Oral session 1 - Energy applications- fuel cells

Monday July 13, 1:40 PM

Room: Sapphire

Chair

Hobum Park, Hanyang University, Korea

Co-chair

Takeo Yamaguchi, Tokyo Institute of Technology, Japan

O1-1 1:40 PM

Proton conducting membranes using "grafting-from" technology

Kim Jong Hak, Roh Dong Kyu, Koh Joo Hwan, Park Jung Tae, Seo Jin Ah

Yonsei University, Department of Chemical and Biomolecular Engineering, Korea

O1-2 2:00 PM

Reinforcing Nafion Membranes with POSS Derivatives for Direct Methanol Fuel Cell Applications

Liang Hong[1], Siok Wei Tay[1], Xinhui Zhang[1], Zhaolin Liu[1],

1: Institute of Materials Research & Engineering, Singapore

2: Department of Chemical & Biomolecular Engineering, National University of Singapore, Singapore

O1-3 2:20 PM

The architecture effect of graft polyelectrolyte copolymers on their properties and proton conductivities

Yu-Huei Su[1], Ying-Ling Liu[2], Da-Ming Wang[1], Juin-Yih Lai[2], San-Der Chyou[3], Win-Tai Lee[3]

1: National Taiwan University, Institute of Polymer Science and Engineering, Taiwan

2: Chung Yuan University, R&D Center for Membrane Technology and Department of Chemical Engineering, Taiwan

3: Taiwan Power Company, Taiwan Power Research Institute, Taiwan

O1-4 2:40 PM

Modeling study on limit conversion of methane-steam-reforming membrane reactors using dense metal membranes with different permeation properties

Shigeki Hara[1], Hiroyuki Suda[1], Masakazu Mukaida[1], Kenji Haraya[1], Giuseppe Barbieri[2], Enrico Drioli[2]

1: AIST, Japan

2: CNR-ITM, Italy

Oral session 2 - Gas separation and pervaporation I

Monday July 13, 1:40 PM

Room: Ruby

Chair

Kazukiyo Nagai, Meiji University, Japan

Co-chair

Tai-Shung Neal Chung, National University of Singapore, Singapore

O2-1 1:40 PM

A membrane process to capture CO_2 from power plant flue gas

Tim Merkel, Haiqing Lin, Adrian Serbanescu, Jenny He, Richard Baker, Ingo Pinnau

Membrane Technology and Research, Inc., USA

O2-2 2:00 PM

Membrane based carbon capture pilot plant trials

Colin Scholes, Geoff W Stevens, Sandra E Kentish

CRC for Greenhouse Gas Technologies, University of Melbourne, Australia

O2-3 2:20 PM

Nanostructured CO_2-selective membranes with extremely high performance

Wilfredo Yave, Anja Car, Jan Wind, Klaus-Viktor Peinamnn

GKSS-Forschungszentrum Geesthacht GmbH, Germany

O2-4 2:40PM

Permeation and free volume properties of semi-crystalline poly(3-hydroxybutyrate-co-3-hydroxyvalerate) membranes

Mei-Ling Cheng, Yi-Ming Sun

Department of Chemical Engineering and Materials Science, Yuan Ze University, Taiwan

Oral session 3 - Membrane preparation and modification I

Monday July 13, 1:40 PM

Room: Emerald

Chair

Hern Kim, Myongji University, Korea

Co-chair

Hiroshi Umakoshi, Osaka University, Japan

O3-1 1:40 PM

Preparation of hollow fiber immobilized liposome membrane

Hiroshi Umakoshi[1], Hiroyuki Sugaya[2], Yuji Tohtake[1], Ena Oyama[1], Toshinori Shimanocuhi[1], Ryoichi Kuboi[1]

1: Osaka University, Japan

2: Toray Industries, Inc, Japan

O3-2 2:00 PM

Proton conductive membrane with inter network morphology using PVDF and SAS

Baoguo Wang, Fei Long, Ping Liu, Letu Qingge, Yongshen Fan

Tsinghua University, China

O3-3 2:20 PM

Ultra-thin polymeric interpenetration network with enhanced separation performance approaching ceramic membranes for biofuel

Lan Ying Jiang[1], Hongmin Chen[2], Tai Shung Chung[3], Yan-Ching Jean[2]

1: Nanoscience and Nanotechnology, National University of Singapore, Singapore

2: Department of Chemistry, University of Missouri-Kansas City, USA

3: Dept. of Chemical and Biomolecular Engineering, National University of Singapore, Singapore

O3-4 2:40 PM

Optical resolution with membranes derived from marine polymers

Masakazu Yoshikawa[1], Yuki Iwamoto[1], Motokazu Maruhashi[1], Kanji Yamaoka[2], Naoya Ogata[2]

1: Kyoto Institute of Technology, Japan

2: Ogata Research Laboratory, Ltd., Japan

Oral session 4 - Biochemical applications

Monday July 13, 3:20 PM

Room: Sapphire

Chair

Hiroyoshi Kawakami, Tokyo Metropolitan University, Japan

Co-chair

Akon Higuchi, National Central University, Taiwan & National Research Institute for Child Health and Development, Japan

O4-1 3:20 PM

Novel nanocarrier as a transdermal protein delivery and its membrane permeation behavior through skin

Masahiro Goto, Yoshiro Tahara, Norio Kamiya

Kyushu University, Japan

O4-2 3:40 PM

Permeation and isolation of hematopoietic stem cells and blood cells from umbilical cord blood through surface-modified polyurethane membranes having nanosegments

Akon Higuchi

National Central University, Taiwan & National Research Institute for Child Health and Development, Japan

O4-3 4:00 PM

Use of membrane emulsification to implement biocatalytic membrane reactors

L. Giorno[1], E. Piacentini[1,2], R. Mazzei[1,3], E. Drioli[1,2]

1: Institute on Membrane Technology, CNR-ITM, C/o University of Calabria, Via P. Bucci 17/C, 87030 Rende (CS), Italy

2: Dept. of Chemical Engineering and Materials, University of Calabria, Via P. Bucci 42/A, 87030 Rende (CS), Italy

3: Dept. of Ecology, University of Calabria, Via P. Bucci 6/B, 87036 Rende (CS), Italy

O4-4 4:20 PM

A well-controlled antibiofouling poly(vinylidene fluroride) ultrafiltration membrane with poly(ethylene glycol) methacrylate via surface-initiated atom transfer radical polymerization

Yung Chang[1], Chao-Yin Ko[1], Yu-Ju Shih[1], Da-Ming Wang[2]

1: R&D Center for Membrane Technology and Department of Chemical Engineering, Chung Yuan University, Taiwan

2: Department of Chemical Engineering, National Taiwan University, Taiwan

Oral session 5 - Gas separation and pervaporation II

Monday July 13, 3:20 PM

Room: Ruby

Chair

Akira Ito, Tokyo Institute of Technology, Japan

Co-chair

Yongtaek Lee, Chungnam National University, Korea

O5-1 3:20 PM

Defect-free hollow fiber fabrication for natural gas purification and investigation of plasticization performance

Guangxi Dong, Hongyu Li, Vicki Chen

CRC for Greenhouse Gas Technologies, University of New South Wales, Australia

O5-2 3:40 PM

β-Cyclodextrin containing matrimid sub-nano composite membranes for pervaporation application

Lan Ying Jiang[1], Yan Wang[1], Tai Shung Chung[2]

1: Nanoscience and Nanotechnology Initiative, National University of Singapore, Singapore

2: Dept. of Chemical and Biomolecular Engineering, National University of Singapore, Singapore

O5-3 4:00 PM

Removal of VOCs from their aqueous solution by pervaporation with PDMS-zeolite composite membrane

Dongjae Jeong[1], Mihye Yun[1], Jeongsik Oh[1], Ina Yum[1], Yongtaek Lee[1], Seong Yong Ha[2]

1: Department of Chemical Engineering, Chungnam National University, Korea

2: Airrane Co. Ltd, Korea

O5-4 4:20 PM

Preparation of silane modified PDMS/silicalite hybrid membranes and its pervaporation performance for dilute ethanol/water separation

Yinhua Wan, Shouliang Yi, Yi Su, Haoli Zhou, Yinhua Wan,

Institute of Process Engineering, Chinese Academy of Sciences, China

Oral session 6 - Membrane preparation and modification II

Monday July 13, 3:20 PM

Room: Emerald

Chair

Takaaki Tanaka, Niigata University, Japan

Co-chair

Ying-Ling Liu, Chung Yuan Christian University, Taiwan

O6-1 3:20 PM

Preparation and applications of PTFE/polyamide thin film composite membranes

Ying-Ling Liu, Chung-Hao Yu, Irdham Kusumawardhan, Juin-Yih Lai

Chung Yuan Christian University, Taiwan

O6-2 3:40 PM

Design concept of high performance PVDF membrane

Hirokazu Fujimura, Tetsuo Shimizu, Satoshi Shiki, Masatoshi Hashino, Noboru Kubota

Asahi Kasei Chemicals Corporation, Japan

O6-3 4:00 PM

Characterisation of functionalised gold nanotube membranes for molecular separations

Leonora Velleman[1], Dusan Losic[2], Joe Shapter[1],

1: Flinders University, Australia

2: Ian Wark Research Institute, University of South Australia, Australia

O6-4 4:20 PM

High boron removal seawater RO membrane

Masahiro Henmi, Hiroki Tomioka, Koji Nakatsuji

Toray Industries, Inc.Japan

Oral session 7 - Hybrid and novel processes

Tuesday July 14, 8:40 AM

Room: Sapphire

Chair

Bart van der Bruggen, K.U.Leuven, Belgium

Co-chair

Nobuyuki Katagiri, Nagoya University, Japan

O7-1 8:40 AM

Effect of coagulant on sludge thickening using membrane filtration

Ramon Christian P. Eusebio[1], Hyoung-Gun Kim[2], Han-Seung Kim[1]

1: Department of Environmental Engineering and Biotechnology, Myongji University, Korea

2: Institute of Construction Technology, KUMHO Engineering and Construction, Korea

O7-2 9:00 AM

New method for obtaining filtration characteristics based upon step-up pressure membrane filtration tests

Nobuyuki Katagiri, Eiji Iritani

Department of Chemical Engineering, Nagoya University, Japan

O7-3 9:20 AM

The application of nanofiltration membranes in water purification: future research challenges

Bart van der Bruggen

K.U.Leuven, Belgium

O7-4 9:40 AM

Energy hydrogen production using membranes in waste water treatment

Mikel C. Duke[1], Cathryn O'Sullivan[2], Hang Zheng[2], Ram Mereddy[2], Raymond Zeng[3], William Clarke[2]

1: Institute for Sustainability and Innovation, Victoria University, Australia

2: BioMass BioEnergy Group, Division of Environmental Engineering, The University of Queensland, Australia

3: Advanced Water Management Centre, The University of Queensland, Australia

Oral session 8 - Inorganic membranes

Tuesday July 14, 8:40 AM

Room: Ruby

Chair

Xuehong Gu, Nanjing University of Technology, China

Co-chair

Mikihiro Nomura, Shibaura Institute of Technology, Japan

O8-1 8:40 AM

Preparation of zeolite T membranes by secondary growth with nanosized seeds and their pervaporation properties

Rongfei Zhou[1], Na Hu[1], Hui Yuan[1], Xiangshu Chen[1], Hidetoshi Kita[2]

1: Department of Chemistry and Chemical Engineering, Jiangxi Normal University, China

2: Environmental Science and Engineering, Graduate School of Science and Engineering, Yamaguchi University, Japan

O8-2 9:00 AM

Synthesis of industrial-scale zeolite NaA membranes with high reproducibility

Ye Zhang, Yanmei Liu, Zhanzhao Yang, Xuehong Gu, Nanping Xu

State Key Laboratory of Materials-Oriented Chemical Engineering, College of Chemistry and Chemical Engineering, Nanjing University of Technology, China

O8-3 9:20 AM

Rejection of electrolytes and neutral solutes through titania nanofiltration membranes at high-temperatures

Toshinori Tsuru, Kazuhisa Ogawa, Masakoto Kanezashi, Tomohisa Yoshioka

Hiroshima University, Japan

O8-4 9:40 AM

Effect of adhesion of metals on deterioration of pd and pd alloy membranes

Shigeyuki Uemiya, Mai Tokiwa, Keisuke Taniguchi, Manabu Miyamoto

Department of Materials Science and Technology, Gifu University, Japan

Oral session 9 - Drinking and waste water applications

Tuesday July 14, 8:40 AM

Room: Emerald

Chair

Pierre Le-Clech, University of New South Wales, Australia

Co-chair

Noboru Kubota, Asahi Kasei Chemicals Co., Japan

O9-1 8:40 AM

Effect of nanofiltration fouling on removal of trace organic compounds during wastewater treatment

Pierre Le-Clech, Shima Hajibabania, Arne Verliefde, James McDonald, Stuart Khan

University of New South Wales, Australia

O9-2 9:00 AM

Membrane crystallizers for reducing brine disposal and increasing recovery factor in seawater and brackish water desalination

E. Drioli[1,2], F. Macedonio[1,2] , G. Di Profio[1,2], E. Curcio[1,2]

1: Department of Chemical Engineering and Materials, University of Calabria, Via P. Bucci Cubo 44/A, 87036 Arcavacata di Rende (CS), Italy

2: Institute on Membrane Technology, ITM-CNR, c/o University of Calabria, Via P. Bucci Cubo 17/C, Arcavacata di Rende (CS), Italy

O9-3 9:20 AM

A/O-MBR system for advanced biological nutrient removal

Han-Seung Kim[1], Ramon Christian Eusebio[1], Mark Sibag[1], Yoon-Ho Cho[1], Hyung-Gun Kim[2]

1: Myongji University, Department of Environmental Engineering and Biotechnology, Korea

2: Institute of Construction Technology, Kumho Engineering and Construction, Korea

O9-4 9:40 AM

Intermittent electric field for suppressing fouling in membrane bioreactors

Kazuki Akamatsu, Wei Lu, Takashi Sugawara, Shin-ichi Nakao

Department of Chemical System Engineering, The University of Tokyo, Japan

Oral session 10 - Membrane preparation and modification III

Tuesday July 14, 8:40 AM

Room: Topaz

Chair

Masakazu Yoshikawa, Kyoto Institute of Technology, Japan

Co-chair

Da-Ming Wang, Chung Yuan Christian University , Taiwan

O10-1 8:40 AM

The development of simplified process for the fabrication of hydrophilic PVDF membrane

Nur Awanis Hashim, Kang Li, Fu Liu

Department of Chemical Engineering & Chemical Technology, Imperial College London, UK

O10-2 9:00 AM

Preparation of porous PVDF membrane via thermally induced phase separation with diluent mixture of TBC and DEHP

Min Liu, Zhen Liang Xu

School of Materials Science and Engineering, East China University of Science and Technology, China

O10-3 9:20 AM

Effect of the nonsolvency of coagulation on the micro- and nano-scale structure of PVDF membranes

Chia-Ling Li[1], Da-Ming Wang[1], Andre Deratani[2], Damien Quemener[2], Denis Bouyer[3], Juin-Yih Lai[4]

1: Department of Chemical Engineering, National Taiwan University, Taiwan

2: Europeen des Membranes, UM2, France

3: Universite Montpellier 2, France

4: Research and Development Center for Membrane Technology, Chung Yuan University, Taiwan

O10-4 9:40 AM

Closed-pore porous polymer film of UV curable monomer/oligomer/CO_2 system via photopolymerization induced phase separation

Kentaro Taki, Akiyoshi Kajii, Shuhei Okumura, Shinsuke Nagamine, Masahiro Ohshima

Kyoto University, Japan

Oral session 11 - Facilitated transport membranes

Monday July 14, 1:40 PM

Room: Sapphire

Chair

Jonghak Kim, Yonsei University, Korea

Co-chair

Toshiki Aoki, Department of Chemistry and Chemical Engineering, Niigata University, Japan

O11-1 1:40 PM

Dynamic-site complexant constitutional membranes: toward an adaptive facilitated transport

Mihail D. Barboiu

Institut Europeen des Membranes, France

O11-2 2:00 PM

Transport of thiourea across PVC/C apriquat polymer inclusion membranes with different capriquat anions

Yukio Sakai[1], Keisuke Kadota[1], Takashi Hayashita[2], Robert W Cattrall[3], Spas D. Kolev[3]

1: The Faculty of Education and Culture, University of Miyazaki, Japan

2: Department of Chemistry, Faculty of Science and Technology, Sophia University, Japan

3: School of Chemistry, Faculty of Science, The University of Melbourne, Australia

O11-3 2:20 PM

Electronic and atomistic structure of alcanolamine for CO_2 capture

Mohamed Ismael[1], Ai Suzuki[1], Michihisa Koyama[2], Hideyuki Tsuboi[1], Nozomu Hatakeyama[1], Akira Endou[1], Hiromitsu Takaba[1], Carlos A Del Carpio[1], Momoji Kubo[1], Shinkichi Shimizu[3], Akira Miyamoto[1]

1: Tohoku University, Japan

2: Kyusyu University, Japan

3: Research Institute of Innovative Technology for the Earth, Japan

O11-4 2:40 PM

Crude Jatropha oil refining with ultrafiltration membranes

Tsair-Wang Chung[1], Shih-Hong Hsu[1], Mai-Tzu Chen[2]

1: Department Chemical Engineering/R&D center for Membrane Technology, Chung Yuan Christian University, Taiwan

2: National Federation of Rural Cooperatives Indonesia, Taipei Representative Office, Taiwan

Oral session 12 - Transport mechanism in membrane

Monday July 14, 1:40 PM

Room: Ruby

Chair

Shigetoshi Ichimura, Kanagawa Institute of Technology, Japan

Co-chair

Xiao-Lin Wang, Tsinghua University, China

O12-1 1:40 PM

Determining transport mechanisms within pores of different size, shape and composition

Aaron William Thornton[1], Anita Hill[1], Kate Nairn[1], James Hill[2]

1: Commonwealth Scientific and Industrial Research Organization, Australia

2: University of Wollongong, Australia

O12-2 2:00 PM

Molecular insights into fluids confined in nanoporous materials

Jianwen Jiang

National University of Singapore, Singapore

O12-3 2:20 PM

Analysis of the transmembrane potential arising across nanofiltration membranes

Cong-Hui Tu, Yan-Yan Fang, Xiao-Lin Wang

State Key Laboratory of Chemical Engineering, Department of Chemical Engineering, Tsinghua University, China

O12-4 2:40 PM

Characterization of skin layer of commercial RO membrane by membrane potential measurement

Ryosuke Takagi[1], Takuji Shintani[2], Arto Pihlajamaki[3], Marianne Nystrom[3]

1: Shukugawa Gakuin College, Japan

2: Nitto Denko Corporation, Japan

3: Lappeenranta University of Technology, Finland

Oral session 13 - Membrane fouling

Monday July 14, 1:40 PM

Room: Emerald

Chair

Vicki Chen, University of New South Wales, Australia

Co-chair

Kazuho Nakamura, Yokohama National University, Japan

O13-1 1:40 PM

Ultrasonic image analysis for membrane fouling in ultrafiltration of phospholipids from crude oil

Li-Hua Cheng[1], Yi-Hsun Lin[2], Yun-Chen Yang[1], Junghui Chen[1], Shyh-Hau Wang[2]

1: R & D Center for Membrane Technology, Department of Chemical Engineering, Chung Yuan University Taiwan

2: Department of Biomedical Engineering, Chung Yuan University, Taiwan

O13-2 2:00 PM

Submerged hollow fiber systems as potential pretreatment for reverse osmosis: Effect of operating modes and fouling characterization

Yun Ye, Lee Nuang Sim, Vicki Chen, Anthony Gordon Fane

UNESCO Centre for Membrane Science and Technology, University of New South Wales, Australia

O13-3 2:20 PM

Low pressure membrane fouling via interactions between organic compounds

Stephen Richard Gray[1], Noel Dow[1], John Orbell[1], Thuy Tran[2], Brian Bolto[2]

1: Victoria University, Australia

2: CSIRO Materials Science and Engineering, Australia

O13-4 2:40 PM

Pilot-scale performance of integrated coagulation-submerged microfiltration water treatment system: membrane autopsy and membrane fouling

Jeonghwan Kim[1], Mooseok Lee[2]

1: Inha University, Department of Environmental Engineering, Korea

2: ECO Research Institute, KOLON Central Research Park, Korea

Oral session 14 - Membrane preparation and modification IV

Monday July 14, 1:40 PM

Room: Topaz

Chair

Zhen-Liang Xu, East China University of Science and Technology, China

Co-chair

Ryotaro Kiyono, Shinshu University, Japan

O14-1 1:40 PM

Modification of porous poly(vinylidene fluoride) membrane using amphiphilic polymer in phase reversion processes

Xiao-Ting Ma, Wei-Dong Liu, Yue-Ming Chen, Bao-Ku Zhu, You-Yi Xu

Department of Polymer Science and Engineering,, Zhejiang University, China

O14-2 2:00 PM

Preparation of honeycomb-patterned films based on amphiphilic block copolymers of polylactide

Ye Tian[1], Heng-Yu Ma[1], Xiao-Lin Wang[1], Yan-Qiao Shi[2], Guan-Wen Chen[2]

1: State Key Laboratory of Chemical Engineering, Department of Chemical Engineering, Tsinghua University, China

2: Laboratory of New Materials, Institute of Chemistry, the Chinese Academy of Sciences, China

O14-3 2:20 PM

Plasma induced grafting of poly(ethylene glycol) methacrylate onto ePTFE membrane by atmospheric pressure plasma jet

Ta-Chin Wei, Yung Chang, Chia-Jen Chang, Yu-Ju Shih, Ying-Lin Liu

R&D Center for Membrane Technology and Dept. of Chemical Engineering, Chung-Yuan University, Taiwan

O14-4 2:40 PM

Development of braid reinforced hollow fiber membrane with enhanced durability by structure optimization

Mooseok Lee, Jaehee Ryu, Yongcheol Shin

ECO Research Institute, KOLON Central Research Park, Korea