

# 18<sup>th</sup> Japan-Korea Symposium on Catalysis (18<sup>th</sup> JKSC)

Virtual, Osaka University

Nov. 23<sup>th</sup>(Tue) - 25<sup>th</sup>(Thu), 2021

Organized by Catalysis Society of Japan



**Program and Abstract**

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## Welcome to 18<sup>th</sup>JKSC

On behalf of the organizing committee, I would like to welcome all the participants in the 18<sup>th</sup> Japan-Korea Symposium on Catalysis (18<sup>th</sup>JKSC), which is held during 23-25 November 2021 in Virtual, Osaka, Japan.

Since the first Korea-Japan symposium held in 1987 in Seoul, this bilateral symposium has been making the large contribution to provide the fruitful opportunity to exchange the latest research outcomes on catalysis and to promote cooperation and friendship among catalysis researchers in Japan and Korea.

The 18<sup>th</sup>JKSC symposium was scheduled originally to be held in May 2021, but was forced to be extended to November due to the spread of Corona infections. Although it should be held in Virtual, we are very happy to be able to successfully hold the symposium with about 230 paper presentations and more than 400 attendants. I believe that this symposium can strengthen the bonding among all the participants.

I would like to express sincere thanks to organizing committee members and students for their sacrifice and contributions in preparing this symposium. Dr. Hyun-Sik Han at Heesung Catalyst Corp. and Prof. Jong-Wook Bae at Sungkyungkwan University are greatly acknowledged for their efforts as the Korean coordinators. Financial support and dedication from Catalysis Society of Japan, Osaka University, Kansai University and the Royal Society of Chemistry are also greatly appreciated.

Please enjoy the symposium and make good friends though the fruitful discuss on catalysis.



Hiromi YAMASHITA

Chairperson,

The 18<sup>th</sup> Japan-Korea Symposium on Catalysis

Professor,

Osaka University



## General Information

18<sup>th</sup> Japan-Korea Symposium on Catalysis

**Date:** November 23<sup>th</sup> -25<sup>th</sup>, 2021

**Venue:** Virtual (Osaka University)

<http://www.mat.eng.osaka-u.ac.jp/msp1/18JKSC/index.html>

**Secretary Office of 18<sup>th</sup> JKSC (E-mail):** 18jksc@mat.eng.osaka-u.ac.jp

**Meeting ID & PW:**

**<For Security, please contact 18<sup>th</sup> JKSC office to get ID & PW:**

**18<sup>th</sup> JKSC office (E-mail):** [18jksc@mat.eng.osaka-u.ac.jp](mailto:18jksc@mat.eng.osaka-u.ac.jp)>

Date:	Room:	ID:	PW:
<b>Nov. 23<sup>th</sup> (Tue)</b>	Opening Remarks		XXXX <b>&lt;in large character&gt;</b>
	Plenary Lectures	xxx xxx xxx	
	Young Oral (Room A)		
	Young Oral (Room B)	xxx xxx xxx	
	Yong Oral (Room C)	xxx xxx xxx	
	Poster Room 1	xxx xxx xxx	
Poster Room 2	xxx xxx xxx		
<b>Nov. 24<sup>th</sup> (Wed)</b>	Opening Remarks		
	Plenary Lectures		
	Keynote Lectures	xxx xxx xxx	
	General Oral (Room A)		
	Banquet		
	General Oral (Room B)	xxx xxx xxx	
	Poster Room 1	xxx xxx xxx	
Poster Room 2	xxx xxx xxx		
<b>Nov. 25<sup>th</sup> (Thu)</b>	Plenary Lectures		
	Keynote Lectures		
	General Oral (Room A)	xxx xxx xxx	
	Closing Remark		
	General Oral (Room B)	xxx xxx xxx	

# Organization

**Chair:**

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**Coordinator in Korea:**

Prof. Hyun-Sik Han (Heesung Catalyst Corp)

Prof. Jong-Wook Bae (Sungkyungkwan Univ.)

**Organized and Supported by:**

Catalysis Society of Japan

Osaka University (International Joint Research Promotion Program)

Kansai University

Royal Society of Chemistry (Catalysis Science & Technology, Energy Advances)



## Publication of *Catalysis Today* Special Issue:



Special Issue for 18<sup>th</sup> JKSC will be published in *Catalysis Today* (Elsevier)

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Guest editors: Prof. Masaya Matsuoka (Osaka Prefecture University)  
Prof. Jong-Wook Bae (Sungkyunkwan University)

# Program of 18<sup>th</sup> JKSC

## 18<sup>th</sup> Japan-Korea Symposium on Catalysis

Virtual, Osaka University

Nov. 23<sup>th</sup> (Tue) - 25<sup>th</sup> (Thu), 2021

### **Tuesday Nov. 23, 2021**

Room A (Young Oral Session A)  
Room B (Young Oral Session B)  
Room C (Young Oral Session C)  
Room 1 ( Poster Session)  
Room 2 ( Poster Session)

### **Wednesday Nov. 24, 2021**

Room A (General Oral Session A)  
Room B (General Oral Session B)  
Room 1 ( Poster Session)  
Room 2 ( Poster Session)

### **Thursday Nov. 25, 2021**

Room A (General Oral Session A)  
Room B (General Oral Session B)

### **Presentation time including question:**

Plenary Lecture	(PL)	45 min
Keynote Lecture	(KN)	40 min
General Oral Session	(GO)	20 min
Young Oral Session	(YO)	15 min
Poster Session	(P)	90 min

## 18<sup>th</sup> Japan-Korea Symposium on Catalysis

PL: Plenary Lecture (45 min), KL: Keynote Lecture (40 min)  
YO: Young Oral Session (15 min), GO: General Oral Session (20 min)

Date	Time	Room A	Room B	Room C
Nov. 23 (Tue)	9:00-9:10	Opening Remark for Young Session (RoomA)		
	9:10-9:55	PL-1 Prof. Tsunehiro Tanaka (Kyoto Univ.) (RoomA)		
	9:55-10:00	Break		
	10:00-12:00	YO A01-A8	YO B01-B8	YO C01-C8
	12:00-13:00	Break		
	13:00-13:45	PL-2 Prof. Hea Kyung Park (Hanseu Univ.) (RoomA)		
	13:45-13:50	Break		
	13:50-16:20	YO A09-A18	YO B09-B18	YO C09-C18
	16:20-16:30	Break		
	16:30-18:30	YO A19-A26	YO B19-B26	YO C19-C26
	18:45-20:15	Poster Session (Room 1: P01-P22, Room 2: P23-P45)		
Date	Time	Room A	Room B	
Nov. 24 (Wed)	9:00-9:10	Opening Remark (RoomA)		
	9:10-9:55	PL-3 Prof. Wha-Seung Ahn (Inha Univ.) (RoomA)		
	9:55-10:00	Break		
	10:00-12:00	GO A01-A6	GO B01-B6	
	12:00-13:00	Break		
	13:00-13:40	KL-1 Prof. Yong-Ki Park (Korea Research Inst. Chem. Tech.) (RoomA)		
	13:40-14:20	KL-2 Prof. Yuichi Kamiya (Hokkaido Univ.) (RoomA)		
	14:20-14:30	Break		
	14:30-17:10	GO A07-A14	GO B07-B14	
	17:20-18:50	Poster Session (Room 1: P46-P66, Room2: P67-P88)		
	19:00-20:00	Banquet (RoomA)		
Date	Time	Room A	Room B	
Nov. 25 (Thu)	9:00-9:50	PL-4 Prof. Ichiro Yamanaka (Tokyo Inst. Tech.) (RoomA)		
	9:50-10:00	Break		
	10:00-12:00	GO A15-A20	GO B15-B20	
	12:00-13:00	Break		
	13:00-13:40	KL-3 Prof. Sung June Cho (Chonnam National Univ.) (RoomA)		
	13:40-14:20	(RoomA)KL-4 Prof. Noritatsu Tsubaki (Univ. of Toyama)		
	14:20-14:30	Break		
	14:30-16:30	GO A21-A26	GO B21-B26	
	16:45-17:15	Closing Remark (RoomA)		

# Invited Speakers

## Plenary Lectures

Nov. 23 (Tue) 9:10-9:55 Chair: Prof. Jong-Ki Jeon (Kongju National University)

**PL-1**

**Excellent Catalytic Activity of a Pd-promoted MnO<sub>x</sub> Three Way Catalyst**

**Prof. Tsunehiro Tanaka**

**Kyoto University**

Nov. 23 (Tue) 13:00-13:45 Chair: Prof. Naoki Ikenaga (Kansai University)

**PL-2**

**Hydrodesulfurization Performance and Characteristics of Remanufactured RHDS(Residue Hydrodesulfurization) Catalyst**

**Prof. Hea Kyung Park**

**Hanseo University**

Nov. 24 (Wed) 9:10-9:55 Chair: Prof. Takanori Miyake (Kansai University)

**PL-3**

**Porphyritic Zr-based Metal-organic Frameworks for Adsorption and Catalytic Applications**

**Prof. Wha-Seung Ahn**

**Inha University**

Nov. 25 (Thu) 9:00-9:50 Chair: Prof. Chanho Pak (Gwangju Inst. of Sci. Tech.)

**PL-4**

**Electrocatalysis and the SPE Electrolysis Method to Realize Future Chemical Process**

**Prof. Ichiro Yamanaka**

**Tokyo Institute of Technology**

## Keynote Lectures

Nov. 24 (Wed) 13:00-13:40 Chair: Prof. Hisao Yoshida (Kyoto University)

**KL-1**

**Catalyst Design for Selective Light Olefin Production**

**Prof. Yong-Ki Park**

**Korea Research Inst. of Chem. Tech.**

Nov. 24 (Wed) 13:40-14:20 Chair: Prof. Do Heui Kim (Seoul National University)

**KL-2**

**Catalytic and photocatalytic reduction of nitrate in water for purification of polluted groundwater**

**Prof. Yuichi Kamiya**

**Hokkaido University**

Nov. 25 (Thu) 13:00-13:40 Chair: Prof. Masaya Matsuoka (Osaka Prefecture University)

**KL-3**

**Structure Analysis of Zeolite for Catalytic Application (TBD)**

**Prof. Sung June Cho**

**Chonnam National University**

Nov. 25 (Thu) 13:40-14:20 Chair: Prof. Young-Kwon Park (University of Seoul)

**KL-4**

**New and Powerful Synthesis in C1 Chemistry by Precise Catalyst Designs**

**Prof. Noritatsu Tsubaki**

**University of Toyama**

## Young Oral Session A (YO A)

Room A Nov. 23 (Tue) 10:00-12:00			
Chair: Prof. Etsushi Tsuji (Tottori University)			
Prof. Eun Woo Shin (University of Ulsan)			
No.	Title of Paper	Authors	Affiliation
YO A01 10:00~	Insights into Synergistic Effect of Active Centers over ZnMg/SBA-15 Catalyst in Direct Synthesis of Butadiene from Ethanol	<u>Kangzhou Wang</u> , Xiaobo Peng, Guohui Yang, Noritatsu Tsubaki	University of Toyama
YO A02 10:15~	Syngas production from carbon dioxide reforming of methane using coke oven gas on Ni-MgO-Al <sub>2</sub> O <sub>3</sub> catalysts: Effect of calcination temperature	<u>Ho-Ryong Park</u> , Beom-Jun Kim, Hyun-Seog Roh	Yonsei University
YO A03 10:30~	Aerobic a,b-Dehydrogenation of Saturated Ketones Using CeO <sub>2</sub> -Supported Pd-on-Au Bimetallic Nanoparticle Catalysts	<u>Daisuke Takei</u> , Takafumi Yatabe, Xiongjie, Jin, Tomohiro Yabe, Kazuya Yamaguchi	The University of Tokyo
YO A04 10:45~	Three-way catalytic reaction in an electric field at 473 K	<u>Ayaka Shigemoto</u> , Yuki Omori, Kohei Sugihara, Takuma Higo, Toru Uenishi, Yasushi Sekine	Waseda University
YO A05 11:00~	Tailoring Dynamic Metal-Polymer Interaction for the Design of Selective and Stable Partial Hydrogenation Catalysts	<u>Kyunglim Hyun</u> , Minkee Choi	Korea Advanced Institute of Science and Technology (KAIST)
YO A06 11:15~	Synthesis of CaO-Mesoporous SiO <sub>2</sub> Composite from Blast Furnace Slag and Its Evaluation of CO <sub>2</sub> Adsorption Performance	<u>Aiko Hanaki</u> , Yasutaka Kuwahara, Hiromi Yamashita	Osaka University
YO A07 11:30~	Preparation of alkaline-earth metals (Mg, Ca, Sr, and Ba) promoted Ni-based alumina catalysts for the CO <sub>2</sub> methanation reaction using the one-step melt-infiltration method	<u>Eui Hyun Cho</u> , Kwang Yeol Park, Dahye Song, Kee Young Koo, Unho Jung, Wang Lai Yoon, Chang Hyun Ko	Chonnam National University
YO A08 11:45~	Reductive Hydrogenation of xylose to xylitol: A first principle study	<u>Shedrack G. Akpe</u> , Hyung Chul Ham	Inha University

## Young Oral Session A (YO A)

**Room A Nov. 23 (Tue) 13:50-16:20**

**Chair: Prof. Satoshi Hinokuma (AIST)**

**Prof. Jong Hun Kang (Seoul National University)**

No.	Title of Paper	Authors	Affiliation
YO A09 13:50~	A Pd-Bi dual cocatalyst loaded gallium oxide photocatalyst for selective non-oxidative coupling of methane	<u>Surya Pratap Singh</u> , Akira Yamamoto, Hisao Yoshida	Kyoto University
YO A10 14:05~	Development of Co/g-C <sub>3</sub> N <sub>4</sub> -Au nanorod Nanocomposite Catalyst for Boosting CO <sub>2</sub> Reduction by Surface Plasmon Resonance	<u>Kenjiro Tamaki</u> , Takeharu Yoshii, Yasutaka Kuwahara, Kohsuke Mori, Hiromi Yamashita	Osaka University
YO A11 14:20~	Effect of β-diketones as stabilizing agents on mesoporous TiO <sub>2</sub> and photodegradation of methyl violet 2B	<u>Ye Eun Kim</u> , Mi Yeon Byun, Kwan-Young Lee, Man Sig Lee	Korea Institute of Industrial Technology
YO A12 14:35~	Synthesis of Ruthenium Complex Encapsulated into Metal-organic Framework for Photocatalytic Benzyl Alcohol Oxidation	<u>Yoshifumi Kondo</u> , Yusuke Isaka, Yasutaka Kuwahara, Kohsuke Mori, Hiromi Yamashita	Osaka University
YO A13 14:50~	Electrochemical reduction of CO <sub>2</sub> to CO with water at a Co-N-C/KB catalyst	<u>Siyuan Jia</u> , Iguchi Shoji, Yamanaka Ichiro	Tokyo Institute of Technology
YO A14 15:05~	In situ XAFS study for the hydrogen oxidation reaction of the Pd catalyst : Effect of Al <sub>2</sub> O <sub>3</sub> and TiO <sub>2</sub> substrate	<u>Tatsuya Aida</u> , Tadasuke Yamamoto, Kosuke Nakamura, Sogo Iwata, Kohei Inagawa, Takuro Aotani, Sayaka Masaki, Hirohisa Tanaka, Daiju Matsumura	Kwansei Gakuin University
YO A15 15:20~	Improvement of surface and NOx removal properties for SCR catalyst using 1 step co-precipitation method	<u>Geumyeon Lee</u> , Myeung-jin Lee, Hangyu Im, Seung-Yeop Chun, Bora Jeong, Hong-Dae Kim, Jungho Jae, Taewook Kim	Korea Institute of Industrial Technology (KITECH)
YO A16 15:35~	Production of methanol from CO <sub>2</sub> utilizing oxygen vacancies in reduced molybdenum oxide	<u>Koji Hamahara</u> , Yasutaka Kuwahara, Hiromi Yamashita	Osaka University
YO A17 15:50~	Tailoring the physico-chemical properties in Cu-CeO <sub>2</sub> catalysts synthesized by citric acid assisted sol-gel process for the low temperature water-gas shift reaction	<u>Seong-Jin Yun</u> , Seon-Yong Ahn, Do-Hoon Lee, Jong-Hoon Han, Hyun-Seog Roh	Yonsei University
YO A18 16:05~	Effect of Metal-oxide Cluster of Metal-organic Framework in Photocatalytic Hydrogen Peroxide Production	<u>Kenta Hino</u> , Yoshifumi Kondo, Yasutaka Kuwahara, Kohsuke Mori, Hiromi Yamashita	Osaka University

## Young Oral Session A (YO A)

Room A Nov. 23 (Tue) 16:30-18:45			
Chair: Prof. Shinya Masuda (The University of Tokyo)			
Prof. Kyungsu Na (Chonnam National University)			
No.	Title of Paper	Authors	Affiliation
YO A19 16:30~	SPE Electrolysis of Aqueous Ethanol Solutions over Ketjenblack-supported Pt-Ru-Sn Anodes	<u>Lidasan Jun Jeffri Basa</u> , Iguchi Shoji, Yamanaka Ichiro	Tokyo Institute of Technology
YO A20 16:45~	Cocatalyst-free hydrogen evolution over Au-Ta <sub>2</sub> O <sub>5</sub> plasmonic photocatalyst under irradiation of visible light	<u>Eri Fudo</u> , Atsuhiko Tanaka, Hiroshi Kominami	Kindai University
YO A21 17:00~	Effect of two-step annealing on photoelectrochemical properties of hydrothermally prepared Ti-Fe <sub>2</sub> O <sub>3</sub> on titanium felt substrates	<u>Dewangga Oky Bagus Apriandanu</u> , Fumiaki Amano	University of Kitakyushu
YO A22 17:15~	Hydrogen Production on Reduced TiO <sub>2</sub> with Different Crystal Phases	<u>Yukari Yamazaki</u> , Kohsuke Mori, Yasutaka Kuwahara, Hiromi Yamashita	Osaka University
YO A23 17:30~	Dehydration of various amide to nitriles over silica-supported metal oxide catalyst	<u>Yohei Nagasaki</u> , Masazumi Tamura, Mizuho Yabushita, Yoshinao Nakagawa, Keiichi Tomishige	Tohoku University
YO A24 17:45~	Synergistic effects of metal nanoparticles, solid acids, and solvothermal activity on the catalytic depolymerization of lignin using supported Pd catalysts	<u>Aliaksandr Karnitski</u> , Jae-Wook Choi, Chun-Jae Yoo, Hyunjoo Lee, Jeong-Myeong Ha, Dong Jin Suh	Korea Institute of Science and Technology (KIST)
YO A25 18:00~	Reductive Amination Reaction under Low H <sub>2</sub> Pressure over Heterogeneous Cobalt Catalyst	Dian Deng, <u>Kahoko Kato</u> , Yusuke Kita, Keigo Kamata, Michikazu Hara	Tokyo Institute of Technology
YO A26 18:15~	Variation in catalytic reaction pathways by different Ni-support interactions over Ni/CeZrO <sub>x</sub> -Al <sub>2</sub> O <sub>3</sub> catalysts for ethanol steam reforming	<u>Mingyan Wang</u> , Sang Yoon Kim, Yong Men, Eun Woo Shin	University of Ulsan

## Young Oral Session B (YO B)

Room B Nov. 23 (Tue) 10:00-12:00			
Chair: Prof. Hiroshi Yoshida (Kumamoto University)			
Prof. Jeong Woo Han (Pohang University of Science and Technology (POSTECH))			
No.	Title of Paper	Authors	Affiliation
YO B01 10:00~	CO <sub>2</sub> Hydrogenation Using Pt-loaded Reduced Molybdenum Oxide with Surface Plasmon Resonance	<u>Kazuki Kusu</u> , Yasutaka Kuwahara, Hiromi Yamaashita	Osaka University
YO B02 10:15~	Significant Role of Isolated Ce <sup>3+</sup> Sites on Alumina Surface for Stabilizing Metallic Pt during Propane Dehydrogenation	<u>Han Chang Kwon</u> , Minkee Choi	Korea Advanced Institute of Science and Technology (KAIST)
YO B03 10:30~	Hydrogenation of Polycyclic Aromatic Hydrocarbons over Pt/support Catalysts in Trickle Bed Reactor	<u>Seung Kyo Oh</u> , Huiji Ku, Gi Bo Han, Byunghun Jeong, Jong-Ki Jeon	Kongju National University
YO B04 10:45~	Novel methane-dry-reforming process with solid carbon capture	<u>Masaki Tanebayashi</u> , Shuzo Hatano, Ryo Watanabe, Choji Fukuhara	Shizuoka University
YO B05 11:00~	Synthesis of high entropy alloy nanoparticles assisted by hydrogen spillover of TiO <sub>2</sub> support and investigation of catalytic property	<u>Naoki Hashimoto</u> , Kohsuke Mori, Hiromi Yamashita	Osaka University
YO B06 11:15~	Single Ru atoms on RuTiO <sub>x</sub> aerogel catalyst for the hydrodeoxygenation of guaiacol	<u>Ji-Song Kang</u> , Jae-Wook Choi, Chun-Jae Yoo, Dong Jin Suh, Jungkyu Choi, Jeong-Myeong Ha	Korea Institute of Science and Technology (KIST)
YO B07 11:30~	Deoxydehydration of Biomass-derived Polyols over ReO <sub>x</sub> -Ag/CeO <sub>2</sub> catalyst with Molecular Hydrogen	<u>Kosuke Yamaguchi</u> , Ji Cao, Yoshinao Nakagawa, Masazumi Tamura, Mizuho Yabushita, Keiichi Tomishige	Tohoku University
YO B08 11:45~	Operando observation of strong metal-support interactions at the Pt-Co <sub>3</sub> O <sub>4</sub> interface during CO oxidation	<u>Daeho Kim</u> , Dongmin Park, Hee Chan Song, Beomgyun Jeong, Jouhahn Lee, Yousung Jung, Jeong Young Park	Korea Advanced Institute of Science and Technology (KAIST)

## Young Oral Session B (YO B)

Room B Nov. 23 (Tue) 13:50-16:20			
Chair: Prof. Shohei Tada (Ibaraki University)			
Prof. Young Soo Ko (Kongju National University)			
No.	Title of Paper	Authors	Affiliation
YO B09 13:50~	Ni-impregnated ITQ-2 zeolite as an efficient catalyst for the dry reforming of methane	<u>Sungjoon Kweon</u> , Hyejin An, Chae-Ho Shin, Min Bum Park, Hyung-Ki Min	Incheon National University
YO B10 14:05~	Methane Chlorination with Cl <sub>2</sub> Gas using Zeolite Catalysts: Control of Surface Properties Explaining the Electrophilic Pathway	<u>Seungdon Kwon</u> , Sunghyun Park, Yuyeol Choi, Kyungsu Na	Chonnam National University
YO B11 14:20~	Isolated [GaH <sub>2</sub> ] <sup>+</sup> in MFI zeolites as coke-resistant active sites for selective ethane dehydrogenation	<u>Mengwen Huang</u> , Zen Maeno, Takashi Toyao, Ken-ichi Shimizu	Hokkaido University
YO B12 14:35~	Effects of Copper in Cu-Fe/ZSM-5 Catalysts on Selective Oxidation of Methane with H <sub>2</sub> O <sub>2</sub>	<u>Min Sik Kim</u> , Eun Duck Park	Ajou University
YO B13 14:50~	Effect of crystal growth pathway of TS-1 zeolite on the incorporation of Ti into the framework	<u>Shunsuke Yamada</u> , Shuhei Yasuda, Willie Yang, Masamichi Hosaki, Takeshi Matsumoto, Junko N. Kondo, Toshiyuki Yokoi	Tokyo Institute of Technology
YO B14 15:05~	Production of Highly Crystalline Nanosheet Zeolite via Thermal Delamination: An insight of Delaminated Structure Catalyst	<u>Gihoon Lee</u> , Jungkyu Choi	Korea University
YO B15 15:20~	A zeolite-assisted acetal hydrolysis system for the direct synthesis of diethyl carbonate from CO <sub>2</sub> and ethanol over CeO <sub>2</sub> catalyst	<u>Tao Chang</u> , Mizuho Yabushita, Masazumi Tamura, Yoshinao Nakagawa, Takayoshi Mishima, Seiji Matsumoto, Satoshi Hamura, Keiichi Tomishige	Tohoku University
YO B16 15:35~	The bifunctional Fe-ZSM-5 catalysts for high selectivity of C <sub>5-20</sub> in single-step Fischer-Tropsch synthesis	<u>Deviana Deviana</u> , Geun Bae Rhim, Hyeon Song Lee, Gyoung Woo Lee, Min Hye Youn, Jinwon Park, Dong Hyun Chun	Yonsei University
YO B17 15:50~	Effect of NiO particle size on the activity of Mo/HZSM-5 physically mixed with NiO in methane dehydro-aromatization	<u>Hae Won Ryu</u> , Kihun Nam, Yong Hyun Lim, Do Heui Kim	Seoul National University
YO B18 16:05~	Preparation of high-loading Pd-CHA via atomic dispersion of bulk Pd and their NO adsorption/desorption property	<u>Shunsaku Yasumura</u> , Taihei Ueda, Hajime Ide, Takashi Toyao, Zen Maeno, Ken-ichi Shimizu	Hokkaido University

## Young Oral Session B (YO B)

Room B Nov. 23 (Tue) 16:30-18:30			
Chair: Prof. Takeharu Yoshii (Tohoku University)			
Prof. Minkee Choi (KAIST)			
No.	Title of Paper	Authors	Affiliation
YO B19 16:30~	Oxidative Cleavage of Alkenes with Molecular Oxygen Catalyzed by High-valent Iron-containing Perovskite-type Oxides	<u>Satomi Shibata</u> , Keigo Kamata, Michikazu Hara	Tokyo Institute of Technology
YO B20 16:45~	Enhanced Activity of Interconversion between Formate/Bicarbonate by TiO <sub>x</sub> Shell Modification of Ag@Pd/TiO <sub>2</sub> Catalyst	<u>Yuki Shimoji</u> , Shinya Masuda, Kohsuke Mori, Yasutaka Kuwahara, Hiromi Yamashita	Osaka University
YO B21 17:00~	Computational modelling of ex-solved nanoparticle for catalyst applications	<u>Chaesung Lim</u> , Heejae Yang, Jeong Woo Han	Pohang University of Science and Technology (POSTECH)
YO B22 17:15~	Selective furfural oxidation to succinic acid with H <sub>2</sub> O <sub>2</sub> over pure Lewis acidic Sn-Beta: Reasons for selectivity to succinic acid	<u>Yayati Naresh Palai</u> , Abhijit Shrotri, Atsushi Fukuoka	Hokkaido University
YO B23 17:30~	Structure-Activity Relationships for Dehydrogenative H <sub>2</sub> Release from <i>N</i> -Containing Amphicyclic LOHC using Pd-Supported Metal Oxide Catalysts	<u>Yongseok Kim</u> , Yohan Song, Yuyeol Chol, Kwanyong Jeong, Ji Hoon Park, Kyong Chul Ko, Kyungsu Na	Chonnam National University
YO B24 17:45~	Ammoxidation of benzaldehyde with the Mn-Al oxide nanocomposite catalysts derived from layered double hydroxides	<u>Momoka Kono</u> , Takayoshi Hara, Nobuyuki Ichikuni, Shogo Shimazu	Chiba University
YO B25 18:00~	Direct Oxidation of Methane into Formaldehyde by Iron Phosphate Nanoparticle Catalyst	<u>Aoi Matsuda</u> , Haruka Tateno, Keigo Kamata, Michikazu Hara	Tokyo Institute of Technology
YO B26 18:15~	Synthesis and Properties of Two Dimensional Transition Metal Dichalcogenides as Precursor for NO <sub>x</sub> Removal Catalysts	<u>Bora Ye</u> , Kyung Yo Park, Bora Jeong, Taewook Kim, Hong-Dae Kim	Korea Institute of Industrial Technology (KITECH)

## Young Oral Session C (YO C)

Room C Nov. 23 (Tue) 10:00-12:00			
Chair: Prof. Ryo Watanabe (Shizuoka University)			
Prof. Jong Wook Bae (Sungkyunkwan University (SKKU))			
No.	Title of Paper	Authors	Affiliation
YO C01 10:00~	Synthesis of primary anilines using NH <sub>3</sub> as a nitrogen source via acceptorless dehydrogenative aromatization catalyzed by magnesium hydroxide-supported Pd nanoparticles	<u>Hui Li</u> , Takafumi Yatabe, Satoshi Takayama, Kazuya Yamaguchi	The University of Tokyo
YO C02 10:15~	Metal nanoparticle catalyst dispersed on mesoporous carbon for catalytic C–C bond formations	<u>Cai Yibing</u> , Takeshi Matsumoto, Shuhei Yasuda, Shunsuke Yamada, Junko N. Kondo, Toshiyuki Yokoi	Tokyo Institute of Technology
YO C03 10:30~	Gaseous mercury oxidation under dynamic NH <sub>3</sub> -SCR reactions with a commercial honeycomb-type V <sub>2</sub> O <sub>5</sub> -WO <sub>3</sub> /TiO <sub>2</sub> catalyst	<u>Thi Phuong Thao Nguyen</u> , Moon Hyeon Kim	Daegu University
YO C04 10:45~	Knoevenagel condensation catalyzed by nitrified mesoporous silica or porous carbon nitride	<u>Aisa Kawano</u> , Takahiko Moteki, Masaru Ogura	The University of Tokyo
YO C05 11:00~	Selective Oxidation of Methane with a Catalyst Prepared from an Iron-containing Polyoxometalate	<u>Keiju Wachi</u> , Tomohiro Yabe, Kosuke Suzuki, Kazuya Yamaguchi	The University of Tokyo
YO C06 11:15~	Ammonia decomposition over Ru/Al <sub>2</sub> O <sub>3</sub> catalysts	<u>Han Bom Kim</u> , Eun Duck Park	Ajou University
YO C07 11:30~	Addition Effect of Phosphorus on Mo-based catalyst in Selective Hydrotreating of Palm Fatty Acid Distillate	<u>Kihoon Kim</u> , Daisuke Higai, Xiaofan Hou, Mingming Peng, Eika W. Qian	Tokyo University of Agriculture and Technology
YO C08 11:45~	Amination of methanol for selective production of acetonitrile over ZnAl <sub>2</sub> O <sub>4</sub> catalysts synthesized with different pH	<u>Dong-Chang Kang</u> , Dong-Pyo Kim, Chae-Ho Shin	Pohang University of Science and Technology (POSTECH)

## Young Oral Session C (YO C)

**Room C Nov. 23 (Tue) 13:50-16:20**

**Chair: Prof. Saburo Hosokawa (Kyoto Institute of Technology)**

**Yong Tae Kim (Korea Research Institute of Chemical Technology)**

No.	Title of Paper	Authors	Affiliation
<b>YO C09</b> 13:50~	Doping of Co Single Atoms in ZrO <sub>2</sub> Creates Interfacial Sites with Oxygen Vacancy for Highly Selective Hydrogenation of CO <sub>2</sub> to CO	<u>Nazmul Dostagir</u> , Rattanawalee Rattanawan, Min Gao, Jun-ya Hasegawa, Kiyotaka Asakura, Atsushi Fukuoka, Abhijit Shrotri	Hokkaido University
<b>YO C10</b> 14:05~	Roles of bridge carbon and heteroatom during the dehydrogenation reaction of H <sub>12</sub> -2-[N-methylbenzyl]pyridine on Pd and Pt catalysts for liquid organic hydrogen carrier system	<u>Hyunwoo Yook</u> , Kwanyong Jeong, Ji Hoon Park, Jeong Woo Han	Pohang University of Science and Technology (POSTECH)
<b>YO C11</b> 14:20~	Synthesis of a potential precursor to nitrogen-containing polymers from a chitin-derived sugar alcohol using weak acid catalysts	<u>Cheng Yang</u> , Takuya Sagawa, Hirokazu Kobayashi, Atsushi Fukuoka	Hokkaido University
<b>YO C12</b> 14:35~	Highly Coke-resistant of NiCo/MgAl <sub>2</sub> O <sub>4</sub> Catalyst for Efficient Steam and Dry Reforming of Methane	<u>Dong Hyun KIM</u> , Ahmed Al-Shahat Eissa, Kyubock Lee	Chonnam National University
<b>YO C13</b> 14:50~	Formate dehydrogenase selectively reduces CO <sub>2</sub> molecule to formate among carbonate species	<u>Ryohei Sato</u> , Masanobu Higashi, Yutaka Amao	Osaka City University
<b>YO C14</b> 15:05~	Unveiling the effect of water incorporation in Adol condensation reaction of acetone and furfural over ZnO and ZrO <sub>2</sub> catalysts: DFT study	<u>Jinwoo Hwang</u> , Hyeonae Im, Jeong Woo Han	Pohang University of Science and Technology (POSTECH)
<b>YO C15</b> 15:20~	Pd Nanocatalyst Modified with GaO <sub>x</sub> for the Enhancement of Catalytic Activity in Formic Acid Synthesis by CO <sub>2</sub> Hydrogenation	<u>Hiroto Hata</u> , Kohsuke Mori, Hiromi Yamashita	Osaka University
<b>YO C16</b> 15:35~	The Effects of Impregnation Strategy on Performance of Co-based Catalysts for the Water-Gas Shift Reaction	<u>Kyoung-Jin Kim</u> , Yeol-Lim Lee, Ga-Ram Hong, Hyun-Seog Roh	Yonsei University
<b>YO C17</b> 15:50~	Activation of Allylic Alcohols with Al-doped Mesoporous Silica-Supported Pd Complex Catalyst in the Tsuji-Trost Allylation	<u>Siming Ding</u> , Yuichi Manaka, Ken Motokura	Tokyo Institute of Technology
<b>YO C18</b> 16:05~	The Effects of Various Supports on the Sulfur Resistance of Pt-based Catalyst for Hydrogen Production Using High-temperature Water-gas Shift Reaction of Waste-derived Synthesis Gas	<u>Ga-Ram Hong</u> , Yeol-Lim Lee, Kyoung-Jin Kim, Hyun-Seog Roh	Yonsei University

## Young Oral Session C (YO C)

Room C Nov. 23 (Tue) 16:30-18:30			
Chair: Prof. Ken Motokura (Yokohama National University)			
Prof. Myung-June Park (Ajou University)			
No.	Title of Paper	Authors	Affiliation
YO C19 16:30~	Layered Double Hydroxide-Derived Intermetallic Ni <sub>3</sub> GaC <sub>0.25</sub> Catalysts for Dry Reforming of Methane	<u>Kwang Young Kim</u> , Jin Ho Lee, Hojeong Lee, Woo Yeong Noh <sup>1</sup> , Eun Hyup Kim, Eun Cheol Ra, Seok Ki Kim, Kwangjin An, and Jae Sung Lee	Ulsan National Institute of Science and Technology (UNIST)
YO C20 16:45~	A Cobalt Phosphide Nanorod Catalyst for Reductive Amination of Carbonyl Compounds	<u>Min Sheng</u> , Sho Yamaguchi, Takato Mitsudome, Tomoo Mizugaki	Osaka University
YO C21 17:00~	Effect of ZnAl <sub>2</sub> O <sub>4</sub> Phase on Modified Cu-X-Zn/ZnAl <sub>2</sub> O <sub>4</sub> (X=La, Sm, Ce) Catalysts for the Production of Methanol	<u>Hyun-tae Song</u> , Hyun Dong Kim, Hong-ran Park, Yu-jeong Yang, Taeho Hong, Dong Ju Moon	Korea Institute of Science and Technology (KIST)
YO C22 17:15~	Carbon-supported Cu catalyst prepared from ion-exchange resin for selective conversion of glycerol into 1,2-propanediol	<u>Weican Wang</u> , Hiroyasu Fujitsuka, Teruoki Tago	Tokyo Institute of Technology
YO C23 17:30~	Catalytic oxidation of methane to methyl trifluoroacetate by dioxygen using CoCl <sub>4</sub> (Me <sub>4</sub> N) <sub>2</sub> catalyst in trifluoroacetic acid media	<u>Huyen Tran Dang</u> , Hyunjoo Lee	Korea Institute of Science and Technology (KIST)
YO C24 17:45~	Direct synthesis of dimethyl ether from CO <sub>2</sub> over Cu /Al <sub>2</sub> O <sub>3</sub> catalysts prepared using the sol-gel method, and the catalytic effects by the pretreatments	<u>Taiki Masuda</u> , Kaoru Takeishi	Shizuoka University
YO C25 18:00~	Methane Oxidation to Methyl Trifluoroacetate by Anionic Palladium Catalyst	<u>Seok-hyeon Cheong</u> , Huyen Tran Dang, Hyunjoo Lee	Korea Institute of Science and Technology (KIST)
YO C26 18:15~	The effects of start-up solvents on the performance of iron-based catalysts for Fischer-Tropsch synthesis in a slurry phase reactor	<u>Gyoung Woo Lee</u> , Geun Bae Rhim, Hyeon Song Lee, Deviana Deviana, Min Hye Youn, Kwan-Young Lee, Dong Hyun Chun	Korea Institute of Energy Research

## General Oral Session A (GO A)

Room A Nov. 24 (Wed) 10:00-12:00			
Chair: Prof. Aritomo Yamaguchi (AIST)			
Prof. Jeong-Myeong Ha (KIST)			
No.	Title of Paper	Authors	Affiliation
GO A01 10:00~	Effects of support materials on catalytic N <sub>2</sub> O decomposition properties	<u>Satoshi Hinokuma</u> , Yoshihiro Kon, Kazuhiko Sato	National Institute of Advanced Industrial Science and Technology (AIST)
GO A02 10:20~	Architectures of Pt-Based Catalysts Mitigating Voltage Loss in High Current Density Region for Fuel Cell Vehicle	<u>H. Daimon</u> , S. Nishikawa, Y. Ichikawa, Y. Sato, S. Iwai, Y. Higo, M. Inaba	Faculty of Science and Technology, Doshisha University
GO A03 10:40~	Evaluation of catalyst performance in combustion of anode off-gas for SOFC system	<u>Tae Ho Lee</u> , Unho Jung, Hyo Been Im, Kyung Deok Kim, Kee Young Koo	Korea Institute of Energy Research
GO A04 11:00~	Active Coordination Sites of Co Spinel Oxides in NO-CO Reaction	Kakuya Ueda, Masashi Tsuji, Junya Ohyama, <u>Atsushi Satsuma</u>	Nagoya University
GO A05 11:20~	Computation and Experiment based Screening Strategy for Promising Spinel-structured Oxygen Carrier Material of Chemical Looping Combustion: Transition Metal-doped CuMn <sub>2</sub> O <sub>4</sub>	<u>Minkyu Kim</u> , Boseok Seo, Da Yeong Kim, Namgyu Son, Misook Kang, Jeom-In Baek, No-Kuk Park, Dohyung Kang	Yeungnam University
GO A06 11:40~	Identifications of Reaction Scheme via NH <sub>4</sub> NO <sub>3</sub> in NH <sub>3</sub> -SCR Reactions and Development of Steady-state Kinetic Modeling for Cu-CHA Catalyst	<u>Gen Shibata</u> , Naoki Shibayama, Keita Araki, Yoshimitsu Kobashi, Hideyuki Ogawa, Yuta Nakasaka, Ken-ichi Shimizu	Hokkaido University

## General Oral Session A (GO A)

**Room A Nov. 24 (Wed) 14:30-17:10**

**Chair: Prof. Atsushi Satsuma (Nagoya University)**

**Prof. HyungChul Ham (Inha University)**

No.	Title of Paper	Authors	Affiliation
GO A07 14:30~	Purification of Automotive Exhaust Gases over Pd/Ca <sub>2</sub> AlMnO <sub>5+δ</sub>	<u>Saburo Hosokawa</u> , Yudai Oshino, Hiroyuki Asakura, Kentaro Teramura, Tsunehiro Tanaka	Kyoto Institute of Technology
GO A08 14:50~	Tuning bimetallic Ni-Fe alloy catalysts supported on TiO <sub>2</sub> for the selective hydrodeoxygenation of lignin-derived oxygenate.	<u>Rizki Insyani</u> , Jae-Wook Choi, Chun-Jae Yoo, Dong Jin Suh, Jeong-Myeong Ha	Korea Institute of Science and Technology (KIST)
GO A09 15:10~	Three-Way Catalysis of Nanometric Ir Overlayer	<u>Hiroshi Yoshida</u> , Tomoyo Koide, Junya Ohyama, Masato Machida	Kumamoto University
GO A10 15:30~	Mn/Na <sub>2</sub> WO <sub>4</sub> -BaTi <sub>x</sub> Mn <sub>1-x</sub> O <sub>3</sub> for the oxidative coupling of methane	<u>Lien Thi Do</u> , Jae-Wook Choi, Dong Jin Suh, Chun-Jae Yoo, Jeong-Myeong Ha	Korea Institute of Science and Technology (KIST)
GO A11 15:50~	Improvement of Pt-based catalysts for aromatic monomer production from lignocellulosic biomass	<u>Kiyoyuki Yamazaki</u> , Ryuto Sasaki, Satoko Kuwano, Naoki Mimura, Osamu Sato, Aritomo Yamaguchi	National Institute of Advanced Industrial Science and Technology (AIST)
GO A12 16:10~	Epoxidation of bio-diesel over transition metal-based Al <sub>2</sub> O <sub>3</sub> catalysts	<u>Wonjin Jeon</u> , Deog-Keun Kim	Korea Institute of Energy Research
GO A13 16:30~	Rationalizing Mechanism of Biomass Derived Furfural Hydrogenation	<u>Abhijit Chatterjee</u>	Dassault Systemes K.K.
GO A14 16:50~	Role of Mn in Ni/Nn/SBA-15 catalyst on the hydrogen production of biomass steam reforming at lower temperature	Zan Win Moh Moh Phoo, Yoshiya Tabuchi, Nway Nay Hlaing, Osamu Nakagoe, <u>Shuji Tanabe</u>	Nagasaki University

## General Oral Session B (GO B)

<b>Room B Nov. 24 (Wed) 10:00-12:00</b>			
<b>Chair: Prof. Kenji Wada (Kagawa University)</b>			
<b>Prof. Hyun-Seog Roh (Yonsei University)</b>			
<b>No.</b>	<b>Title of Paper</b>	<b>Authors</b>	<b>Affiliation</b>
<b>GO B01</b> 10:00~	Aromatic Ring Hydrogenation over Platinum-Palladium Bimetallic Catalysts in Aqueous Ethanol Solution without External Hydrogen Source	<u>E.N. Kusumawati</u> , Y. Nagasawa, D. Horyo, H. Nanao, O. Sato, A. Yamaguchi, M. Shirai	Iwate University
<b>GO B02</b> 10:20~	Real-time monitoring of oxidation state of WO <sub>3</sub> catalyst during microwave-enhanced dehydration of 2-propanol by a resonance frequency	<u>Shuntaro Tsubaki</u> , Tomoki Higuchi, Tomoki Matsuzawa, Satoshi Fujii, Masateru Nishioka, Yuji Wada	Tokyo Institute of Technology
<b>GO B03</b> 10:40~	Dynamic Metal-Polymer Interaction: New Catalytic Phenomena Enabling the Design of Selective and Stable Hydrogenation Catalysts	Songhyun Lee, <u>Minkee Choi</u>	Korea Advanced Institute of Science and Technology (KAIST)
<b>GO B04</b> 11:00~	Catalytic Liquid-phase Oxidation of Phenol over Pt/CeO <sub>2</sub> -ZrO <sub>2</sub> -SnO <sub>2</sub> /ZrO <sub>2</sub> /SBA-16 Catalysts	<u>Naoyoshi Nunotani</u> , Abdul Rohman Supandi, Nobuhito Imanaka	Osaka University
<b>GO B05</b> 11:20~	Fast microwave-assisted synthesis of iron-palladium catalysts supported on carbon materials for the direct synthesis of H <sub>2</sub> O <sub>2</sub>	Xuan Tin Tran, Viet Le Nam Vo, <u>Young-Min Chung</u>	Kunsan National University
<b>GO B06</b> 11:40~	Enhanced CO Oxidation by Structural Variation of Supported Ag Nanoparticle Catalyst from Single to Twin by CO Treatment	Tamura Takehiro, <u>Junya Ohyama</u> , Kyoichi Sawabe, Atsushi Satsuma	Kumamoto University

## General Oral Session B (GO B)

<b>Room B Nov. 24 (Wed) 14:30-17:10</b> <b>Chair: Prof. Junya Ohyama (Kumamoto University)</b> <b>Prof. Hyoung Lim Koh (Hankyong National University)</b>			
No.	Title of Paper	Authors	Affiliation
GO B07 14:30~	Insights into the role of metal-ceria interfaces in water vapour mediated CO oxidation	<u>Kasala Prabhakar Reddy</u> , Hee Chan Song, Gyuho Han, Daeho Kim, Ryong Ryoo, and Jeong Young Park	Institute for Basic Science (IBS)
GO B08 14:50~	Promoting effect of 2000 ppm H <sub>2</sub> S on the dry reforming reaction of C <sub>H4</sub> over pure CeO <sub>2</sub> , and in-situ observation of the behavior of sulfur during the reaction	<u>Kenji Taira</u> , Takeharu Sugiyama, Hisahiro Einaga	Nippon steel corporation
GO B09 15:10~	Development of tandem catalysts for lower olefin synthesis via CO <sub>2</sub> hydrogenation	<u>Shohei Tada</u> , Hiroka Kinoshita, Mina Okazaki, Noriko Yamauchi, Yoshio Kobayashi, Kenta Iyoki	Ibaraki University
GO B10 15:30~	Effect of reduction temperature on the activity of PtSn/Al <sub>2</sub> O <sub>3</sub> catalyst for propane dehydrogenation	Yi Sun Choi, Hyun-Seog Roh and <u>Hyoung Lim Koh</u>	Hankyong National University
GO B11 15:50~	Quantification of ethylene oxidation activity of silica-supported platinum catalysts for preserving vegetables and fruits	<u>Takeshi Mori</u> , Tatsuhiko Shigyo, Takafumi Nomura, Yudai Ono, Kiyotaka Nakajima and Atsushi Fukuoka	Hokkaido Research Organization
GO B12 16:10~	Polymerization behaviour of metallocene immobilized inside pore of metal-organic frameworks	Clinton Manianglung, Jeong Suk Lee, <u>Young Soo Ko</u>	Kongju National University
GO B13 16:30~	Direct synthesis of dimethyl ether from CO <sub>2</sub> over Cu-Ga/Al <sub>2</sub> O <sub>3</sub> catalysts prepared using the sol-gel method, and the catalytic effects by the pretreatments	<u>Kaoru Takeishi</u> , Yuya Takamori	Shizuoka University
GO B14 16:50~	Development of titania-supported iridium catalysts for the synthesis of trialkylamines from aqueous ammonia or urea	Han Yu, <u>Kenji Wada</u> , Qi Feng	Kagawa University

## General Oral Session B (GO B)

<b>Room A Nov. 25 (Thu) 10:00-12:00</b> <b>Chair: Prof. Nobuyuki Ichikuni (Chiba University)</b> <b>Prof. Hyunjoo Lee (KIST)</b>			
No.	Title of Paper	Authors	Affiliation
GO A15 10:00~	Methane synthesis from carbon dioxide over Ni supported on Gadolinium-Doped Ceria (GDC)	<u>Anis Kristiani</u> , Kaoru Takeishi	Research Centre for Chemistry-National Research and Innovation Agency (BRIN)
GO A16 10:20~	Ammonia Decomposition over Ru/La-Al <sub>2</sub> O <sub>3</sub> pellet type catalyst: A Strategy for Ru-rich Surface using La <sub>2</sub> O <sub>2</sub> CO <sub>3</sub> -Al <sub>2</sub> O <sub>3</sub>	Ah-Reum Kim, Junyoung Cha, Jin Su Kim, Hyangsoo Jeong, Yongmin Kim, Suk Woo Nam, Changwon Yoon, <u>Hyuntae Sohn</u>	Korea Institute of Science and Technology (KIST)
GO A17 10:40~	Heterometal Doped Ru Nanoparticle Catalysts for Hydrogenation of Carbonyl Compounds under Ambient Conditions	<u>Shinya Masuda</u> , Shotaro Matsuda, Shinjiro Takano, Tatsuya Tsukuda	The University of Tokyo
GO A18 11:00~	Designing Highly Active and Durable Dispersed Catalysts for Slurry Phase Hydrocracking of Heavy Oils	Hyun-Rok Jeong, Ki-Duk Kim, <u>Yong-Kul Lee</u>	Dankook University
GO A19 11:20~	Regiospecific $\alpha$ -Methylene Alkynylation of Tertiary Amines Enabled by Gold Nanoparticles-Catalyzed Concerted Hydride Transfer to O <sub>2</sub>	<u>Takafumi Yatabe</u> , Kazuya Yamaguchi	The University of Tokyo
GO A20 11:40~	Oxyhydride as supporting materials for liquid phase hydrogenation	<u>Masayoshi Miyazaki</u> , Kiya Ogasawara, Masaaki Kitano, Hideo Hosono	Tokyo Institute of Technology

## General Oral Session A (GO A)

<b>Room A Nov. 25 (Thu) 14:30-16:30</b> <b>Chair: Prof. Takashi Toyao (Hokkaido University)</b> <b>Prof. Young-Woong Suh (Hanyang University)</b>			
No.	Title of Paper	Authors	Affiliation
<b>GO A21</b> 14:30~	Synthesis of single-site metal species immobilized in ordered carbonaceous frameworks from metalloporphyrins	<u>Takeharu Yoshii</u> , Koki Chida, Hirotomoto Nishihara	Tohoku University
<b>GO A22</b> 14:50~	The Role of Phase in NiMgAl Mixed Oxide Catalysts for Methane Dry Reforming of CO <sub>2</sub>	Huy Nguyen-Phu, Taehyup Kim, Youngchan Kim, Ki Hyuk Kang, Hyungtae Cho, Junghwan Kim, <u>Insoo Ro</u>	Seoul National University of Science and Technology
<b>GO A23</b> 15:10~	Effects of Geometric Distribution of Ge within Framework on Transformations of Extra-large Pore Germanosilicate CIT-13	<u>Jong Hun Kang</u> , Mark E. Davis	Seoul National University
<b>GO A24</b> 15:30~	Dehydrogenation of ethane to ethylene on Zn,Na-ZSM-5 catalysts	Tokuma Miura, Tomohiro Hayashi, Makoto Hanaya, Makoto Sano, <u>Takanori Miyake</u>	Kansai University
<b>GO A25</b> 15:50~	Catalytic decomposition of dimethyl sulfide on Co/H-BEA zeolite without hydrogen addition	<u>Kazumasa Oshima</u> , Rina Kadonaga, Chisato Yamamoto, Masahiro Kishida, Shigeo Satokawa	Kyushu University
<b>GO A26</b> 16:10~	Simple physical mixing of zeolite prevents sulfur deactivation of vanadia catalysts for NO <sub>x</sub> removal	<u>Hwangho Lee</u> , Inhak Song, Se Won Jeon, Keon Ha Hwang, Do Heui Kim	Seoul National University

## General Oral Session B (GO B)

Room B Nov. 25 (Thu) 10:00-12:00			
Chair: Prof. Bunsho Ohtani (Hokkaido University)			
Prof. Dong Hyun Chun (Korea Institute of Energy Research (KIER))			
No.	Title of Paper	Authors	Affiliation
GO B15 10:00~	Hydrogen Production via Steam Reforming of Propane; Effects of Mg, Ce, La and Ce promoters on Ni/Zeolite Y catalysts	<u>Hong-ran Park</u> , Hyun-tae Song, Hyun dong Kim, Yu-jeong Yang, Taeho Hong, Dong Ju Moon	Korea Institute of Science and Technology (KIST)
GO B16 10:20~	Unprecedented Catalysis of Alkali Metal Single Sites in Zeolite Pores Active for Phenol Synthesis and Toluene Ammoxidation	<u>Takehiko Sasaki</u> , Shipi Ghosh, Shankha Acharyya, Takuma Kaneko, Yasuhiro Iwasawa	The University of Tokyo
GO B17 10:40~	Catalytic Ex-situ Upgrading of Food-waste to Aromatics over zeolite under methane environment	<u>Surendar Moogi</u> , Young Kwon Park	University of Seoul
GO B18 11:00~	Highly active and stable ferrierite zeolite for a gas-phase DME carbonylation by adjusting Al distributions	<u>Jong Wook Bae</u>	Sungkyunkwan University
GO B19 11:20~	Fabrication of Cu <sub>2</sub> SnS <sub>3</sub> Photoelectrodes by Electrochemical Deposition Method and their Photoelectrochemical Water Splitting	Shuji Kamemoto, Yasuaki Matsuda, <u>Shinya Higashimoto</u>	Osaka Institute of Technology
GO B20 11:40~	A tandem-type photoelectrochemical cell consisting of photocatalytic particles for overall water splitting	<u>Yosuke Kageshima</u> , Haruka Momose, Katsuya Teshima, Kazunari Domen, Hiromasa Nishikiori	Shinshu University

## General Oral Session B (GO B)

Room B Nov. 25 (Thu) 14:30-16:30			
Chair: Prof. Shinya Higashimoto (Osaka Institute of Technology)			
Prof. Yong-Kul Lee (Dankook University)			
No.	Title of Paper	Authors	Affiliation
GO B21 14:30~	Designing of nanocatalysts to understand the role of interfaces	<u>Kwangjin An</u>	Ulsan National Institute of Science and Technology (UNIST)
GO B22 14:50~	Plasmonic catalysis of noble metal nanostructures	<u>Priyanka Verma</u> , Yasutaka Kuwahara, Kohsuke Mori, Hiromi Yamashita	Osaka University
GO B23 15:10~	Brownmillerite-type $\text{Ca}_2\text{FeCoO}_5$ Ultrasmall Particles with Single-nanometers as a Cocatalyst for Oxygen Photo-evolution Reaction	<u>Etsushi Tsuji</u> , Ryosuke Nanbu, Yoshiki Degami, Kei Hirao, Takeyuki Watanabe, Naoya Matsumoto, Satoshi Suganuma, Naonobu Katada	Tottori University
GO B24 15:30~	True Particle-size Dependence of Photocatalytic Activity of Octahedral-shaped Anatase Titania	<u>Bunsho Ohtani</u> , Yumin Li, Sayaka Koike, Mai Takashima	Hokkaido University
GO B25 15:50~	Reaction Diffusion Equations for Slurry-type Photocatalytic Reactor	<u>Young-Sang Cho</u>	Korea Polytechnic University
GO B26 16:10~	Photocatalytic degradation of bisphenol A with S-scheme using O-doped dual g- $\text{C}_3\text{N}_4$ under visible light	<u>Ikki Tateishi</u> , Mai Furukawa, Hideyuki katsumata, Satoshi Kaneco	Mie University

No.	Title of Paper	Authors	Affiliation
P01	Developing Cu-MOR@SiO <sub>2</sub> Core-shell Catalyst Microcapsules for Two-stage Ethanol Direct Synthesis from DME and Syngas	<u>Chengwei Wang</u> , Ruiqin Yang, Peng Lu, Noritatsu Tsubaki	University of Toyama
P02	Effect of the addition of alkyl groups on the activity of the direct synthesis of hydrogen peroxide reactions	<u>Seok-Ho Lee</u> , Geun-Ho Han, Kwan-Young Lee	Korea University
P03	Density Functional Theory Study of Oxygen Reduction Reaction on Functionalized Fe/Nx/C Catalysts	<u>Kyeounghak Kim</u>	Hanyang University
P04	Insight into the effect of oxygen species and Mn chemical valence over MnO <sub>x</sub> on the catalytic oxidation of toluene	<u>Heng Zhao</u> , Guohui Yang, Yoshiharu Yoneyama, Noritatsu Tsubaki	University of Toyama
P05	Reaction Pathways of Oxidative Coupling of Methane over NaWO <sub>x</sub> /α-cristobalite by DFT Calculation: Surface vs. Gas-Phase Pathways	<u>Yesol Woo</u> , Jeong-Myeong Ha, Yeojin Kim, Myung-June Park	Ajou University
P06	DFT Investigation of PET Depolymerisation Enabled by a Biocompatible Catalyst, Betaine	<u>Kyu In Shim</u> , Jeong Woo Han	Pohang University of Science and Technology (POSTECH)
P07	A controlling factor of hydrogen atom adsorption over doped CeO <sub>2</sub>	<u>Hiroshi Sampei</u> , Kota Murakami, Yuta Mizutani, Atsushi Ishikawa, Takuma Higo, Hideaki Tsuneki, Hiromi Nakai, Yasushi Sekine	Waseda University
P08	Mesoporous transition metal oxide catalysts for Preferential Oxidation of CO in H <sub>2</sub> -Rich Stream	<u>Zhengyang Li</u> , Jung-ho Lee, Jin Seo Park, Ji Man Kim	Sungkyunkwan University
P09	Mesoporous sulfur-doped Pt–Al <sub>2</sub> O <sub>3</sub> catalyst: Role of sulfur in LOHC dehydrogenation	<u>Yeongin Jo</u> , Young-Woong Suh	Hanyang University
P10	Catalytic performance of Cu-MoO <sub>x</sub> catalysts active for partial oxidation of methane into formaldehyde	<u>Taiki Akiyama</u> , Sakae Takenaka	Doshisha University

**Poster Presentation**
**Nov. 23 (Tue)**

No.	Title of Paper	Authors	Affiliation
P11	Catalytic properties of ordered mesoporous Co <sub>3</sub> O <sub>4</sub> -based composite with CO preferential oxidation	<u>Jung-ho Lee</u> , Zhengyang Li, Jin Seo Park, Ji Man Kim	Sungkyunkwan University
P12	Catalytic stability of Fe <sup>III</sup> [Co <sup>III</sup> (CN) <sub>6</sub> ] enhanced by doping divalent metal ions for hydrolysis of organophosphates	<u>Yusuke Seki</u> , Hiroyasu Tabe, Yusuke Yamada	Osaka City University
P13	Investigation of the Pt-CoO interface in PtCo bimetallic catalyst for the CO oxidation	<u>Yejin Song</u> , Daeho Kim, Ki-Jeong Kim, Jeong Young Park	Korea Advanced Institute of Science and Technology (KAIST)
P14	Preparation of Nanosheets of Platinum Group Metals Using Stacked Graphene Oxides	Sakae Takenaka, <u>Tatsuki Nakamae</u>	Doshisha University
P15	Organonitriles as complexing agents for the double metal cyanide-catalyzed synthesis of polyether, polyester, and polycarbonate polyols	<u>Chinh Hoang Tran</u> , Soo Jeong Lee, Su Hyeon Jeon, PilHo Huh, Il Kim	Pusan National University
P16	Synergistic Catalysis in Dodecatungstocobaltate(II)-Based Ionic Crystals for Oxygen Evolution Reaction	<u>Yuto Shimoyama</u> , Naoki Ogiwara, Sayaka Uchida	The University of Tokyo
P17	In-situ conversion of xylose-to-furfural-to-C15 condensates during the production of purified glucose by the acidic saccharification of lignocellulose	Hyemin Yang, <u>Hyeonmin Jo</u> , Hyunah Choo, Jae-Wook Choi, Dong Jin Suh, Chun-Jae Yoo, Jungkyu Choi, Jeong-Myeong Ha	Korea Institute of Science and Technology (KIST)
P18	Dehydrogenative coupling of alkane and benzene accelerated by interparticle hydrogen transfer	<u>Moe Takabatake</u> , Ayako Hashimoto, Wang-Jae Chun, Masayuki Nambo, Yuichi Manaka, Ken Motokura	Tokyo Institute of Technology
P19	Economic Assessment of Two Alternative Ethanol Dehydration Flowsheets for an Alcohol-to-Jet Process	Myung-June Park, <u>Kee-Youn Yoo</u>	Seoul National University of Science and Technology
P20	Effect of Support Oxidation State on Catalytic Activity of Pt/TiO <sub>x</sub> Catalysts	<u>Gyuhoo Han</u> , Hee Chan Song, Sang Hoon Kim, Jeong Young Park	Korea Advanced Institute of Science and Technology (KAIST)

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P21	Green Oxidative Transformation of Indoles Catalyzed by Copper Nitride Nanocube Using Molecular O <sub>2</sub>	<u>Hang Xu</u> , Sho Yamaguchi, Takato Mitsudome, Tomoo Mizugaki	Osaka University
P22	Methane Chlorination with Cl <sub>2</sub> Gas using Zeolite Catalysts: Control of Surface Properties Explaining the Electrophilic Pathway	<u>Sunghyun Park</u> , Seungdon Kwon, Yuyeol Choi, Kyungsu Na	Chonnam National University
P23	One-pot Synthesis of Quinoline Derivatives via Hydrogen Transfer and Cyclization Reactions with Solid Base Hydrotalcites	<u>Risako Sato</u> , Nao Ozawa, Yuichi Manaka, Ken Motokura	Tokyo Institute of Technology
P24	Evaluation of catalytic performance depending on synthesis parameters for scale-up Cu–Zn–Al catalysts in the low temperature water–gas shift reaction	<u>Do-Hoon Lee</u> , Seon-Yong Ahn, Seong-Jin Yun, Jong-Hoon Han, Hyun-Seog Roh	Yonsei University
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P26	Surface Modification for Enhancing the Enantiospecificity of Chiral Cu surfaces	<u>Youngbi Kim</u> , Hyun Woo Yook, Ho Seong Song, Jeong Woo Han	Pohang University of Science and Technology (POSTECH)
P27	Propane dehydrogenation over Pt catalyst redispersed by oxygen-treatment	<u>Yi Sun Choi</u> , Hyoung Lim Koh	Hankyong National University
P28	Application of flower-like structured CaSi <sub>2</sub> in the preparation of Pd-loaded catalysts and investigation on their catalytic activities	<u>Shoki Kawakami</u> , Misumi Okamoto, Takashi Kamegawa	Osaka Prefecture University
P29	Selective conversion of glycerol to 1,3-dioxolane-4-methanol over silica-supported tungsten oxide catalyst	<u>Jin Seo Park</u> , Zhengyang Li, Jung-Ho Lee, Ji Man Kim	Sungkyunkwan University
P30	New low-temperature methanol synthesis from CO <sub>2</sub> -containing syngas via self-catalysis of methanol and Cu/ZnO catalysts	<u>Fei Chen</u> , Peipei Zhang, Guohui Yang, Yoshiharu Yoneyama, Noritatsu Tsubaki	University of Toyama

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P32	Effects of the perovskite-A-site composition on ammonia synthesis in an electric field	<u>Sae Doi</u> , Yuta Tanaka, Kota Murakami, Kazuharu Ito, Yuta Mizutani, Koki Saegusa, Takuma Higo, Hideaki Tsuneki, Yasushi Sekine	Waseda University
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P34	Low-temperature hydrogenation of monobenzyltoluene over Ru/MgO catalysts	<u>Tae Wan Kim</u> , Young-Woong Suh	Hanyang University
P35	Kinetic modeling of dimethyl ether to gasoline over an HZSM-5 zeolite catalyst	<u>Damin Lee</u> , Jongmin Park, Yong Min Park, Jong Wook Bae, Myung-June Park, Won Bo Lee	Seoul National University
P36	Synthesis of Fe-containing MWW zeolites via a mechanochemical method and evaluation of catalytic activity	<u>Ginpei Tanaka</u> , Ryota Osuga, Mizuho Yabushita, Sachiko Maki, Kiyoshi Kanie, Atsushi Muramatsu	Tohoku University
P37	Understanding hydrodeoxygenation reaction of vanillin to cycloalkanes over Ru/HZSM-5 catalysts in biphasic system	<u>Hyungjoo Kim</u> , Seungdo Yang, Yong Hyun Lim, Jeong-Myeong Ha, Do Heui Kim	Seoul National University
P38	Zeolite encapsulation stabilized copper-zinc nanoparticles for directly converting CO <sub>2</sub> towards dimethyl ether fuel	<u>Xu Wang</u> , Jong Wook Bae	Sungkyunkwan University
P39	Catalytic performance of Pt/C catalysts coated with silica layers for PEFC cathode operated at high temperatures	Sakae Takenaka, <u>Kumiko Yoshimura</u>	Doshisha University
P40	Effect of rhenium deposition method in the TiO <sub>2</sub> -supported Pt-Re bimetallic catalysts on selective hydrogenation of carboxylic acids to alcohols	<u>Han Ung Kim</u> , Jungho Jae	Pusan National University

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P43	Ru/ $\alpha$ -alumina as hydrogenation catalyst for cyclopentanediol production	<u>Soohyeon Lee</u> and Young-Woong Suh	Hanyang University
P44	Reinforced catalytic performance of Ce/Cu/Al <sub>2</sub> O <sub>3</sub> catalyst for water–gas shift reaction using waste–derived synthesis gas by doping of additives	<u>Seon-Yong Ahn</u> , Seong-Jin Yun, Hyun-Seog Roh	Yonsei University
P45	Microwave-assisted rapid synthesis of nanosized SSZ-13 zeolites for efficient ethylene-to-propylene conversion	Nazmul Abedin Khan, <u>Dong Kyu Yoo</u> , Sungjune Lee, Tae-Wan Kim, Chul-Ung Kim, Sung Hwa Jhung	Kyungpook National University

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P47	Promotional effects of Mn on Pt/Al <sub>2</sub> O <sub>3</sub> Catalysts in HC, CO, and NO Oxidation for Diesel Emission Control	Eun Jeong Jang, Eunseok Kim, Dong Gun Oh, Jaekyoung Lee, Yongseon Kim, Jun Hong Jeon, Seung Chul Na, Hyun Sik Han, Ji Man Kim, and <u>Ja Hun Kwak</u>	Ulsan National Institute of Science and Technology (UNIST)
P48	Synthesis of BTX and C10-C13 aromatics from polycyclic aromatic hydrocarbon over CoMo/mesoporous zeolite catalysts	<u>Huiji Ku</u> , Seung Kyo Oh, Yeongseo Park, Gi Bo Han, Byung Hun Jeong, Jong-Ki Jeon	Kongju National University
P49	Determination of glucose in sera samples using magnetic catalyst with peroxidase-like activity	<u>Maiko Shibata</u> , Hideyuki Katsumata, Mai Furukawa, Ikki Tateishi, and Satishi kaneco	Mie University
P50	Synergistic shape selectivity of H-Beta and H-ZSM-5 for xylene-rich BTX production from diesel-boiling-range polycyclic aromatics	<u>Jinho Oh</u> , Jaek Shin, Yeseul Choi, Jung Kyoo Lee	Dong-A University
P51	Determination of trace Ni in water samples by a combination of precipitation method with X-ray fluorescence analysis	<u>Takayuki Fujihara</u> , Mai Furukawa, Hideyuki Katsumata, Ikki Tateishi, Satoshi Kaneko	Mie University
P52	Effective oxidative desulfurization with molybdenum nitride@porous carbon, derived from phosphomolybdic acid loaded metal-azolate framework-6	<u>Md Mahmudul Hassan Mondol</u> , Sung Hwa Jhung	Kyungpook National University
P53	Reverse water-gas shift over mesoporous bimetallic spinel catalyst with high activity and stability	<u>Yohan Song</u> , Yongseok Kim, Seungdon Kwon, Kyungsu Na	Chonnam National University
P54	Direct addition of aromatics to alkanes in the presence of various zeolites and supported Pd catalysts	<u>Satoshi Misaki</u> , Moe Takabatake, Masayuki Nambo, Yuichi Manaka, Ken Motokura	Tokyo Institute of Technology
P55	Liquid-phase alkylation of biomass-derived phenolic compounds over zeolites for renewable jet fuel	<u>Hanbyeol Kim</u> , Jungho Jae	Pusan National University

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P57	CO-assisted methane conversion to C1/C2 oxygenates over zeolite supported monodispersed Rh-metal catalysts	<u>Takahiko Moteki</u> , Naoto Tominaga, Sibel Sougkkanli, Masaru Ogura	The University of Tokyo
P58	Direct Oxidative Esterification of Methacrolein with Methanol to Methyl Methacrylate by Au Nanoparticle-based Heterogeneous Catalyst	<u>Seulgi Lim</u> , Seungdon Kwon, Nagyeong Kim, Kyungsu Na	Chonnam National University
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P60	Low-temperature selective catalytic reduction over V-Ce/TiO <sub>2</sub> -CNTs	<u>Jae-Rang Youn</u> , Min-Jae Kim, Kyubock Lee, Sang Goo Jeon	Chonnam National University
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P67	Dye degradation by Sn-based photocatalyst under visible light irradiation	<u>Daichi Iwamoto</u> , Mai Furukawa, Hideyuki Katsumata, Ikki Tateishi, Satoshi Kaneco	Mie University
P68	Platinum catalyst supported on nanocellulosic carbon for PEMFC	<u>Guk-Hyeon Kwon</u> , Heeyeon Kim	Yonsei university
P69	Porous oxygen-modified g-C <sub>3</sub> N <sub>4</sub> nanosheets using pyridine solution for highly efficient photocatalytic hydrogen generation	<u>Shuhei Kuwahara</u> Ikki Tateishi, Hideyuki Katsumata, Mai Furukawa, Satoshi Kaneco	Mie University
P70	BODIPY Sensitizer-TiO <sub>2</sub> Photocatalyst for Enhanced Visible to Near-infrared Light-Driven Photocatalytic Hydrogen Production	<u>Xiao-Feng Shen</u> , Atsushi Takagaki, Jun Tae Song, Tatsumi Ishihara, Motonori Watanabe	Kyushu University
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P74	Enhanced Photocatalytic Hydrogen Production of Cu <sub>7</sub> S <sub>4</sub> /CdS under Ultraviolet Light Irradiation.	<u>Takumi Kobayashi</u> , Ikki Tateishi, Hideyuki Katsumata, Mai Furukawa, Satoshi Kaneco	Mie University
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P82	Photocatalytic visible-light hydrogen production activity of carbon-ring-modified graphitic carbon nitride with isotype heterojunction	<u>Motoki Sato</u> , Hideyuki Katsumata, Ikki Tateishi, Mai Furukawa, Satoshi Kaneco	Mie University
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P85	Direct Observation of Electron Coupling Effect with Monitoring Hot Electron Behavior on Au@Pd Core-Shell Nanocatalysts	<u>Beomjoon Jeon</u> , and Jeong Young Park	Korea Advanced Institute of Science and Technology (KAIST)

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<b>P88</b>	The optimization of ultrathin-ferrierite synthesis for DME carbonylation	<u>Hyun Seung Jung</u> , Jong Wook Bae	Sungkyunkwan University

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# Abstract of 18<sup>th</sup> JKSC

## 18<sup>th</sup> Japan-Korea Symposium on Catalysis

Virtual, Osaka University  
Nov. 23<sup>th</sup> (Tue) - 25<sup>th</sup> (Thu), 2021

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Prof. Hea Kyung Park	(Hanseong University)
Prof. Wha-Seung Ahn	(Inha University)
Prof. Ichiro Yamanaka	(Tokyo Institute of Technology)

**Keynote Lectures :** KL 1-4

Prof. Yong-Ki Park	(Korea Research Inst. of Chem. Tech.)
Prof. Yuichi Kamiya	(Hokkaido University)
Prof. Sung June Cho	(Chonnam National University)
Prof. Noritatsu Tsubaki	(University of Toyama)

**Young Oral Session :** YO A01-26, YO B01-26, YO C01-26

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