15th International Conference on Catalysis in Membrane Reactors （ICCMR-15）

August 1st-4th, 2022

Waseda University, Tokyo, Japan

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Welcome address

On behalf of ICCMR-15 organizing Committee, it is our great honor and pleasure to welcome all of you to the 15th International Conference on Catalysis in Membrane Reactors (ICCMR-15), which will be held from 1st to 4th August 2022 at Waseda University in Tokyo, Japan.

ICCMR-15 was originally planned to be held in 2021 after ICCMR-14 held in 2019 at Eindhoven University of Technology in the Netherlands. Due to COVID-19, we had to postpone the conference to August 2022.

The conference series started in 1994, in Villeurbanne-Lyon (France) with the 1st International Workshop on Catalytic Membranes. The meeting was organized by the Institut de Recherches sur la Catalyse/CNRS (Villeurbanne, France), the Laboratoire d'Automatique et de Génie des Procédés/UCB-CPE-Lyon-CNRS (Villeurbanne, France), and the Laboratoire des Matériaux et Procédés Membranaires/UM II-CNRS (Montpellier, France). The next meeting, named the 2nd Conference on Catalysis in Membrane Reactors took place in 1996 in Moscow (Russia). In 1998 the event changed name to the International Conference on Catalysis in Membrane Reactors (ICCMR) and continued as a biannual meeting organized at different locations around the globe; Copenhagen 1998, Zaragoza 2000, Dalian 2002, Lahnstein 2004, Cetraro 2005, Kolkata 2007, Lyon 2009, Saint-Petersburg 2011, Porto 2013, Szczecin 2015, Houston 2017, and Eindhoven 2019. This conference is 15th in series. ICCMRs have been held 12 times in European countries and once in USA and China. This is the first ICCMR held in Japan and the 2nd time held in Asia.

We welcome leading experts in catalysis and membrane separation to share the latest science and technology via 4 plenary lectures, 14 keynote lectures, 39 oral presentations, and 14 poster presentations. We truly thank you for your active participation to realize the high-level scientific conference.

We would like to express our sincere gratitude to the member of International Advisory Board, the Organizing Committee and Local Organizing Committee members. We also thank all conference sponsors for their financial supports.

With your warmest supports, ICCMR-15 will be a wonderful conference.

Chairs of ICCMR-15 organizing committee

Masahiko MATSUKATA	Toshinori TSURU	Shigeyuki UEMIYA
(Waseda University)	(Hiroshima University)	(Gifu University)

Conference Overview

Hosted by

The Membrane Society of Japan
The Society of Chemical Engineers, Japan
Waseda University

Co-hosted by

The Chemical Society of Japan

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THE KAJIMA FOUNDATION

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Conference Date August 1st – 4th, 2022

Conference Venue Waseda University, Research Innovation Center
513 Tsurumakicho, Waseda, Shinjuku-ku, Tokyo, 162-0041, Japan

Registration Fee

	Early Bird	Regular
	- May, 20. 2022	May, 21 2022 -Aug.4, 2022
Participant	¥ 70,000	¥ 80,000
Students	¥ 30,000	¥ 40,000
Banquet	¥ 10,000	

International Advisory Board

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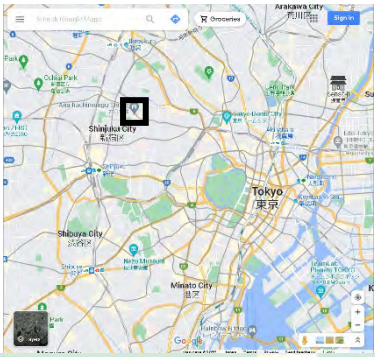
Conference Venue

Meeting

Waseda University, Research Innovation Center

513 Tsurumakicho, Waseda, Shinjuku-ku, Tokyo, 162-0041, Japan

https://www.waseda.jp/inst/research/innovation/building121



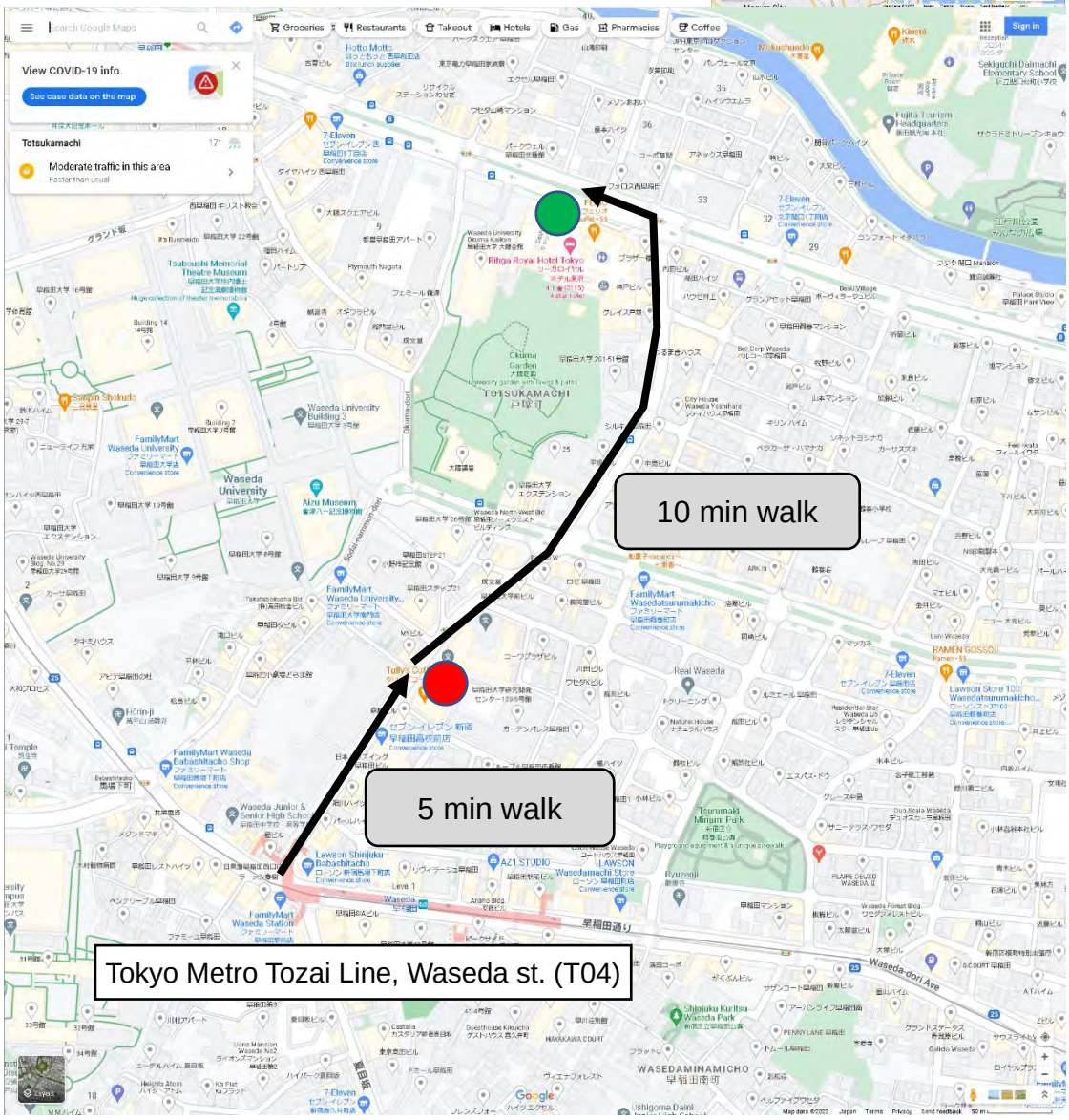
Banquet

RIHGA Royal Hotel Tokyo

1-104-19 Totsuka-machi, Shinjuku-ku, Tokyo 169-8613, Japan

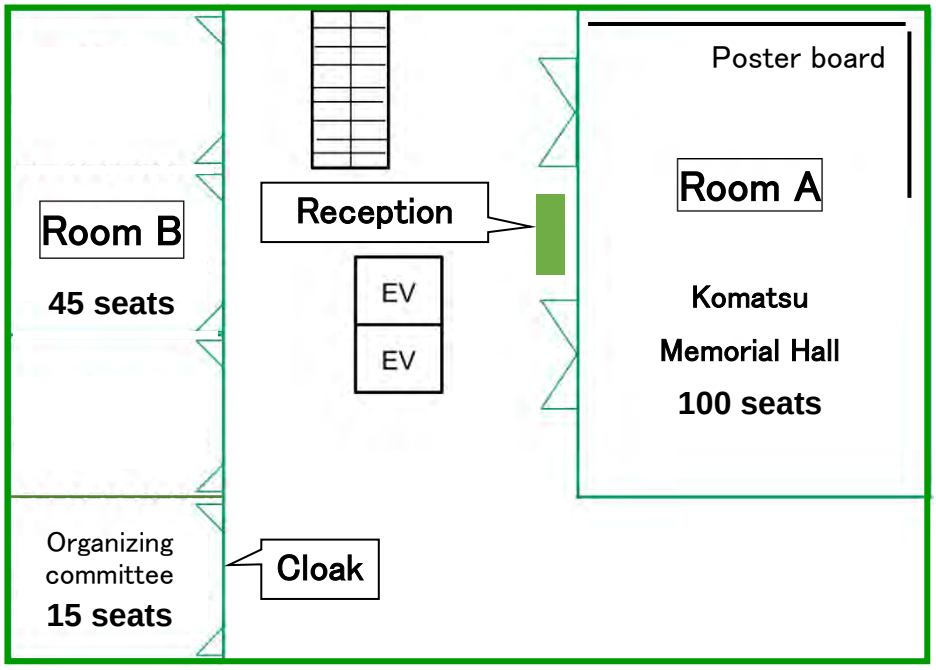
https://www.rihga.com/tokyo

*designated hotel by organizing committee.



Floor Map

Waseda University, Research Innovation Center
B1 Level



Guide for Participants

1. Online Participants

   Please type your affiliation and name in the Zoom system.

   Ex: Waseda U., John Smith

2. Oral presenters

   If you make your presentation online, please add your presentation ID before your affiliation in the Zoom system.

   Ex: [9-9-A-99] Waseda U., John Smith

   If you make your presentation onsite, please talk with the session chair before the session starts.

   Presentation time is as follows:

   General presentations: 15 minutes for speech and 5 minutes for discussion.

   Keynote lectures: 25 minutes for speech and 5 minutes for discussion.

   Plenary lectures: 50 minutes for speech.

3. Poster and RRR presenters

   Please display your poster on the poster board in Room A during the conference.

   The size of the poster board is 180 cm in height and 90 cm in width.

   Please stay in front of the poster board during the poster session.

Conference Schedule

JST	CEST	Mon, Aug 1st			Wed, Aug 2nd		Wed, Aug 3rd		Thu, Aug 4th	
UTC+9	UTC+2	Lobby	Room A	Room B	Room A	Room B	Room A	Room B	Room A	Room B
13:00	6:00	Regstration			(13:00-14:40) Poster Session					
13:10	6:10									
13:20	6:20									
13:30	6:30									
13:40	6:40									
13:50	6:50									
14:00	7:00						**PL3** Jerry Y.S. Lin (Arizona State University, USA)			
14:10	7:10									
14:20	7:20									
14:30	7:30									
14:40	7:40									
14:50	7:50									
15:00	8:00		Opening		2-1-A-01 (KN)	2-1-B-01 (KN)	*Coffee Break*		4-1-A-01 (KN)	4-1-B-01 (KN)
15:10	8:10									
15:20	8:20						3-1-A-01 (KN)	3-1-B-01 (KN)		
15:30	8:30		**PL1** David Alfredo Pacheco Tanaka (Tecnalia, Spain)		2-1-A-02	2-1-B-02			4-1-A-02	4-1-B-02
15:40	8:40									
15:50	8:50				2-1-A-03	2-1-B-03	3-1-A-02	3-1-B-02	4-1-A-03	4-1-B-03
16:00	9:00									
16:10	9:10				2-1-A-04		3-1-A-03	3-1-B-03	4-1-A-04	4-1-B-04
16:20	9:20									
16:30	9:30		*Coffee Break*		*Coffee Break*		3-1-A-04	3-1-B-04	*Coffee Break*	
16:40	9:40									
16:50	9:50		1-1-A-01 (KN)	1-1-B-01 (KN)	**PL2** Weishen Yang (Dalian Institute of Chemical Physics, China)		*Coffee Break*		**PL4** Tohru Setoyama (Mitsubishi Chemical, Japan)	
17:00	10:00									
17:10	10:10						3-2-A-01 (KN)	3-2-B-01 (KN)		
17:20	10:20		1-1-A-02	1-1-B-02						
17:30	10:30									
17:40	10:40		1-1-A-03	1-1-B-03			3-2-A-02	3-2-B-02		
17:50	10:50				*Coffee Break*				Closing	
18:00	11:00		*Coffee Break*				3-2-A-03	3-2-B-03		
18:10	11:10				2-2-A-01 (KN)	2-2-B-01 (KN)				
18:20	11:20		1-2-A-01 (KN)	1-2-B-01 (KN)			3-2-A-04	3-2-B-04		
18:30	11:30									
18:40	11:40				2-2-A-02	2-2-B-02				
18:50	11:50		1-2-A-02	1-2-B-02						
19:00	12:00				2-2-A-03	2-2-B-03				
19:10	12:10		1-2-A-03	1-2-B-03						
19:20	12:20				2-2-A-04	2-2-B-04				
19:30	12:30		1-2-A-04	1-2-B-04			(19:30-22:00) Banquet @RIHGA Royal Hotel, Tokyo			
19:40	12:40									
19:50	12:50									
20:00	13:00									

※JST: Japan Standard Time

※CEST: Central European Summer Time

Plenary Lecture: PL1

Palladium and carbon molecular sieves membranes for gas separation and membrane reactors

Dr. David Alfredo Pacheco Tanaka (Tecnalia Research & Innovation)

Dr Pacheco Tanaka is Pharmacist with a master's degree in Chemistry. From 1991 to 1996 was first visiting researcher and then doctoral student at the University of Surrey, United Kingdom working in supramolecular chemistry, obtaining the PhD degree in chemistry in 1996.

From 1997 to 2008, he was a researcher at the Advanced Institute of Industrial Science and Technology (AIST) in Japan, working first in the development of methods of detection and extraction of toxic compounds present in water, and later in the development of supported membranes of Pd / Ag membranes for the separation of hydrogen.

.

From December 2008 to May 2012, he was a researcher at the University of Oporto, Portugal, working in the development of carbon membranes for gas separation, catalysts for methanol reforming, TiO2-graphene photocatalyst, polymer-graphene composite, graphene in solar cells.

Since May 2012, he is researcher at Tecnalia (Spain) in palladium membrane reactors for the production of hydrogen, carbon membranes for the separation of gases and desalination using graphene. From 2018 he is also a university researcher at the Eindhoven University of Technology (The Netherlands)

He is co-author of more than 100 scientific articles and 19 submitted patents.

Plenary Lecture: PL2

Solid Electrolyte Membrane Reactors for CO_2 reduction

Prof. Weishen Yang (Dalian Institute of Chemical Physics, Chinese Academy of Sciences)

Dr. Weishen Yang is Professor of the State Key Laboratory of Catalysis at Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China since 1995. He received his PhD from the Chinese Academy of Sciences in 1990. As a visiting scholar, he worked in Birmingham University (UK) in 1989, Institute of Interfacial Engineering and Biotechnology, Fraunhofer (Germany) in 1999, and University of Southern California (USA) in 2001. He has published ~350 referred journal papers (Citations > 18,000), 2 books, 4 book chapters and 50 patents on material synthesis with strong emphasis on the rational design and molecular-level engineering of functional nano-materials for applications in catalysis, membrane separation, and electrochemistry.

http://www.yanggroup.dicp.ac.cn

Plenary Lecture: PL3

Hydrogen Production in Ceramic-carbonate Dual-phase Membrane Reactors with CO2Capture

Prof. Jerry Y.S. Lin (Arizona State University)

Jerry Y.S. Lin is a Regents' Professor at Arizona State University. He was department chair of chemical engineering at ASU from 2006-2009 after his 13-year appointment as a faculty member at University of Cincinnati. Dr. Lin's main research areas are membrane science, adsorption/catalysis, and energy storage. He has published about 400 papers mostly in chemical engineering journals is an inventor of 10 US and European patents. As one of most cited authors in the field of chemical engineering, Dr. Lin's papers have been cited about 28000 times per Google Scholar (h=81). Dr. Lin received several awards including AIChE Institute Award for Excellence in Industrial Gas Technologies in 2009 and AIChE Gerhold Award in 2021, and is an elected fellow of American Society for Advancement of Science (AAAS), American Institute of Chemical Engineers (AIChE), and North American Membrane Society (NAMS). Dr. Lin is co Editor-in-Chief of Journal of Membrane Science and Journal of Membrane Science Letters.

Plenary Lecture: PL4

Innovative Separation System by ceramic membranes

Dr. Tohru Setoyama (Executive Fellow Mitsubishi Chemical Corp. Japan)

1983 Graduated from Univ. of Tokyo at MD (later obtained PhD of chemistry at Univ. of Tokyo)

1983 Joined to Mitsubishi Kasei (Mitsubishi Chemical Corp.)Main research area: Heterogeneous catalyst, organic synthesis, Design of inorganic functional material. During this period, Setoyama contributed to the establishment of several catalysts of newlycommercialized processes.

From 2001 to 2014, Setoyama managed laboratories such as porous material, heterogeneous catalyst, organic materials, inorganic laboratory as relevant general manager.

2011 Fellow of Mitsubishi Chemical corp.,

2013 Executive officer ofMitsubishi Chemical, Project Officer of JST-CREST “Hyper nano space design” JST: Japan Science and Technology Agency, CREST: Creative Research Strategy Program

2014 General Manager of “Setoyama Laboratory” at Mitsubishi Chemical corp., Project Leader of “Artificial photo synthesis” assisted by NEDO

2019 Executive Fellow of Mitsubishi Chemical Corp.

Award:

2002 Petro chemical institute Award: Technology Award

2008 Green sustainable Chemistry Award: Award granted by Minister of Economy, Trade and Industry

Keynote Lectures

[1-1-A-01(KN)] MIL-88B-based photocatalytic membrane reactor for improving permeance flux and phenol removal efficiency

*Chechia Hu[1], Lee-Lee Chang[2], Kuo-Lun Tung[2] (1. National Taiwan University of Science and Technology, 2. National Taiwan University)

[1-1-B-01(KN)] EFFECT OF CARBONIZATION TEMPERATURE ON THE GAS PERMEATION OF ALUMINA-CARBON MOLECULAR SIEVE MEMBRANES (Al-CMSM)

*Margot Anabell Llosa-Tanco[1], Serena Poto[2], Fausto Gallucci[2], David Alfredo Pacheco-Tanaka[1] (1. Tecnalia, 2. Eindhoven University of Technology)

[1-2-A-01(KN)] Development of HNb_3O_8/g-C_3N_4 nanosheet composite photocatalytic membranes with improved water permeance and photocatalytic activity

*Keizo Nakagawa[1,2], Seiji Imoto[1], Chechia Hu[3], Tomohisa Yoshioka[1,2], Takuji Shintani[1,2], Atsushi Matsuoka[2,4], Eiji Kamio[2,4], Shik Chi Edman Tsang[5], Hideto Matsuyama[2,4] (1. Graduate School of Science, Technology and Innovation, Kobe University, 2. Research Center for Membrane and Film Technology, Kobe University, 3. Department of Chemical Engineering, National Taiwan University of Science and Technology, 4. Department of Chemical Science and Engineering, Kobe University, 5. Department of Chemistry, University of Oxford)

[1-2-B-01(KN)] Application of a carbon hollow fiber membrane reactor in esterification reaction

*Miki Yoshimune[1], Hideyuki Negishi[1] (1. National Institute of Advanced Industrial Science and Technology (AIST))

[2-1-A-01(KN)] ADVANCED MATERIALS AND REACTORS FOR ENERGY STORAGE THROUGH AMMONIA (ARENHA)

*Jose Luis Viviente Sole[1] (1. TECNALIA)

[2-1-B-01(KN)] Platinum Nanoparticles Immobilized on Electrospun Membranes for Catalytic Oxidation of Volatile Organic Compounds

*Karel Soukup[1], Pavel Topka[1], Jaroslav Kupčík[1], Vladimír Hejtmánek[1], Olga Šolcová[1] (1. ICPF)

[2-2-A-01(KN)] Combined Reaction System of NH_3 Decomposition and CO_2 Methanation Using Palladium Membrane Reactor with Heat Exchange

*Shigeyuki Uemiya[1], Haruka Goto[1], Akira Hamajima[1], Manabu Miyamoto[1], Yasunori Oumi[1] (1. Gifu University)

[2-2-B-01(KN)] Catalytic micro-tubular ceramic membranes for automotive emissions control

NUR IZWANNE MAHYON[2], Tao Li[2], RICARDO MARTINEZ-BOTAS[2], *Zhentao Wu[1], Kang Li[2] (1. Aston University, 2. Imperial College London)

[3-1-A-01(KN)] Scale-up of membrane reactors: the macbeth project

FRANK STENGER[2], ROBERT FRANKE[2], ULF MENYES[3], Emma Palo[4], *Fausto Gallucci[1] (1. Eindhoven University of Technology, 2. Evonik, 3. Enzymicals AG, 4. KT)

[3-1-B-01(KN)] Preparation of polyacrylic acid coated porous alumina membrane and pH responsive permeation

*Takafumi Sato[1], Kotomi Makino[1], Shingo Tamesue[1], Naotsugu Itoh[1] (1. Utsunomiya Univ.)

[3-2-A-01(KN)] MEMBRANE REACTORS AND SEPARATION ENHANCED REACTORS for hydrogen and chmical production

*Fausto Gallucci[1], luca di Felice[1] (1. Eindhoven University of Technology)

[3-2-B-01(KN)] CO_2 separation using CHA-type zeolite membranes

*Yasuhisa Hasegawa[1], Mayuni Natsui[1], Chie Abe[1], Wakako Matsuura[1], Ayumi Ikeda[1] (1. National Institute of Advanced Industrial Science and Technology (AIST))

[4-1-A-01(KN)] Development of membrane reactor for reverse water-gas shift by ZSM-5 membrane

*Motomu Sakai[1], Kyoka Tanaka[2], Takaya Matsumoto[3], Yukihiro Sugiura[3], Tsuyoshi Asano[3], Masahiko Matsukata[1,2,4] (1. Research Organization for Nano & Life Innovation, Waseda University, 2. Department of Applied Chemistry, Waseda University, 3. ENEOS Corporation, 4. Advanced Research Institute for Science and Engineering, Waseda University)

[4-2-B-01(KN)] Development of novel membrane reactors with dimethoxydimethylsilane-derived amorphous silica membranes for producing hydrogen from biogas

*Kazuki Akamatsu[1], Keigo Imamura[1], Masato Suzuki[1], Shin-ichi Nakao[1], Xiao-lin Wang[1,2] (1. Kogakuin University, 2. Tsinghua University)

Mon, August 1st, 2022

Opening Ceremony

Opening Ceremony

Room A

15:00 [OP] Opening Ceremony

Plenary Session

Plenary Lecture 1

Chair: Toshinori Tsuru (Hiroshima University)

Room A

15:30 [PL1] Palladium and carbon molecular sieves membranes for gas separation and membrane reactors

*David Alfredo Pacheco Tanaka[1], Margot Anabell Llosa Tanco[1], Fausto Gallucci[2] (1. Tecnalia Research &Innovation, 2. Eindhoven University of Technology)

Tue, August 2nd, 2022

Plenary Session

Plenary Lecture 2

Chair: Norikazu Nishiyama (Osaka University)

Room A

16:50 [PL2] Solid ELECTROLYTE MEMBRANE REACTOR for CO_2 reduction

*Weishen Yang[1] (1. Dalian Institute of Chemical Physics, Chinese Academy of Sciences)

Wed, August 3rd, 2022

Plenary Session

Plenary Lecture 3

Chair: Shigeyuki Uemiya (Gifu University)

Room A

14:00 [PL3] HYDROGEN PRODUCTION IN CERAMIC-CARBONATE DUAL-PHASE MEMBRANE REACTORS WITH CO_2 CAPTURE

*Jerry Y.S. Lin[1] (1. Arizona State University)

Thu, August 4th, 2022

Plenary Session

Plenary Lecture 4

Chair: Masahiko Matsukata (Waseda University)

Room A

16:50 [PL4] Innovative separation system by ceramic membrane

*Tohru Setoyama Setoyama[1] (1. Mitsubishi Chemical Corporation)

Oral Session

Session 1: Photo-catalysis

Chair: Keizo Nakagawa (Kobe University)

Room A

16:40 [1-1-A-01(KN)] MIL-88B-based photocatalytic membrane reactor for improving permeance flux and phenol removal efficiency

*Chechia Hu[1], Lee-Lee Chang[2], Kuo-Lun Tung[2] （1. National Taiwan University of Science and Technology, 2. National Taiwan University）

17:10 [1-1-A-02] Catalytic membranes applied for cyglohexane partial oxidation to cyclohexanone in a liquid-phase

*Izumi Kumakiri[1], Shotaro Yamada[1], Haruki Bonkohara[1], Shiho Yamato[1] （1. Yamaguchi University）

17:30 [1-1-A-03] Photocatalytic oxidation of organics by silver deposited TiO_2 membrane

*Azzah Nazihah binti Che Abdul Rahim[1], Sergio Mestre[2], Izumi Kumakiri[1] （1. Yamaguchi Univ., 2. Jaume I Univ.）

Oral Session

Session 2: Porous Membranes

Chair: Miki Yoshimune (AIST)

Room B

16:40 [1-1-B-01(KN)] EFFECT OF CARBONIZATION TEMPERATURE ON THE GAS PERMEATION OF ALUMINA-CARBON MOLECULAR SIEVE MEMBRANES (Al-CMSM)

*Margot Anabell Llosa-Tanco[1], Serena Poto[2], Fausto Gallucci[2], David Alfredo Pacheco-Tanaka[1] （1. Tecnalia, 2. Eindhoven University of Technology）

17:10 [1-1-B-02] Ultra CO_2 Selective Carbon Molecular Sieve Membranes For Biogas Upgrading

*Arash Rahimalimamaghani[1], David Alfredo Pacheco Tanaka[2], Margot Anabell Liosa Tanco[2], Fernanda Neira d' Angelo[1], Fausto Gallucci[1] （1. Inorganic Membranes and Membrane Reactors, Sustainable Process Engineering, Chemical Engineering and Chemistry, Eindhoven University of Technology, Eindhoven, The Netherlands. , 2. TECNALIA, Basque Research and Technology Alliance (BRTA), Mikeletegi Pasealekua 2, 20009, Donostia, San Sebastian, Spain.）

17:30 [1-1-B-03] Design of hydrogen-selective carbon-ceramic composite membranes from alkoxides and a thermosetting benzoxazine ligand

*Sulaiman Oladipo Lawal[1], Hiroki Nagasawa[1], Toshinori Tsuru[1], Masakoto Kanezashi[1] （1. Separation technology laboratory, Chemical Engineering Program, Graduate School of Advanced Science and Engineering, Hiroshima University.）

Oral Session

Session 3: Photo-catalysis

Chair: Izumi Kumakiri (Yamaguchi University)

Room A

18:20 [1-2-A-01(KN)] Development of HNb_3O_8/g-C_3N_4 nanosheet composite photocatalytic membranes with improved water permeance and photocatalytic activity

*Keizo Nakagawa[1,2], Seiji Imoto[1], Chechia Hu[3], Tomohisa Yoshioka[1,2], Takuji Shintani[1,2], Atsushi Matsuoka[2,4], Eiji Kamio[2,4], Shik Chi Edman Tsang[5], Hideto Matsuyama[2,4] （1. Graduate School of

Science, Technology and Innovation, Kobe University, 2. Research Center for Membrane and Film Technology, Kobe University, 3. Department of Chemical Engineering, National Taiwan University of Science and Technology, 4. Department of Chemical Science and Engineering, Kobe University, 5. Department of Chemistry, University of Oxford）

18:50 [1-2-A-02] Photocatalytic Mixed Matrix Membrane Contactor used in a Hybrid Advanced Oxidation Process for Water Treatment

*Stefan Herrmann[1], Maik Tepper[1,2], Hannah Roth[1,2], Matthias Wessling[1,2] （1. RWTH Aachen University, AVT.CVT - Chair of Chemical Process Engineering, Forckenbeckstraß e 51, 52074 Aachen, Germany, 2. DWI - Leibniz Institute for Interactive Materials, Forckenbeckstraß e 50, 52074 Aachen, Germany）

19:10 [1-2-A-03] Radical Filtration: Photocatalytic Membranes for Micropollutants Degradation

*Shuyana Ainara Heredia Deba[1,2], Bas Wols[2], Doekle Yntema[2], Rob Lammertink [1] （1. Membrane Science and Technology, Faculty of Science and Technology (TNW), University of Twente, Drienerlolaan 5, 7522 NB Enschede, The Netherlands., 2. Wetsus European Center of Excellence for Sustainable Water Technology, 8911MA Leeuwarden, The Netherlands.）

19:30 [1-2-A-04] Polymer Membranes for Membrane Reactors

*Torsten Brinkmann[1], Homa Hamedi[1], Fynn Weigelt[1], Maria de los Angé les Ramirez Katun[1], Sergey Shishatskiy[1] （1. Helmholtz-Zentrum Hereon）

Oral Session

Session 4: Porous Membranes

Chair: Margot Anabell Llosa (Tecnalia)

Room B

18:20 [1-2-B-01(KN)] Application of a carbon hollow fiber membrane reactor in esterification reaction

*Miki Yoshimune[1], Hideyuki Negishi[1] （1. National Institute of Advanced Industrial Science and Technology (AIST)）

18:50 [1-2-B-02] Vapor/gas permeation through carbon molecular sieve membranes: experimental and theoretical investigation

*Serena Poto[1], Margot A. LLosa Tanco[2], D. Alfredo Pacheco Tanaka[2], Fausto Gallucci[1], M. Fernanda Neira d'Angelo[1] （1. Inorganic Membranes and Membrane Reactors Group, Eindhoven University of Technology, Eindhoven, The Netherlands. , 2. TECNALIA, Energy and Environment Division, Mikeletegi Pasealekua 2, 20009 San Sebastian-Donostia, Spain）

19:10 [1-2-B-03] In-situ recovery of carboxylic acids from synthetic fermentation broths through membrane-assisted reactive extraction (pertraction) using disc and tubular carbon membranes for improved stability in liquid-liquid separations

*Brandon Jose Leal Perez[1], Arash Rahimalimamaghani[1], Fausto Gallucci[2,3] （1. Doctoral Candidate in Chemical Engineering at Eindhoven University of Technology, 2. Professor of the Inorganic Membranes and Membrane Reactors Group at Eindhoven University of Technology, 3. Dean of the department of Chemical Engineering and Chemistry）

19:30 [1-2-B-04] Novel ammonia selective Carbon Molecular Sieve Membranes for ammonia synthesis in a catalytic membrane reactor.

*Gaetano Anello[1], Arash Rahimalimamaghani[1], Luca Di Felice[1], Fausto Gallucci[1] （1. Eindhoven University of Technology）

Oral Session

Session 5: Membrane Reactors

Chair: Kazuki Akamatsu (Kogakuin University)

Room A

15:00 [2-1-A-01(KN)] ADVANCED MATERIALS AND REACTORS FOR ENERGY STORAGE THROUGH AMMONIA (ARENHA)

*Jose Luis Viviente Sole[1] （1. TECNALIA）

15:30 [2-1-A-02] ESTIMATION OF REACTION DEPENDENT REQUIREMENTS ON MEMBRANES TO BE APPLICABLE IN MEMBRANE REACTORS

*Irin Wilson Panjikkaran[1,2], Corina Nentwich[1], Robert Franke[1,3], Andreas Seidel-Morgenstern[2,4] （1. Evonik Operations GmbH, Paul-Baumann-Straß e 1, 45772 Marl, Germany, 2. Institut fü r Verfahrenstechnik, Otto-von-Guericke-Universitä t Magdeburg, Universitä tsplatz 2, 39106 Magdeburg, Germany , 3. Lehrstuhl fü r Theoretische Chemie, Ruhr-Universitä t Bochum, 44780 Bochum, Germany, 4. Max Planck Institute for Dynamics of Complex Technical Systems, Sandtorstraß e, 39106 Magdeburg, Germany）

15:50 [2-1-A-03] Adsorbent materials for residual ammonia removal from hydrogen produced via ammonia decomposition in a catalytic membrane reactor

*Valentina Cechetto[1], Luca Di Felice[1], Fausto Gallucci[1] （1. Inorganic Membranes and Membrane Reactors, Sustainable Process Engineering, Chemical Engineering and Chemistry, Eindhoven University of Technology, Eindhoven, The Netherlands. ）

16:10 [2-1-A-04] AMMONIA DECOMPOSITION IN RU-BASED CATALYTIC MEMBRANE REACTORS

*Zancat Sahin[1], Valentina Cechetto[1], Arash Rahimalimamaghani[1], Fausto Gallucci[1], Matteo Gazzani[3,1], Luca di Felice[1], Margot Llosa Tanco[2,1], Alfredo Pacheco Tanaka[2] （1. Technical University of Eindhoven, 2. TECNALIA, 3. Universiteit Utrecht）

Oral Session

Session 6: Membrane Reactors

Chair: Sadao Araki (Kansai University)

Room B

15:00 [2-1-B-01(KN)] Platinum Nanoparticles Immobilized on Electrospun Membranes for Catalytic Oxidation of Volatile Organic Compounds

*Karel Soukup[1], Pavel Topka[1], Jaroslav Kupčí k[1], Vladimí r Hejtmá nek[1], Olga Š olcová[1] （1. ICPF）

15:30 [2-1-B-02] An effective route to seal SOFC for NO_x and N_2O treatment

*Celina Fernandes[1], Luí s Alves[1], Laura Holz[1,2,3], Paulo Ribeirinha [1], Duncan Fagg[2], José Nogueira[3], Adé lio Mendes [1] （1. LEPABE-Laboratory for Process Engineering, Environment, Biotechnology and Energy - Faculty of Engineering, University of Porto, 2. Center for Mechanical Technology and Automation, Univ. of Aveiro , 3. Bondalti Chemicals, S.A., ）

15:50 [2-1-B-03] TECHNO-ECONOMIC ASSESMENT OF PROPYLENE PRODUCTION VIA DIRECT DEHYDROGENATION OF PROPANE IN MEMBRANE REACTORS: COMPARISON WITH THE BENCHMARK TECHNOLOGY

*Camilla Brencio[1], Keegan Walker[1], Luca Di Felice[1], Fausto Gallucci[1] （1. Inorganic Membranes and Membrane Reactors, Chemical Engineering and Chemistry, Eindhoven University of Technology, Eindhoven, The Netherlands. ）

Oral Session

Session 7: Membrane Reactors

Chair: Jose Luis Viviente (Tecnalia)

Room A

18:10 [2-2-A-01(KN)] Combined Reaction System of NH_3 Decomposition and CO_2 Methanation Using Palladium Membrane Reactor with Heat Exchange

*Shigeyuki Uemiya[1], Haruka Goto[1], Akira Hamajima[1], Manabu Miyamoto[1], Yasunori Oumi[1] (1. Gifu University)

18:40 [2-2-A-02] Effect of membrane properties on the direct conversion of CO_2 to dimethyl ether in a fixed bed membrane reactor

*Serena Poto[1], Margot A. LLosa Tanco[2], D. Alfredo Pacheco Tanaka[2], Fausto Gallucci[1], M. Fernanda Neira d'Angelo[1] (1. Inorganic Membranes and Membrane Reactors Group, Eindhoven University of Technology, Eindhoven, The Netherlands. , 2. TECNALIA, Energy and Environment Division, Mikeletegi Pasealekua 2, 20009 San Sebastian-Donostia, Spain)

19:00 [2-2-A-03] PD-BASED MEMBRANES PERFORMANCE UNDER HYDROCARBON EXPOSURE FOR PROPANE DEHYDROGENATION PROCESSES: EXPERIMENTAL AND MODELLING

*Camilla Brencio[1], Fabrice Fontain[1], Jose Medrano Jimenez[1], Alba Arratibel[2], Fausto Gallucci[1] (1. Inorganic Membranes and Membrane Reactors, Chemical Engineering and Chemistry, Eindhoven University of Technology, Eindhoven, The Netherlands. , 2. Membrane Technology and Process Intensification / Materials and Processes, TECNALIA, San Sebastian, Spain.)

19:20 [2-2-A-04] Catalytically active (Pd) nanoparticles supported by electrospun PIM-1: influence of the sorption capacity of the polymer tested in the reduction of some aromatic nitro compounds

Karabi Halder[1], Gisela Bengtson[1], *Mustafa Volkan Filiz[1], Volker Abetz[1,2] (1. Helmholtz-Zentrum Hereon, Institute of Membrane Research, 2. University of Hamburg, Institute for Physical Chemistry)

Oral Session

Session 8: Porous Membranes

Chair: Karel Soukup (ICPF)

Room B

18:10 [2-2-B-01(KN)] Catalytic micro-tubular ceramic membranes for automotive emissions control

NUR IZWANNE MAHYON[2], Tao Li[2], RICARDO MARTINEZ-BOTAS[2], *Zhentao Wu[1], Kang Li[2] (1. Aston University, 2. Imperial College London)

18:40 [2-2-B-02] CO_2 Permeation properties of fluorine induced microporous silica membranes

*IKRAM RANA[1], Masakoto Kanezashi[1], Hiroki Nagasawa[1], Toshinori Tsuru[1] (1. Hiroshima University)

19:00 [2-2-B-03] Hydrophobic silica membraene for organic solvent nanofiltration

*Sadao Araki[1], Nishikawa Yuta[1], Masanobu Nakata[1], Kang Li[2], Hideki Yamamoto[1] (1. Kansai University, 2. Imperial College London)

19:20 [2-2-B-04] Low-temperature synthesis of silica-based molecular sieve membranes by atmospheric-pressure plasma-enhanced chemical vapor deposition

*Hiroki Nagasawa[1], Mitsugu Kawasaki[1], Takuji Noborio[1], Masakoto Kanezashi[1], Toshinori Tsuru[1] (1. Hiroshima University)

Oral Session

Session 9: MACBETH Project

Chair: Fynn Weigelt (Helmholt-Zentrum Hereon)

Room A

15:20 [3-1-A-01(KN)] scale-up of membrane reactors: the macbeth project
FRANK STENGER[2], ROBERT FRANKE[2], ULF MENYES[3], Emma Palo[4], *Fausto Gallucci[1] （1. Eindhoven University of Technology, 2. Evonik, 3. Enzymicals AG, 4. KT）

15:50 [3-1-A-02] Optimization of small-scale hydrogen production with membrane reactors
*Michele Ongis[1,2], Gloria Rosati[3], Gioele Di Marcoberardino[3], Marco Binotti[1], Fausto Gallucci[2] （1. Politecnico di Milano , 2. Eindhoven University of Technology, 3. University of Brescia）

16:10 [3-1-A-03] Interaction of double-skin Pd-based membranes with propane and propylene
*Wout Ververs[1], Alba Arratibel Plazaola[2], Luca Di Felice[1], Fausto Gallucci[1] （1. TU Eindhoven, 2. Tecnalia）

16:30 [3-1-A-04] METALLIC FILTERS MODIFICATION FOR PD-BASED MEMBRANES SYNTHESIS
*Serena Agnolin[1], Jon Melendez[2], Luca di Felice[3], Fausto Gallucci[4] （1. Eindhoven University of Technology, 2. Hydrogen Onsite, S.L., 3. Eindhoven University of Technology, 4. Eindhoven University of Technology）

Oral Session

Session 10: Porous Membranes

Chair: Motomu Sakai (Waseda University)

Room B

15:20 [3-1-B-01(KN)] Preparation of polyacrylic acid coated porous alumina membrane and pH responsive permeation
*Takafumi Sato[1], Kotomi Makino[1], Shingo Tamesue[1], Naotsugu Itoh[1] （1. Utsunomiya Univ.）

15:50 [3-1-B-02] The Viable Preparation of High-hydrogen Permeance Mixed Matrix Hollow Fiber Membrane and Its Potential toward Chemical Processing Industry
*Ya-Wei Lee[1], Yu-Ting Lin[1], Ming-Yen Wey[1], Hui-Hsin Tseng[1] （1. Department of Environment Engineering, National Chung Hsing University, Taichung 402, Taiwan, ROC.）

16:10 [3-1-B-03] NOVEL IN-SITU MEMBRANE FOULING MONITORING VIA BLENDING QUANTUM DOTS (QDS) WITH PVDF MEMBRANE
*Wei-Rong Jian[1], Yi-Chen Lin[2], Hui-Hsin Tseng[1] （1. Department of Environmental Engineering, National Chung Hsing University, Taichung, Taiwan, 2. School of Chemical and biomolecular Engineering, The University of Sydney, New South Wales, Australia）

16:30 [3-1-B-04] Structure-performance correlation of monolithic supported liquid-phase (SLP) hydroformylation catalysts
*Mahtab Madani[1], Leonhard Schill[1], Nanette Zahrtmann[2], Raquel Portela[3], Linda Arsenjuk[4], Robert Franke[4], Rasmus Fehrmann[1], Anders Riisager[1] （1. Technical University of Denmark, Lyngby, Denmark, 2. LiqTech Ceramics A/S, Ballerup, Denmark, 3. Institute of Catalysis and Petrochemistry (ICP-CSIC), Madrid, Spain, 4. Evonik Operations GmbH, Marl, Germany）

Oral Session

Session 11: MACBETH Project

Chair: Michele Ongis (Politecnico di Milano)

Room A

17:10 [3-2-A-01(KN)] MEMBRANE REACTORS AND SEPARATION ENHANCED REACTORS for hydrogen and chmical production

*Fausto Gallucci[1], luca di Felice[1] （1. Eindhoven University of Technology）

17:40 [3-2-A-02] Hydrotalcite based catalyst for industrial application in the propane dehydrogenation reaction

Giovanni Festa[1], Vincenzo Palma[1], Marco Martino[1], *Eugenio Meloni[1] （1. Univ. of Salerno）

18:00 [3-2-A-03] Supported Liquid Phase (SLP)-catalyzed gas-phase hydroformylation of but-1ene in a continuously operated membrane reactor – Detailed kinetics for homogeneous catalysis process intensification

*Marco Haumann[1], Markus Schoerner[1], Robert Franke[2,3] （1. Friedrich-Alexander-Universitaet Erlangen-Nuernberg (FAU), 2. Evonik Performance Materials GmbH, 3. Ruhr-Universitä t Bochum）

18:20 [3-2-A-04] Polymeric membranes for the hydroformylation in a membrane reactor

*Fynn Weigelt[1], Sergey Shishatskiy[1], Volkan Filiz[1], Torsten Brinkmann[1] （1. Helmholt-Zentrum Hereon）

Oral Session

Session 12: Porous Membranes

Chair: Yuichiro Hirota (Nagoya Institute of Technology)

Room B

17:10 [3-2-B-01(KN)] CO_2 separation using CHA-type zeolite membranes

*Yasuhisa Hasegawa[1], Mayuni Natsui[1], Chie Abe[1], Wakako Matsuura[1], Ayumi Ikeda[1] （1. National Institute of Advanced Industrial Science and Technology (AIST)）

17:40 [3-2-B-02] HYDROGEN RECOVERY FROM BLENDED NATURAL GAS GRIDS THROUGH A CHEAP AND EFFICIENT MEMBRANE SEPARATION TECHNOLOGY

*Tiago Araujo[1], Telmo Lopes[1], José Sousa[1,2], Adelio Mendes[1] （1. LEPABE-Laboratory for Process Engineering, Environment, Biotechnology and Energy, Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias, Porto, 4200-465, Portugal, 2. Chemistry Department, University of Trá s-os-Montes e Alto Douro, apartado 1013, 5001-801, Vila Real, Portugal）

18:00 [3-2-B-03] Dehydration of water/hydrogen mxitures at high temperature by hydroxy sodalite (H-SOD) zeolite membrane

Devipriyanka Arepalli[1], Aafaq ur Rehman[1], Min-Zy Kim[1], *Churl-Hee Cho[1] （1. Chungnam National University）

18:20 [3-2-B-04] Acid stable, high flux ZSM-5 membranes prepared on capillary a-alumina supports from nanosize silicalite-1 seed particles

Aafaq ur Rehman[1], Devipriyanka Arepalli[1], Min-Zy Kim[1], *Churl-Hee Cho[1] （1. Chungnam National University）

Oral Session

Session 13: Porous Membranes

Chair: Takafumi Sato (Utsunomiya University)

Room A

15:00 [4-1-A-01(KN)] Development of membrane reactor for reverse water-gas shift by ZSM-5 membrane
*Motomu Sakai[1], Kyoka Tanaka[2], Takaya Matsumoto[3], Yukihiro Sugiura[3], Tsuyoshi Asano[3], Masahiko Matsukata[1,2,4] (1. Research Organization for Nano &Life Innovation, Waseda University, 2. Department of Applied Chemistry, Waseda University, 3. ENEOS Corporation, 4. Advanced Research Institute for Science and Engineering, Waseda University)

15:30 [4-1-A-02] Selective propylene production through an MFI zeolite membrane contactor
*Mikihiro Nomura[1], Shusei Tanizume[1], Sota Maehara[1], Ryota Nishiyama[1], Katsunori Ishii[1] (1. Shibaura Institute of Technology)

15:50 [4-1-A-03] Efficient transesterification reactions with methanol permselective zeolite membrane
*Ayumi Ikeda[1], Wakako Matsuura[1], Chie Abe[1], Yasuhisa Hasegawa[1] (1. National Institute of Advanced Industrial Science and Technology (AIST))

16:10 [4-1-A-04] Enhanced esterification of acetic acid with ethanol by rapid pervaporation dehydration using a high-flux and acid-resistant MOR zeolite membrane
Tian Gui[1], Xiaowei Wu[1], Zhicheng Yan[1], Yuqin Li[1], *xiangshu chen[1], Hidetoshi Kita[2] (1. Jiangxi Normal University, 2. Yamaguchi University)

Oral Session

Session 14: Porous Membranes

Chair: Yasuhisa Hasegawa (AIST)

Room B

15:00 [4-2-B-01(KN)] Development of novel membrane reactors with dimethoxydimethylsilane-derived amorphous silica membranes for producing hydrogen from biogas
*Kazuki Akamatsu[1], Keigo Imamura[1], Masato Suzuki[1], Shin-ichi Nakao[1], Xiao-lin Wang[1,2] (1. Kogakuin University, 2. Tsinghua University)

15:30 [4-2-B-02] Micropores tuning effect on organosilica derived membrane via hydrolysis-polymerisation process control for light gas separation
*Yu Hsuan Wei[1,3], JING YI LI[1], MING YEN WEY[1,2], HUI HSIN TSENG[1,3] (1. Department of Environmental Engineering, National Chung Hsing University, 2. Energy and Materials Recovery Lab, 3. Advanced Membrane Materials for Sustainable Environment Lab)

15:50 [4-2-B-03] Silylated Ionic Liquid-derived Organosilica Membranes for Separation of Methanol and H_2O from H_2 and CO_2
*Yuichiro Hirota[1], Chihiro Nagaya[1], Norikazu Nishiyama[2] (1. Nagoya Institute of Technology, 2. Osaka University)

16:10 [4-2-B-04] Transesterification reaction with organosilica membrane: Experimental and theoretical comparison of Batch and continuous flow reactors
Takaaki Sato[1], Hiroki Nagasawa[1], Masakoto Kanezashi[1], *Toshinori Tsuru[1] (1. Hiroshima University)

[P-01] pH responsive permeaiton system using polyacrylic acid coated alumina particle bed as a membrane
*Ryuya Ogino[1], Kotomi Makino[1], Takafumi Sato[1], Naotsugu Itoh[1] (1. Utsunomiya Univ.)

[P-02] Development of water electrolysis device using hydrogen permeable palladium membrane as an electrode
*Toshiki Yamanaka[1], Takafumi Sato[1], Naotsugu Itoh[1] (1. Utsunomiya Univ.)

[P-03] Fablication of Laminar catalytic membranes using MoS_2 nanosheet and reduction of aromatic nitro compounds
*Takumi Ueno[1], Keizo Nakagawa[1], Seiji Imoto[1], Keita Taniya[1], Takuji Shintani[1], Atsushi Matsuoka[1], Eiji Kamio[1], Hideto Matsuyama[1], Tomohisa Yoshioka[1] (1. Kobe Univ.)

[P-04] Overgrowth of Silicalite-1 thin layers on ZSM-5 crystals and their hydrothermal stability
*Tomoka Sumi[1], Haruna Kitamura[1], Xinyu Li[1], Reina Inoue[1], Koji Miyake[1], Yuichiro Hirota[2], Yoshiaki Uchida[1], Shunsuke Tanaka[3], Manabu Miyamoto[4], Norikazu Nishiyama[1] (1. Osaka University, 2. Nagoya Institute of Technology, 3. Kansai University, 4. Gifu University)

[P-05] Improvement of thermal and hydrothermal stability of hydrogen-selective silica membranes prepared from dimethoxydimethylsilane
*Keigo Sato[1], Shin-ichi Nakao[1], Xiao-lin Wang[1,2], Kazuki Akamatsu[1] (1. Kogakuin University, 2. Tsinghua University)

[P-06] Development of ZSM-5 membrane for dehydration from the products of Fischer-Tropsch synthesis
*Naoto Chihara[1], Motomu Sakai[2], Masahiko Matsukata[1,2,3] (1. Department of Applied Chemistry, Waseda University, 2. Research Organization for Nano &Life Innovation, Waseda University, 3. Advanced Research Institute for Science and Engineering, Waseda University)

[P-07] Development of methanol selective zeolite membrane for trasesterification membrane reactor
*Yuma Sekine[1], Motomu Sakai[2], Masahiko Matsukata[1,2,3] (1. Department of Applied Chemistry, Waseda University, 2. Research Organization for Nano &Life Innovation, Waseda University, 3. Advanced Research Institute for Science and Engineering, Waseda University)

[P-08] Influence of size of silicalite-1 seed crystals on the preparation of silicalite-1 Membrane by gel-free SAC method
*Koki Inagaki[1], Hiroki Ochiai[1], Kyohei Ueno[2,1], Hideyuki Negishi[3], Takuya Okuno[4], Takamasa Onoki[4], Hiromasa Tawarayama[4], Shinji Ishikawa[4], Manabu Miyamoto[1], Shigeyuki Uemiya[1], Yasunori Oumi[1] (1. Gifu Univ., 2. Asahi Univ., 3. Advanced Industrial Science and Technology, 4. Sumitomo Electric Industries, Ltd.)

[P-09] Effect of seed crystals on the preparation of pure-silica *BEA membrane by dry gel conversion method
Hiroki Ochiai[1], Koki Inagaki[1], Saki Yamada[1], Kyohei Ueno[2,1], Hideyuki Negishi[3], Takuya Okuno[4], Takamasa Onoki[4], Hiromasa Tawarayama[4], Shinji Ishikawa[4], Manabu Miyamoto[1], Shigeyuki Uemiya[1], *Yasunori Oumi[1] (1. Gifu University, 2. Asahi Univ., 3. Advanced Industrial Science and Technology, 4. Sumitomo Electric Industries, Ltd.)

[P-10] Reaction control on Pt loaded ZSM-5 by silicalite-1 coating for hydrocoversion of C6 alkanes
*Manabu Miyamoto[1], Naoki Kido[1], Akito Masuda[1], Yasunori Oumi[1], Shigeyuki Uemiya[1], Stijn Van der Perre[2], Gino V. Baron[2], Joeri F.M. Denayer[2] (1. Gifu University, 2. Vrije Universiteit Brussel)

[P-11] Hydrogen Production Constructed by the Combination of Photocatalytic H_2O Splitting and Membrane Separation
*Hidetoshi Kita[1], Kousuke Senda[1], Nie Jing[1], Yoshihisa Sakata[1], Kazuhiro Tanaka[1] (1. Yamaguchi University)

[P-12] Carbon captured fuel and energy carriers for an intensified steel off-gases based electricity generation in a smarter industrial ecosystem (C2FUEL)

*Margot Anabell Llosa-Tanco[2], Pierre Olivier[1], Adeline Miquelot[1] （1. ENGIE Lab CRIGEN, 2. Tecnalia Research &Innovation）

[P-13] Photocatalitic degradation of model organic water solutions with composite zeolite-TiO2-Á g inorganic tubular membranes (RRR)

Aranza Vital[2], Carmen Barquin[2], Nazely Diban[2], Marí a José Rivero[2], Inmaculada Ortiz[2], *Izumi Kumakiri[1] （1. Yamaguchi University, 2. Cantabria University）

[P-14] Pt-FAU zeolit membrnaes for water treatment by catalytic oxidation (RRR)

*Izumi Kumakiri[1], Kohei Murasaki[1], Kurumu Uryu[1], Michinori Sumimoto[1] （1. Yamaguchi University）

Thu, August 4th, 2022

Closing Ceremony

Closing Ceremony

Room A

18:20 [CL] Closing Ceremony

Wed, August 3rd, 2022

Banquet

Banquet

RIHGA Royal Hotel Tokyo

19:30 [BQ] Banquet

Mon, August 1st, 2022

Registration

Registration

Registration Desk

13:00 [REG] Registration