus**

Chuanxin Zong, Haoli Zhou*, Yuxue Li, Wanqin Jin*

*(State Key Laboratory of Materials-Oriented Chemical Engineering, Jiangsu National Synergetfingic Innovation Center for Advanced Materials, College of Chemical Engineering, Nanjing Tech University,5 Xinmofan Road, Nanjing 210009,PR China)*

**P-W-25** **Effects of Various Fillers Incorporated in Polymeric Membranes on Pervaporation Performance**

Hsien-Chien Huang[a], Shing-Yi Suen[a]*

*([a] Department of Chemical Engineering, National Chung Hsing University, Taichung, Taiwan)*

**P-W-26** **Flexible ceramic membranes for dehydration of IPA/water mixtures by vapor permeation**

M. Murata[a], H. Nagasawa[a], M. Kanezashi[a], T. Tsuru[a]*
*([a] Department of Chemical Engineering, Hiroshima University, Higashi-Hiroshima 739-8527, Japan)*

**P-W-27** **Multilayer mixed matrix PVA membranes containing MWCNTs for desalination by pervaporation**

Guang Yang 1[a b], Zongli Xie 2[b], Marlene Cran 3[a], Derrick Ng 4[b], and Stephen Gray 5[a]*
*([a] Institute for Sustainable Industries & Liveable Cities, Victoria University, PO Box 14428, Melbourne, Vic. 8001, Australia.*
*[b] CSIRO Manufacturing, Private Bag 10, Clayton South, Vic. 3169, Australia)*

**P-W-28** **Organic/inorganic polyelectrolyte complex membranes for pervaporative dehydration of tetrahydrofuran**

(Shu-Hsien Huang[a,b]*, Shih-Ting Huang[a], Kueir-Rarn Lee[b], Juin-Yih Lai[b,c])
*([a] Department of Chemical and Materials Engineering, National Ilan University, Yilan 26047, Taiwan*
*[b] R&D Center for Membrane Technology, Department of Chemical Engineering, Chung Yuan University, Taoyuan 32023, Taiwan*
*[c] Graduate Institute of Applied Science and Technology, National Taiwan University of Science and Technology, Taipei 10607, Taiwan)*

**P-W-29** **Nanoporous Silica Aerogel Membranes for $CO_2$ Capture**

Yi-Feng Lin[a] *(Presenting Author underlined),* Kuo-Lun Tung2[b]
*([a] Department of Chemical Engineering and R&D center for Membrane Technology, Chung Yuan Christian University, Chungli Dist., Taoyuan City, Taiwan 32023*
*[b] Department of Chemical Engineering, National Taiwan University, Taipei, Taiwan)*

**P-W-30** **Fabrication of Superhydrophobic Membrane Distillation for Enhanced Desalination**

Saikat Sinha Ray and Shiao-Shing Chen*
(Institute of Environmental Engineering and Management
National Taipei University of Technology, Taiwan)

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| **P-W-31** | **Wastewater reclamation with energy recovery using anaerobic membrane distillation reactor**<br>Minwei Yao[a], Yun Chul Woo[a], Leonard D. Tijing[a], Ho Kyong Shon[a]*<br>*([a] Centre for Technology in Water and Wastewater, School of Civil and Environmental Engineering, University of Technology Sydney (UTS), P. O. Box 123, 15 Broadway, NSW 2007, Australia)* |
| **P-W-32** | **Carbon Quantum Dots Grafted Antifouling Membranes for Osmotic Power Generation via Pressure-Retarded Osmosis Process**<br>Dieling ZHAO, Subhabrata DAS, Tai-Shung CHUNG*<br>*(Department of Chemical & Biomolecular Engineering, National University of Singapore, 4 Engineering Drive 4, Singapore 117585)* |
| **P-W-33** | **A durable and antifouling monovalent selective anion exchange membrane modified by synergy of polydopamine and sulfonated reduced graphene oxide**<br>Yali Jin, Jiajie Zhu, Congjie Gao, Jiangnan Shen*<br>*(Center for Membrane Separation and Water Science & Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, P. R. China)* |
| **P-W-34** | **Antifouling anion-exchange membranes with zwitterionic surface for electrodialysis**<br>Huimin Ruan, Ruiqing Tan, Jiefeng Pan*, Jiangnan Shen *<br>*(Center for Membrane Separation and Water Science & Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, P. R. China)* |
| **P-W-35** | **Metal alkoxide assisted interfacial polymerization for the fabrication of polyamide thin film nanocomposite reverse osmosis membranes with enhanced desalination performance**<br>Guiru Zhu*, Yulin Wei, Congjie Gao<br>*(College of Chemistry and Chemical Engineering, Ocean University of China)* |
| **P-W-36** | **Preparation of antibacterial and antifouling PES/SPSf/GO mixed matrix membrane via nonsolvent-induced gelation phase separation**<br>Mengyang Hu[a,b],Jian Li[a,b], Jin Qian[a], Zhenyu Cui[a,b], Yinghui Mo[a,c],Benqiao He[a,b], Jianxin Li[a,b]*<br>*([a]State Key Laboratory of Separation Membranes and Membrane Processes/National Center for International Joint Research on Separation Membranes, Tianjin Polytechnic University, Tianjin 300387, PR China*<br>*[b]School of Materials Science and Engineering, Tianjin Polytechnic University, Tianjin 300387, PR China* |

[c]*School of Environmental and Chemical Engineering, Tianjin Polytechnic University, Tianjin 300387, PR China)*

**P-W-37** **Proof of concept light conducting membrane substrate for UV-activated photocatalysis as an alternative to chemical cleaning**

Lavern Nyamutswa[a], Dimuth Navaratna[a,b], Stephen Collins[b], Mikel Duke[a*]
*([a] Institute for Sustainable Industries and Liveable Cities, Victoria University, Melbourne, Australia*
*[b] College of Engineering and Science, Victoria University, Australia)*

**P-W-38** **Plasma graft polymerization to prepare antifouling ultrafiltration membranes with tuning molecular weight cut-offs**

Kazuki Akamatsu[a*], Wataru Noto[a], Hiroyuki Fukuzawa[a], Shin-ichi Nakao[a]
*([a] Department of Environmental Chemistry and Chemical Engineering, Kogakuin University, Japan)*

**P-W-39** **Modeling Membrane Fouling Dynamics with A Novel Collision-Attachment Approach**

Chuyang Y. Tang[a*], Junxia Liu[b], Zhihong Wang[b], James O. Leckie[c]
*([a] Department of Civil Engineering, The University of Hong Kong, Pokfulam, Hong Kong*
*[b] School of Civil and Transportation Engineering, Guangdong University of Technology, Guangzhou 510006, China*
*[c] Department of Civil and Environmental Engineering, Stanford University, Palo Alto, California, U.S.A.)*

**P-W-40** **Evaluation of membrane fouling characteristics and maintenance chemical cleaning protocol in seawater reverse osmosis process using hot wastewater from power plant**

Kitae Park[a] , Pooreum Kim[a], Minjin Kim[a], Jewan Yoo[a], Hyungsoo Kim[a*]
*(Graduate School of Water Resources, Sungkyunkwan University, 2066 Seobu-ro, Jangan-Gu, Suwon, Gyeonggi-do, Republic of Korea)*

**P-W-41** **Isolation of quorum quenching bacteria for biofouling control**

Chiao-Yun Chu, I-Chieh Chien*
*(Department of Water Resources and Environmental Engineering, Tamkang University, New Taipei City, 25137, Taiwan)*

**P-W-42** **Effect of operating pressure on membrane fouling formation in water treatment process using ceramic membrane**

Joon-Seok Kang, Seo Gyeong Park, Jeong Jun Lee, Vo Thi Kim Quyen, Han-Seung Kim *

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| | *(Department of Environmental Engineering and Energy, Myongji University, 116 Myongji-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-728, South Korea)* |
| **P-W-43** | **A study on the physical and chemical enhanced backwashing to reduce membrane fouling in the water treatment process using ceramic membrane**<br>Seo Gyeong Park, Joon-Seok Kang, Jeong Jun Lee, Vo Thi Kim Quyen, Han-Seung Kim *<br>*(Department of Environmental Engineering and Energy, Myongji University, 116 Myongji-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-728, South Korea)* |
| **P-W-44** | **Hydraulic Cleaning Effect to Control Membrane Fouling in Low-Pressure Driven Membrane Process for Surface Water Treatment**<br>Hoseok Jang, Amine Charfi, Jeonghwan Kim*<br>*(Department of environmental engineering, Inha university, Republic of Korea)* |
| **P-W-45** | **Effects of sodium hydroxide, sodium hypochlorite and combined chlorine in MF/UF cleaning agents**<br>Takahiro Kawakatsu*<br>*(Research and Development Division, Kurita Water Industries Ltd., 1-1 Kawada, Nogi, Shimotsuga, Tochigi 329-0105, Japan.)* |
| **P-W-46** | **Silica fouling during coal seam gas produced water treatment by reverse osmosis membranes**<br>Christopher Turner, Bogdan Donose, Steven Pratt*<br>*(The University of Queensland, School of Chemical Engineering, St Lucia, QLD 4072, Australia)* |
| **P-W-47** | **Development of Ceramic Hollow Fiber Membrane Contactor System for Carbon Dioxide Capture**<br>Hong Joo Lee, Min Kwang Kim, Jae Hyun Jeong, Jung Hoon Park*<br>*(Department of Chemical & Biochemical Engineering, Dongguk University, Republic of Korea)* |
| **P-W-48** | **$Ce_{0.8}(Sr_xSm_{1-x})_{0.2}O_{2-d}$ Coated Mixed Ionic Electronic Conducting Membrane for Oxygen Separation**<br>Jin Woong Chae, Edardo Magnone, Jung Hoon Park*<br>*(Dongguk University, 30, Pildong-ro 1-gil, Jung-gu, Seoul, 04620, Republic of Korea)* |

## *Session 2:*

## Thursday, 5th July 2018

## Poster setting up: 8:00 - 8:30

## Poster session: 12:20 - 13:30

## Themes: MF and UF Membranes; NF, RO and FO Membranes; Electrically Enhanced Membrane Operations.

| Poster ID | Title and authors |
|---|---|
| P-T-01 | **Research and Development of Continuous Flat Membrane Casting Machine**<br>Hongchen Song [a,b*], Jianming Wang [a,b], Olaf Eichstaedt [a]<br>*([a] Guangzhou Institute of Advanced Technology, Chinese Academy of Sciences [b] Guangdong Key Lab of Membrane Material and Membrane Separatio)* |
| P-T-02 | **Synthesis of hydrophilic carbon nanotubes via "click reaction" and its application in PVDF UF membrane preparation**<br>Yuchen Zhao[a], Wenzhong Ma[a]*, Peng Zhang[a], Haicun Yang[a], Jing Zhong[b]<br>*([a] Jiangsu Key Laboratory of Environmentally Friendly Polymeric Materials, School of Materials Science and Engineering, Changzhou University, Changzhou 213164, China [b] Jiangsu Key Laboratory of Environmentally Friendly Polymeric Materials, School of Materials Science and Engineering, Changzhou University, Changzhou 213164, China)* |
| P-T-03 | **Preparation of PAN/GO Nanofibers as Water Treatment Membrane**<br>Jaehan Yun[a] , Jeonghun Lee[a], Jun-Hyun kim[b], and Hongsik Byun[a]*<br>*([a]Department of Chemical Engineering, Keimyung University, Daegu, 704-701, Korea [b]Department of Chemistry, Illinois State University, Normal, Illinois 61790-4160, United States)* |
| P-T-04 | **Quaternized PS4VP-PVDF Dual-layer Isoporous Membranes: Tailoring Pore Size Down to Sub-10 Nanometer**<br>Yi-Cheng Su[a], Yuan-Yuan Liu[a], Xiao-Lin Wang[a]*<br>*([a] Beijing Key Laboratory of Membrane Materials and Engineering, Department of Chemical Engineering, Tsinghua University, Beijing, 100084, P. R. China)* |

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| **P-T-05** | **Zwitterionic enhanced PVDF membrane for biofouling mitigation via UV-crosslinking polymerization and grafting**<br>Yi-Chen Lin, Hui-Hsin Tseng*<br>*(Department of Occupational Safety and Health, Chung Shan Medical University, Taichung, Taiwan, ROC*<br>*Department of Occupational Medicine, Chung Shan Medical University Hospital, Taichung, Taiwan, ROC)* |
| **P-T-06** | **Ultrafiltration Membrane for Degumming of Crude Palm Oil-Solvent Mixture**<br>Nita Aryanti [a]*, Dyah hesti Wardhani [a], Aininu Nafiunisa[a]<br>([a] Department of Chemical Engineering, Diponegoro University, Semarang, Indonesia) |
| **P-T-07** | **Effect of diluents and nucleating agent on structure and properties of polypropylene flat membrane**<br>Peng-Fei REN * Zhen-Yu XI, Yu-Jie WANG, Yong-Qiang YANG<br>*(Beijing Research Institute of Chemical Industry, SINOPEC, China)* |
| **P-T-08** | **Development of Ethenylene-Bridged Organosilica Membrane and Its Application to Pervaporative Desalination**<br>Rong Xu*, Xu Cheng, Lv Qi, Qi Zhang, Jing Zhong*<br>*(Jiangsu Key Laboratory of Advanced Catalytic Materials and Technology, School of Petrochemical Engineering, Changzhou University, Changzhou, 213164, China.)* |
| **P-T-09** | **Preparation of An ultrathin PVA nanofiltration membrane with a gradient-crosslinked structure**<br>Yong Zhou[a]*,*Miao Guo[a], Shuhao Wang[a], Congjie Gao*<br>[a]Center for Membrane Separation and Water Science & Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, P. R. China |
| **P-T-10** | **The effect of draw solution on the application of integrated forward osmosis as a post treatment alternative of resource recovery.**<br>W. Khongnakorn [a,b]*, J. Chauywong[b], P. Rattana [b], M .Heran 4 [c]<br>[a] Membrane Science and Technology Research Centre (MSTRC), Prince of Songkla University, Songkhla, Thailand, 90112<br>[b] Department of Civil Engineering, Faculty of Engineering, Prince of Songkla University, Songkhla, Thailand, 90112<br>[c] Institut Européen des Membranes, IEM, UMR-5635, Université de Montpellier, ENSCM, CNRS, Place Eugène Bataillon,34095 Montpellier cedex 5, France |

**P-T-11** **A Facile Surface Assembly of Green Complex for Nanofiltraiton Membrane**

*Lu Peng, Hao Guo, Chuyang Y. Tang**
Department of Civil Engineering, The University of Hong Kong, Pokfulam, Hong Kong SAR, China

**P-T-12**

Preparation of high-fluxnanoporous solvent resistant PAN membrane with potential fractionation of dyes and $Na_2SO_4$

**Yanqing Xu , Congjie Gao , Jiangnan Shen ***

**Center for Membrane Separation and Water Science & Technology, Zhejiang University of Technology, Hangzhou, 310014, China**

**P-T-13** **Thin-Film Composite Membrane with Polydopamine/Halloysite Interlayer for Forward Osmosis**

Aatif Ali Shah[1,2], Seung-Eun Nam[1], You-In Park[1,2*], Hosik Park[1,2*]
([1]Center for Membranes, Advanced Materials Division, Korea Research Institute of Chemical Technology (KRICT), Daejeon 34114, Republic of Korea
[2]Department of Green Chemistry and Environmental Biotechnology, University of Science and Technology, 217 Gajeong-ro, Yuseong-gu, Daejeon 34113, Republic of Korea)

**P-T-14** **New semi-aromatic polyamide composite membranes fabricated from a kind of dendritic compound of trymesoylamidoamine**

Li-Fen Liu[a,c*], Hao Wu[a,b] Xin Xie[a], Rui-Han Li[a], Cong-Jie Gao[a, c*]
*([a] Center for Membrane and Water Science and Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, China;*
*[b] College of Chemical Engineering, Zhejiang University of Technology, Hangzhou 310014, China;*
*[c] Collaborative Innovation Center of Membrane Separation and Water Treatment of Zhejiang Province, Hangzhou 310014, China.)*

**P-T-15** **Effect of PSF/SPSF blending porous support on the performance of thin film composite polyamide reverse osmosis membrane**

Li-Fen Liu[a,c*], Xing-Ling Gu[a], Hao Wu[a,b], Rui-Han Li[a], Cong-Jie Gao[a, c*]
*([a] Center for Membrane and Water Science and Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, China;*

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| | *[b] College of Chemical Engineering, Zhejiang University of Technology, Hangzhou 310014, China;*<br>*[c] Collaborative Innovation Center of Membrane Separation and Water Treatment of Zhejiang Province, Hangzhou 310014, China.)* |
| **P-T-16** | **Polyamide reverse-osmosis membranes grafted by zwitterionic polymer via surface amination and atom transfer radical polymerization for anti-biofouling**<br>Zhe Yang, Daisuke Saeki, Hideto Matsuyama*<br>*(Center for Membrane and Film Technology, Department of Chemical Science and Engineering, Kobe University, 1-1 Rokkodai, Nada, Kobe 657-8501, Japan)* |
| **P-T-17** | **Reactable substrate participating interfacial polymerization for thin film composite membranes**<br>Zhikan Yao[a], Hao Guo[a], Zhe Yang[a], Chuyang Y. Tang[a]*<br>*([a] Department of Civil Engineering, The University of Hong Kong, Pokfulam, Hong Kong.)* |
| **P-T-18** | **Fabrication of electrospun nanofiber forward osmosis membranes**<br>Lijun Meng, Manhong Huang*, Feihu Niu, Beibei Li<br>*(College of Environmental Science and Engineering, State Environmental Protection Engineering Center for Pollution Treatment and Control in Textile Industry, Donghua University)* |
| **P-T-19** | **Study on the Optimization of $TiO_2$ In-Situ Incorporation Concentration for Thin-Film Nano-composite FO Membrane Synthesis**<br>Yi Wang[a], Hao Guo[a], Zongli Xie 3[b]*, Zhendong Fang 4[a]<br>*([a] Water Industry and Environment Engineering Technology Research Centre, Chongqing 401311, China*<br>*[b] CSIRO Manufacturing, Clayton, VIC 3168, Australia)* |
| **P-T-20** | **ZIF-8 particle size effects on reverse osmosis performance of polyamide thin-film nanocomposite membranes: Importance of particle adhesion**<br>Tae Hoon Lee, Jee Yeon Oh, and Ho Bum Park*<br>*(Department of Energy Engineering, Hanyang University, Seoul, 04763, Korea.)* |
| **P-T-21** | **Preparation and characterization of poly(vinyl alcohol)-sulfonated graphene oxide thin film composite as forward osmosis membrane**<br>Anelyn P. Bendoy, Hana G. Zeweldi, Wook-Jin Chung, Grace M. Nisola* |

*(Department of Energy Science and Technology (DEST), Energy and Environment Fusion Technology Center ($E^2$FTC), Myongji University, Myongji-ro 116, Cheoin-gu, Yongin-si, Gyeonggi-do, South Korea 17058)*

**P-T-22** **Effects of cleaning approaches on scaling mitigation and membrane properties in concentrating underground brine using TFC hollow fiber forward osmosis membrane**

Gang Chen [a], Manhong Huang [a], Jianfeng Song [b], Tao He [b*]
*([a] Affiliation College of Environmental Science and Engineering, Donghua University, Shanghai 201620, China*
*[b] Affiliation Laboratory for Membrane Materials and Separation Technology, Shanghai Advanced Research Institute, Chinese Academy of Sciences, Shanghai 201210, China)*

**P-T-23** **Nanofiltration performance and anti-fouling behaviour of thin-film nanocomposite membranes based on in situ synthesis of polydopamine-piperazine particles**

Micah Belle Marie Yap Ang[a], Yan-Li Ji[b], Shu-Hsien Huang[a,c], Kueir-Rarn Lee[a*], Juin-Yih Lai[a,d]
*([a] R&D Center for Membrane Technology, Department of Chemical Engineering, Chung Yuan University, Taoyuan 32023, Taiwan*
*[b] Center for Membrane and Water Science & Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, China*
*[c] Department of Chemical and Materials Engineering, National Ilan University, Yilan 26047, Taiwan*
*[d] Graduate Institute of Applied Science and Technology, National Taiwan University of Science and Technology, Taipei 10607, Taiwan)*

**P-T-24** **The effect of TFC-PRO membrane performance parameters and optimization of operating conditions for spiral wound PRO modules**

Yeonju Sim*, Manjae Han, Jonghwa Lee
*(Toray Chemical Korea Inc., 102 Gumi-daero, Gumi, Gyeongsangbuk-do, South Kore)*

**P-T-25** **Preparation and characterization of nanofiltration membrane for separation efficiency and acid-resistance**

Hee Min Park[a], Eunjoo Koh [a], Yong Taek Lee [a*]
*([a] Department of Chemical Engineering, College of Engineering, Kyung Hee University, Gyeonggi-do, 446-701, Republic Korea.)*

**P-T-26** **Development of novel fabric reinforced aliphatic polyketone-based thin-film composite membranes for osmotic power generation**

Yuchen Sun[a], Liang Cheng[a], Takuji Shintani[a], Yasuhiro Tanaka[a], Tomoki Takahashi[a], Takuya Itai[a], Shengyao Wang[a], Lifeng Fang[a]*, Hideto Matsuyama[a]*
*([a] Center for Membrane and Film Technology, Department of Chemical Science & Engineering, Kobe University, 1-1 Rokkodai, Nada, Kobe 657-8501, Japan.)*

**P-T-27** **Effect of hydrophilic additive on the formation of PES tubular membrane**

Hui-An Tsai[a], Chun-Cheng Lin[a], Chia-Hung Wu[b], An-Pang Tu[b], Kueir-Rarn Lee[a], Juin-Yih Lai[a,c]
*([a] R&D Center for Membrane Technology, Department of Chemical Engineering, Chung Yuan University, Chung Li District, Taoyuan City, Taiwan*
*[b] Chang Chun Plastics Co. Ltd., No.8, Chung-Hwa Rd., Hsinchu Industrial District, Hsin-Chu, Taiwan*
*[c] Graduate Institute of Applied Science and Technology, National Taiwan University of Science and Technology, Taipei, Taiwan)*

**P-T-28** **Molecular Modeling of Forward Osmotic Membranes**

Hayato Higuchi, Hiromitsu Takaba *
*(Department of Environmental Chemistry and Chemical Engineering, School of Advanced Engineering, Kogakuin University, Tokyo, Japan)*

**P-T-29** **Development of polyamide thin-film composite membrane using novel porous support for organic solvent treatment**

Takuji Shintani[a]*, Yuki Nakagawa[a], Tomoki Takahashi[b], Keizo Nakagawa[a], Hideto Matsuyama[b] , Tomohisa Yoshioka[a]
([a] *Center for Membrane and Film Technology, Graduate School of Science, Technology and Innovation, Kobe University, Japan*
*[b] Center for Membrane and Film Technology, Department of Chemical Science and Engineering, Kobe University, Japan)*

**P-T-30** **Precise molecular selectivity of UIO-66/Polysulfone Nano-hybrid Ultrathin Membranes for Water Treatment**

Yi-Cheng Su[a], Tian-Yin Liu[b], Xiao-Lin Wang[a]*
*([a] Beijing Key Laboratory of Membrane Materials and Engineering, Department of Chemical Engineering, Tsinghua University, Beijing, 100084, P. R. China*
*[b] Department of Chemical Engineering, Imperial College London, South Kensington Campus, SW7 2AZ, UK)*

**P-T-31** **Effect of hydrophilicity of support layer on performance of thin-film composite forward osmosis membranes**

Kentaro Takeuchi, Masahiro Yasukawa, Yuriko Kakihana, Mitsuru Higa*

*(Graduate School of Sciences and Technology for Innovation, Yamaguchi University, Japan)*

**P-T-32** **Composite Membrane Formation by Combination of Reaction-Induced and Nonsolvent-Induced Phase Separation**

J. Aburabie [a], L. F. Villalobos [a], K-V. Peinemann [a]*
*([a] King Abdullah University for Science and Technology KAUST)*

**P-T-33** **High-performance reverse osmosis membranes fabricated on highly porous microstructured supports**

Jaewoo Lee[a], Rong Wang[a,b], Tae-Hyun Bae[a,c]*
*([a] Singapore Membrane Technology Center, Nanyang Environment and Water Research Institute, Nanyang Technological University, 637141, Singapore*
*[b] School of Civil and Environmental Engineering, Nanyang Technological University, 639798, Singapore*
*[c] School of Chemical and Biomedical Engineering, Nanyang Technological University, 637459, Singapore)*

**P-T-34** **Facile and scalable flow-induced deposition of organosilica on porous polymer supports for reverse osmosis desalination**

Genghao Gong,[a] Hiroki Nagasawa,[b] Masakoto Kanezashi,[b] and Toshinori Tsuru[b,*]
*([a] State Key Laboratory of Separation Membranes and Membrane Processes, Tianjin Polytechnic University, Tianjin 300387, PR China*
*[b] Department of Chemical Engineering, Hiroshima University, Higashi-Hiroshima 739-8527, Japan)*

**P-T-35** **Gas separation by interfacial diffusion membranes**

David K. Wang[a]*, Ralph Bauer[b], Kelan Yan[b], Ioannis Mergos[b] , Hendrik Verweij[b]
*([a] The University of Sydney, School of Chemical and Biomolecular Engineering, Australia*
*[b] The Ohio State University, Department of Materials Science and Engineering, USA)*

**P-T-36** **Decoloration of molasses by ultrafiltration and nanofiltration: understanding the mechanisms of high sucrose retention**

Shiwei Guo, Jianquan Luo, Yinhua Wan*
*(State Key Laboratory of Biochemical Engineering, Institute of Process Engineering, Chinese Academy of Sciences, Beijing 100190, PR China)*

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| **P-T-37** | **Imidazole-based Anion Exchange Membranes Crosslinked by Click Reaction with Excellent Alkaline Stability**<br>Liang Hao, Yuliang Jiang, Jiangnan Shen*<br>*(Center for Membrane Separation and Water Science & Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, P. R. China)* |
| **P-T-38** | **Internal cross-linked anion exchange membranes with improved dimensional stability for electrodialysis**<br>Xu Chen, Yuliang Jiang, Jiefeng Pan, Jiangnan Shen*<br>*(Center for Membrane Separation and Water Science & Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, China)* |
| **P-T-39** | **One-pot approach to prepare internally cross-linked monovalent selective anion exchange membranes**<br>Jincheng Ding, Jiefeng Pan, Yu Zheng, JiangnanShen*<br>*(Center for Membrane Separation and Water Science & Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, China)* |
| **P-T-40** | **Stable BPPO-based Aliphatic-heterocyclic Alkali Anion Exchange Membranes for Electrodialysis Applications**<br>Yuliang Jiang, Junbin Liao, Shanshan Yang, Jiangnan Shen*<br>*(Center for Membrane Separation and Water Science & Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, China)* |
| **P-T-41** | **Surface Layer Modification of AEMs by Infiltration and Photo-Cross-Linking to Induce Monovalent Selectivity**<br>Huimin Liu, Congjie Gao, Jiangnan Shen*<br>*(Center for Membrane Separation and Water Science & Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, P. R. China)* |
| **P-T-42** | **Three-Dimensional Network Structure Architecture via UV Irradiation in Canion Exchange Membranes for Electrodialysis Applications**<br>Jiajie Zhu, Jiangnan Shen *<br>*(Center for Membrane Separation and Water Science & Technology, Ocean College, Zhejiang University of Technology, Hangzhou 310014, China)* |
| **P-T-43** | **Template Synthesis and characterization of poly(ether sulfone) block copolymers containing pendent quaternary ammonium- and imidazolium groups as anion exchange membranes**<br>Nowon Kim[a,] *, Aruna Kumar Mohanty [b], , and Hyun-jong Paik [b] *<br>*([a] Department of Environmental Engineering, Dong-eui University, Busan, 614-714, Korea* |

[b] *Department of Polymer Science and Engineering, Pusan National University, Busan, 609-735, Korea)*

**P-T-44** **Nickel Hexacyanoferrate Electrodes for Asymmetric Membrane Capacitive Deionization**

Ching-Yu Peng[a,c]*, Hsiao-Wen Tung[a], Cheng-Lan Lin[b,c]
*([a] Department of Water Resources and Environmental Engineering, Tamkang University, New Taipei City, 25137, Taiwan*
*[b] Department of Chemical and Materials Engineering, Tamkang University, New Taipei City, 25137, Taiwan*
*[c] Water Treatment Science and Technology Research Center, Tamkang University, New Taipei City, 25137, Taiwan)*

**P-T-45** **Electrochemical Characterization of Ion Exchange Composite Membranes with Ion Exchange Particles**

Sang Yong Nam *, Tae Yang Son, Jun Seong Yun, Jin Woo Jo
*(Department of Materials Engineering and convergence Technology, engineering Research Institute, Gyeongsang National University, Jinju 52828, Korea)*

**P-T-46** **Experimental and modelling study of cation transport selectivity in electrodialysis of multi-component system**

Nobuya Takumi, Kota Osawa, Masahiro Yasukawa, Yuriko Kakihana and Mitsuru Higa*
*(Graduate School of Sciences and Technology for Innovation, Yamaguchi University, Japan)*

**P-T-47** **Metal hollow-fiber membrane electrodes for the electro-degradation of organic pollutants**

Francois-Marie Allioux[1], Oana David[2], Miren Etxeberria Benavides[2], David Alfredo, Pacheco Tanaka[2], Christopher J. Garvey[3], Peter D. Hodgson[1], Lingxue Kong[1], Ludovic F. Dumée[1]
*([1] Deakin University, Institute for Frontier Materials, Geelong, VIC 3216, Australia*
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*[3] Bragg Institute, Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW 2234, Australia)*

**P-T-48** Covalent organic frameworks-based thin-film nanocomposite membranes for forward osmosis processes

Nawshad Akther[a], Sungil Lim[a], Van Huy Tran[a], Sherub Phuntsho[a], Bae Tae-Hyun[b], Noreddine Ghaffour[c,] and Ho Kyong Shon[a]*
*([a]Centre for Technology in Water and Wastewater (CTWW), School of Civil and Environmental Engineering, Faculty of Engineering and Information Technology (FEIT), University of Technology Sydney (UTS), 15 Broadway, NSW 2007, Australia.*
*[b]School of Chemical and Biomedical Engineering, Nanyang Technological University (NTU), Singapore 637459, Singapore*
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## *Session 3:*

## Friday, 6th July 2018

## Poster setting up: 8:00 - 8:30

## Poster session: 11:55 am - 13:05

## Themes: Water and Waste Water Treatment; Application in Mining Industry and Agriculture; Membranes for Energy Conversion and Storage; Bioinspired Membranes and Novel Membrane Materials; Process Integration; Resource Recovery.

| Poster ID | Title and authors |
|---|---|
| P-F-01 | **Iron(II) and Manganese(II) Removal in Direct Nanofiltration Implementation for Treating Anoxic Groundwater in Managed Aquifer Recharge (MAR) Extraction Wells**<br>Yeseul Choi [a,b], Yongxun Jin [a], Seungkwan Hong [b], Chanhyuk Park [c*]<br>*([a] Center for Water Research, Korea Institute of Science and Technology, Seoul 02792, South Korea*<br>*[b] School of Civil, Environmental and Architectural Engineering, Korea University, Seoul 02841, South Korea*<br>*[c] Department of Environmental Science and Engineering, Ewha Womans University, Seoul 03760, South Korea)* |
| P-F-02 | **Microplastic remediation with polysulfone microfiltration membranes**<br>Marie Enfrin[a,b], Ludovic F. Dumée[b], Judy Lee[a*]<br>*([a] Department of Chemical and Process Engineering, University of Surrey, Surrey, GU27XH, UK*<br>*[b] Institute for Frontier Materials, Deakin University, Waurn Ponds Campus, Victoria, 3216, Australia)* |
| P-F-03 | **Visible-Light-Active Electrospun $SrTiO_3$ Fibrous Membrane decorated by BiOI for Photocatalytic Methyl Orange Degradation**<br>Chechia Hu*, Hui-Xin Huang, Yi-Feng Lin<br>*(Department of Chemical Engineering and R&D center for Membrane Technology, Chung Yuan Christian University, Chungli Dist., Taoyuan City, Taiwan 32023)* |

**P-F-04** **The hybrid adsorptive natural zeolite based hollow fibre ceramic membrane (HFCM) for the removal of ammonia in wastewater**

Mohd Ridhwan Adam[a], Mohd Hafiz Dzarfan Othman[a,*], Takeshi Matsuura[b], Mohd Hafiz Puteh[c], A.F. Ismail[a], Mukhlis A. Rahman[a], Juhana Jaafar[a]
*([a]Advanced Membrane Technology Research Centre (AMTEC), Universiti Teknologi Malaysia, 81310 UTM, Skudai, Johor, Malaysia.*
*[b]Department of Chemical and Biological Engineering, University of Ottawa, Ottawa, Ontario, K1N 6N5, Canada.*
*[c]Faculty of Civil Engineering (FCE), Universiti Teknologi Malaysia, 81310 UTM, Skudai, Johor, Malaysia.)*

**P-F-05** **Research of Module based Decentralized Water Supply System for Commercialization in Cambodia**

Insik Jung, Juho Lee, Kyunggeun Lee, Scott Park
*(LSTS, Republic of Korea)*

**P-F-06** **Thermo-responsive ionic liquids with LCST-type phase transition as draw solutes in forward osmosis for sea water desalination**

Hana G. Zeweldi[a], Anelyn P. Bendoy[a], Lawrence A. Limjuco[a], Hanseung Kim[b], Myoung Jun Park[c], Ho Kyong Shon[c], Wook-Jin Chung[a], Grace M. Nisola[a*]

*([a] Department of Energy Science and Technology (DEST), Energy and Environment Fusion Technology Center ($E^2$FTC), Myongji University, Myongji-ro 116, Nam-dong, Cheoin-gu, Yongin-si, Gyeonggi-do 17058, Republic of Korea*

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*[c] Environmental Center for Technology in Water and Wastewater, School of Civil and Environmental Engineering, University of Technology, Sydney (UTS), MSW 2007, Australia)*

**P-F-07** **Hierarchically Structured Porous Carbon Composites Derived from Metal-Organic Frameworks for High-Performance Membrane Capacitive Deionization**

Wenhui Shi[ab], Chenzeng Ye[a], Xiaoyue Liu[a], Jiangnan Shen[ab], Congjie Gao[ab]
*([a] Center for Membrane and Water Science & Technology, Ocean College, Zhejiang University of Technology, Hangzhou, 310014, China*
*[b] Huzhou Institute of Collaborative Innovation Center for Membrane Separation and Water Treatment*
*Zhejiang University of Technology, Huzhou, Zhejiang, 313000, China)*

**P-F-08** **Performance Evaluation of Different Membrane Based Technologies for Industrial Wastewater Treatment**

Mekdimu Mezemir Damtie[b], Bongchul Kim[a] June-Seok Choi[a,b,*]

*([a] Environment & Plant Engineering Research Institute, Korea Institute of Civil Engineering and Building Technology, (Daehwa-Dong) 283, Goyang-si,Gyeonggi-Do,10223, Korea*

*[b] Department of Construction Environment Engineering, KICT school, University of Science & Technology, (34113) 217, Gajeong-ro, Yuseong-gu, Daejeon, South Korea)*

**P-F-09** **Nitrogen removal by sulfur-based carrier in membrane bioreactor (MBR)**

Thi-Kim-Quyen Vo[a], Jeong Jun Lee[a], Joon-Seok Kang[a], Seogyeong Park[a], Han-Seung Kim[a]*

*([a] Department of Environmental Engineering and Energy, Myongji University, 116 Myongji-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, 17058, South Korea)*

**P-F-10** **Development of sulfur carrier with integrated membrane bioreactor (MBR)-nano filtration (NF) for wastewater reuse**

Jeong Jun Lee, Thi-Kim-Quyen Vo, Joon-Seok Kang, Seogyeong Park, Han-Seung Kim*

*(Department of Environmental Engineering and Energy, Myongji University, 116 Myongji-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, 17058, South Korea)*

**P-F-11** **Application of Fluidized Ceramic Membrane Reactor Using Granular Activated Carbon for Treatment of Metal Plating Wastewater**

Soomin Chang, Deaun Kwon, Jeonghwan Kim*

*(Department of Environmental Engineering, Inha University, Incheon, Republic of Korea)*

**P-F-12** **Forward Osmosis Membrane to Treat Effluent from Anaerobic Fluidized Bed Ceramic Membrane Bioreactor for Wastewater Reuse Applications**

Deaun Kwon, Soomin Chang, Muhammad Aslam, Jeonghwan Kim*

*(Department of Environmental Engineering, Inha University, Incheon, Republic of Korea)*

**P-F-13** **High performance mix-matrixed fibrous membranes for ammonia removal from wastewaters**

Shu-Ting Chen[a], S. Ranil Wickramasinghe[a] and Xianghong Qian[b]*

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| | *([a] Department of Chemical Engineering, University of Arkansas, Fayetteville, AR 72701, USA*<br>*[b] Department of Biomedical Engineering, University of Arkansas, Fayetteville, AR 72701, USA)* |
| **P-F-14** | **Colour degradation of crystal violet with two combined methods: Advanced oxidation with fenton reagent and cellulose acetate/PEG membrane filtration**<br>Nurul Widiastuti*, Rachmawati, Yuly Kusumawati<br>*(Department of Chemistry, Faculty of Science, Institut Teknologi Sepuluh Nopember, Sukolilo, Surabaya 60111, Indonesia)* |
| **P-F-15** | **Characteristics of long-term stability experiment of TIPS membrane under sadistic conditions**<br>Sang Yong Nam[a,*], Kwang Seop Im[a], Jung Woo Lee[b], Jae Young Jang[b]<br>*([a] Department of Materials Engineering and Convergence Technology, Engineering Research Institute, Gyeongsang National University, Jinju 52828 Korea**<br>*[b] Pure Envirech Co. Ltd., Siheng-si, 15118, Korea)* |
| **P-F-16** | **pH shift of permeate during RO operation**<br>Hyung-Gyu Park, Young-Nam Kwon*<br>(*School of Urban & Environmental Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan 689-798, Republic of Korea*) |
| **P-F-17** | **Membranes for purification of photoresist solution**<br>In-Chul Kim*, Eun-Sook Ahn, Se-I Kwon<br>*(Membrane Research Center, Korea Research Institute of Chemical Technology, P.O. Box 107, Sinseongno 19, Yuseong, Daejeon 305-600, Republic of Korea)* |
| **P-F-18** | **$TiO_2$ coated hollow fiber membrane to degrade organic compounds**<br>Min Kwang Kime, Jung Hoon Park*<br>*(Dongguk University, 30, Pildong-ro 1-gil, Jung-gu, Seoul, 04620, Republic of Korea)* |
| **P-F-19** | **Janus Membranes with Deemulsification Function for Highly Efficient Separation of Oil-in-Water Emulsions**<br>Jing Yang, Yun-Peng An, Hao-Nan Li, Zhi-Kang Xu*<br>*(MOE Key Laboratory of Macromolecular Synthesis and Functionalization, and Key Laboratory of Adsorption and Separation Materials & Technologies of* |

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| | *Zhejiang Province, Department of Polymer Science and Engineering, Zhejiang University, Hangzhou 310027, China)* |
| **P-F-20** | **Inverse vulcanized sulfur copolymer membrane as effective adsorbent for heavy metal sequestration**<br>Lawrence A. Limjuco, Grace M. Nisola, Hana G. Zeweldi, Wook Jin Chung*<br>*(Department of Energy and Science Technology (DEST), Energy and Environment Fusion Technology Center ($E^2$FTC), Myongji University, Myongji-ro 116, Nam-dong, Cheoin-gu, Yongin-si, Gyeonggi-do 17058, Republic of Korea)* |
| **P-F-21** | **Ceramic membranes of various materials and different pore sizes for filtration of oily water**<br>T. Tsuru,* T. Omura, H. Nagasawa, M. Kanezashi<br>*(Department of Chemical Engineering, Hiroshima University)* |
| **P-F-22** | **Thermally Triggered Polyrotaxane Translational Motion Helps Proton Transfer**<br>Xiaolin Ge, Liang Wu*, Tongwen Xu *<br>*(CAS Key Laboratory of Soft Matter Chemistry, Collaborative Innovation Center of Chemistry for Energy Materials, School of Chemistry and Materials Science, University of Science and Technology of China, 96 Jinzhai Road, Hefei, Anhui 230026, P. R. China.)* |
| **P-F-23** | **Effect of Water, Ethanol and NMP Mixture as Bore Liquid on NiO-YSZ/LSCF-YSZ Dual-Layer Hollow Fiber Catalyst Membrane**<br>Silvana Dwi Nurherdiana[a], Wahyu Prasetyo Utomo[a], Happy Bunga Nasyirahul Sajidah[a], Siti Munira Jamil[b], Mohd Hafiz Dzarfan Othman[b*], Hamzah Fansuri[a*]<br>*([a] Department of Chemistry, Faculty of Science, Institut Teknologi Sepuluh Nopember, 60111, Kampus ITS Sukolilo, Indonesia*<br>*[b] Advanced Membrane Technology Research Centre (AMTEC), Faculty of Chemical and Energy Engineering, Universiti Teknologi Malaysia, 81310, UTM Johor Bahru, Malaysia)* |
| **P-F-24** | **Sulfonated multi-block copolymers with phenylene sulfone moieties for Polymer Electrolyte Membrane Fuel Cell Application**<br>Jinok Yuk[a], Su Min Ahn[a,b], Tae-Ho Kim[a], Young Taik Hong[a]*<br>*([a] Center for Membranes, Korea Research Institute of Chemical Technology, Korea*<br>*[b] School of Chemical Engineering, Sungkyunkwan University, Korea)* |

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| **P-F-25** | **Investigating the effect of the hydrophobic block structure on durability of hydrocarbon-based membrane materials for vanadium redox flow battery**<br>Soo Hyun Hong[a,b], Min Suc Cha[a,c], Jang Yong LEE[a], Young Taik Hong[a]*<br>*([a] Center for Membranes, Korea Research Institute of Chemical Technology, Korea*<br>*[b] Department of Polymer Engineering, Chungnam National University, Korea*<br>*[c] Department of Chemical Engineering, Hanyang University, Korea)* |
| **P-F-26** | **Preparation of Polyimide Nanofiber and Its Application as Secondary Battery Separator**<br>Hou Jian[a] , Jun-Hyun kim[b], Sungyul Kim[c], and Hongsik Byun[a]*<br>*([a] Department of Chemical Engineering, Keimyung University, Daegu, 704-701, Korea*<br>*[b] Department of Chemistry, Illinois State University, Normal, Illinois 61790-4160, United States*<br>*[c] Dept of Electronic and Electrical Engineering, Keimyung University, Deagu, S. Korea, 704-701)* |
| **P-F-27** | **Effect of Spacer Geometry on Stack Resistance in Reverse Electrodialysis**<br>Soroush Mehdizadeh, Masahiro Yasukawa, Yuriko Kakihana, Mitsuru Higa*<br>*(Graduate School of Sciences and Technology for Innovation, Yamaguchi University, Japan)* |
| **P-F-28** | **Experimental pilot-scale performance comparison between pressure-retarded osmosis and reverse electrodialysis**<br>M. Yasukawa[a], T. Sakurada[b], R. Horie[b], M. Kuno[a], Y. Kakihana[a] and M. Higa[a]*<br>*([a] Graduate School of Sciences and Technology for Innovation, Yamaguchi University, Japan*<br>*[b] Graduate School of Science and Engineering, Yamaguchi University, Japan)* |
| **P-F-29** | **Effect of divalent ions in reverse electrodialysis: Experimental and simulation study**<br>Masaya Kuno, Masahiro Yasukawa, Yuriko Kakihana and Mituru. Higa*<br>*(Graduate School of Sciences and Technology for Innovation, Yamaguchi University, Japan)* |
| **P-F-30** | **Characterization of monovalent cation selective ion-exchange membranes prepared from PVA-based block copolymers**<br>S. Harada[a] , T. Mizuno[b], M. Anno[b], Y. Kakihana[a], M. Yasukawa[a], M. Higa[a, b]* |

*([a] Graduate School of Sciences and Technology for Innovation, Yamaguchi University, Japan*
*[b] Graduate School of Science and Engineering, Yamaguchi University, Japan)*

**P-F-31** **Effect of water temperature on power output in a pilot-scale reverse electrodialysis (RED)**

T. Abo, M. Kuno, Y. Noguchi, M. Yasukawa, Y. Kakihana and M. Higa*
*(Graduate school of Sciences and Technology for Innovation, Yamaguchi University, Japan)*

**P-F-32** **Morphology and Mechanical Properties of $La_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_{3-\delta}$ (LSCF) Asymmetric Membrane Prepared By Phase Inversion Method**

Hamzah Fansuri*, Rifka Etriana, Silvana Dwi Nurherdiana, Rendy Muhammad Iqbal and Wahyu Prasetyo Utomo
*(Department of Chemistry, Faculty of Science, Institut Teknologi Sepuluh Nopember (ITS)*
*Kampus ITS Sukolilo, Surabaya 60111, Indonesia)*

**P-F-33** **Energy generation by Reverse Electrodialysis: performance with natural river water/seawater feed streams**

Efrem Curcio[a,c], Ahmet H. Avci[a], Ramato A. Tufa[b], Enrica Fontananova[c], Gianluca Di Profio[c]
*([a] Department of Environmental and Chemical Engineering DIATIC, University of Calabria - Via P. Bucci Cubo 45A, 87036 Rende (CS) Italy*
*[b] Department of Inorganic Technology, University of Chemistry and Technology Prague, Technická 5, 166 28 Prague 6, Czech Republic*
*[c] Institute on Membrane Technology, National Research Council of Italy ITM-CNR, Italy - Via P. Bucci Cubo 17C, 87036 Rende (CS) Italy)*

**P-F-34** ***In-situ* modification of poly(vinylidene fluoride) membranes with graphene oxide and its consequences on the separation of versatile oil-in-water and water-in-oil emulsions**

Antoine Venault*, Ching-Hsueh Chiang, Wei-Song Hung, Yung Chang
*(R&D Center for Membrane Technology and Department of Chemical Engineering, Chung Yuan Christian University, 200 Chung Pei Rd., Taoyuan 320, Taiwan)*

**P-F-35** **Polysaccharide Membranes for the Optical Resolution of Chiral Materials**

Jonggeon Jegal* and J. H. Kim

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| | *(Center for Biobased Chemistry, Convergent Chemistry Division, Korea Research Institute of Chemical Technology (KRICT), 406-30, Jonggaro, Joonggu, Ulsan, South Korea)* |
| **P-F-36** | **Chitosan/Graphene Oxide Composite Membrane Immobilized with Lipase for Simultaneous Catalysis and product removal**<br>Yu-De Chen [a], Wei-Song Hung[b,c], Chung-Jung Chou [a]*<br>*([a] Department of Chemical Engineering, Chung-Yuan Christian University, Chung Li, Taiwan*<br>*[b] R&D Center for Membr. Technol., Chung Yuan University, Chungli 320, Taiwan*<br>*[c] National Taiwan University of Science and Technology, Taipei, Taiwan)* |
| **P-F-37** | **Sensitive and fast optical HCl gas sensor using a nanoporous fiber membrane consisting of poly(lactic acid) doped with tetraphenylporphyrin**<br>Min Hu, Zhaoxiang. Zhong* Weihong Xing*<br>*(College of Chemical Engineering, National Engineering Research Center for Special Separation Membrane, Nanjing Tech University, Nanjing 210009, Jiangsu, China)* |
| **P-F-38** | **UiO-66-$NH_2$@CNTs/PTFE integrated multifunction filter for air purification**<br>Shasha Feng, Zhaoxing Zhong*, Weihong Xing*<br>*(State Key Laboratory of Materials-Oriented Chemical Engineering, National Engineering Research Center for Special Separation Membrane, Nanjing Tech University, Nanjing 210009, China)* |
| **P-F-39** | **Development of Supramolecular Thin Films for Tissue Engineering Scaffolds**<br>Chih-Chia Cheng*, Jyun-Jie Huang, Shan-You Huang, Wen-Lu Fan<br>*(Graduate Institute of Applied Science and Technology, National Taiwan University of Science and Technology, Taipei 10607, Taiwan)* |
| **P-F-40** | **Exfoliated $WS_2$ few layers and Preparation of $WS_2$/ polypyrrole composite membranes for Electrically Assisted Transdermal Drug Delivery**<br>Hsieh-Chih Tsai*, Anbazhagan, Rajeshkumar<br>*(Graduate Institute of Applied Science and Technology, National Taiwan University of Science and Technology, Taipei 10607, Taiwan)* |

**P-F-41** **Highly Permeable Biocatalytic Membrane Prepared by 3D Modification: Metal-Organic Frameworks Ameliorate Its Stability for Micropollutants Removal**

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**P-F-42** **In Situ Self-Assembly Strategy for Preparation of Metal-Organic Framework Hybrid Membranes**

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**P-F-43** **Fabrication of Natural Zeolite Filters**

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**P-F-44** **Effective delivery of $CO_2$ to microalgal ponds**

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**P-F-45** **Fabrication of poly(vinyl alcohol)-based poly(diallyl dimethyl ammonium) chloride and poly(styrene sulfonate) charge mosaic membrane through layer-by-layer assembly**

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**P-F-46** **A systematic investigation of ionic liquids as effective draw solutes for forward osmosis**

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**P-F-47** **Forward osmosis membrane modular configurations for osmotic dilution of seawater forward osmosis and reverse osmosis hybrid system**

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**P-F-48** **$H_2TiO_3$ composite nanofiber membranes for lithium recovery from seawater and aqueous resources**

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**P-F-49** **Preparation of azido-functionalized polyvinyl chloride nanofiber for selective radionuclide removal**

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**P-F-50** **Continuous Li mining from coal ash leachate by an electrospun nanofiber membrane adsorber with lithium ion sieves**

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