

The 10th Japan-Korea Symposium on Catalysis
Program for the Young Scientists Session (May 10th, Tuesday)

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- 12:00-14:25 Registration
- 14:25-14:30 Chairmen, Prof. Yasuaki Okamoto (Shimane University)
 Prof. Seong Ihl Woo (Korean Advanced Institute of Science and Technology)
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- 14:30-16:10 5 Orals (20min/talk including Q&A)
- Chairpersons: Kye Sang Yoo (Korea Institute of Science and Technology)
 Yoshihiro Kubota (Yokohama National University)
- 14:30-14:50
- YO-1** Kinetic Studies on Transesterification of Ethylene Carbonate with Methanol to Produce Dimethyl Carbonate in the Presence of K/MgO Heterogeneous Catalysts
 Haznan Abimanyu, Byoung Sung Ahn, Kye Sang Yoo (Korea Institute of Science and Technology)
- 14:50-15:10
- YO-2** High Temperature Separation of Water/Methanol/Hydrogen Mixtures through a ZSM-5 Membrane
 Kenichi Sawamura, Teruaki Izumi, Yasushi Sekine, Eiichi Kikuchi, Kiminori Sato, Takashi Nakane, Tomoko Watanabe, and Masahiko Matsukata (Waseda University, Bio-nanotech Research Institute, Japan Oil, Gas and Metals National Corporation)
- 15:10-15:30
- YO-3** Highly Dispersed H₃PW₁₂O₄₀ Supported on SBA-15 Mesoporous Silica for Catalytic Dehydration of Acetic Acid
 Chang-Soo Woo, Nong-Yue He, and Ho-In Lee (Seoul National University, Zhuzhou Institute of Technology)
- 15:30-15:50
- YO-4** Synthesis, Electronic Structure and Photocatalytic Properties of Lanthanoid Oxysulfide
 Keita Ikeue, Yusuke Ohta, Kiyotaka Kawamura, Tomohiro Mitsuyama, Shigenori Matsushima and Masato Machida (Kumamoto University, Kitakyushu National College of Technology)
- 15:50-16:10
- YO-5** Synthesis of Macrostructured MCM-41 and Application to Lean NO_x SCR
 Kwang-Eun Jeong, Joo-Il Park and Son-Ki Ihm (Korea Advanced Institute of Science and Technology)

16:10-16:30 Coffee Break

16:30-18:10 5 Orals (20min/talk including Q&A)

Chairpersons: Masahiko Matsukata (Waseda University)

 Misook Kang (Kyung Hee University)

16:30-16:50

YO-6 Self Chirality Creation and Catalytic Performance on Surfaces: Chiral Self-Dimerized V-dimer Catalysts on SiO₂ for Highly Enantioselective Oxidative Coupling of 2-Naphthol

Mizuki Tada, Toshiaki Taniike, and Yasuhiro Iwasawa (The University of Tokyo)

16:50-17:10

YO-7 A Study on Reaction Characteristics of the SO₂ Reduction using Coal Gas over SnO₂-ZrO₂ Catalyst

Gi Bo Han, Jin Hyuk Jun, No-Kuk Park, Jong Dae Lee, Si-Ok Ryu, Tae Jin Lee, Won Chul Chang (Yeungnam University, Pung Nam Semicon Tech. Co.)

17:10-17:30

YO-8 Catalyst Developments for Partial Oxidation of Tar Derived from Biomass

Tomohisa Miyazawa, Takeo Kimura, Jin Nishikawa, Kimio Kunimori, Keiichi Tomishige (University of Tsukuba)

17:30-17:50

YO-9 Hydrogen Production for Fuel Cell by Steam Reforming of Methanol in a Micro-Reactor Coated with Cu/ZnO/ZrO₂/Al₂O₃-Based Catalyst

Heondo Jeong, Kweon Ill Kim, Tae Hwan Kim, Chang Hyun Ko, Hwa Choon Park, and In Kyu Song (Seoul National University, Korea Institute of Energy Research)

17:50-18:10

YO-10 Support Effect on Automotive Precious Metal Catalysts: An Accelerated Quantum Chemical Molecular Dynamics and Density Functional Theory Study

Changho Jung, Hideyuki Tsuboi, Michihisa Koyama, Momoji Kubo, Ewa Broclawik and Akira Miyamoto (Tohoku University, PRESTO, Japan Science and Technology Agency)

18:10-19:40 Poster Session (YP)

The 10th Japan-Korea Symposium on Catalysis
Program for the General Oral Session (May 11th, Wednesday)

8:30- 9:00 Registration

9:00- 9:20 Opening, Prof. Yasuhiro Iwasawa (The University of Tokyo)
Prof. Seong Ihl Woo (Korean Advanced Institute of Science and Technology)

9:20-10:10 Plenary Lecture (50min/talk including Q&A)

Chairperson: Miki Niwa (Tottori University)

PL-1 Structural Design and Reaction Selectivity Control on Catalyst Surfaces Based on Molecular Syntheses and In Situ Characterization Techniques
Yasuhiro Iwasawa (The University of Tokyo)

10:10-10:25 Coffee Break

10:25-12:05 5 Orals (20min/talk including Q&A)

Chairpersons: Jong Rack Sohn (Kyungpook National University)
Hiromi Matsushashi (Hokkaido University of Education)

10:25-10:45

OL-1 Synthesis of SO₃H-functionalized Hybrid Mesoporous Solid Acid Catalyst
Kiyotaka Nakajima, Ikuyoshi Tomita, Michikazu Hara, Shigenobu Hayashi, Kazunari Domen, and Junko N. Kondo (Tokyo Institute of Technology, National Institute of Advanced Industrial Science and Technology, The University of Tokyo, New Energy and Industrial Technology Development Organization of Japan)

10:45-11:05

OL-2 Synthesis of Cobalt Containing Heteropolyoxometalate-Pillared Hydrotalcite and its Catalysis for Liquid-Phase Oxidation of Cyclohexanol with Molecular Oxygen
Suman K. Jana, Yoshihiro Kubota and Takashi Tatsumi (Yokohama National University)

11:05-11:25

OL-3 Combinatorial Investigation of Pt-Ru-M as Anode Electrocatalyst for Direct Methanol Fuel Cell
Yong-Gun Shul, Young-Hwan Chu, Sang-Won Ahn and Haksoo Han (Yonsei University)

11:25-11:45

OL-4 Hydrogenation of Olefin over Phenylsilane-Modified Alumina Catalyst

Yuzo Imizu, Gaku Sato, Akiyasu Sasano, Shinya Akiyama, Takeshi Sugii, and Hirofumi Yamada (Kitami Institute of Technology)

11:45-12:05

OL-5 The Hydrophilicities of Metal-Incorporated TiO₂ Nanometer-Sized Particles and their Catalytic Performances for Toluene Photo-Decomposition with H₂O Addition

Misook Kang and Suk-Jin Choung (Industrial Liaison Research Institute, Kyung Hee University)

12:05-13:30 Lunch

13:30-15:10 5 Orals (20min/talk including Q&A)

Chairpersons: Masaharu Komiyama (Yamanashi University)
Yong-Gun Shul (Yonsei University)

13:30-13:50

OL-6 Strategic Development of Nanocomposite Photocatalysts Working under Visible Light Irradiation

Jae Sung Lee, Hyun Kyu Kim, Jum Suk Jang, Sang Won Bae, Sang Min Ji (Pohang University of Science and Technology)

13:50-14:10

OL-7 Photocatalytic Splitting of Water on the Visible Light-Responsive TiO₂ Thin Film Photocatalysts Prepared by Magnetron Sputtering Deposition Method

Masaya Matsuoka, Masaaki Kitano, Masato Takeuchi, Masakazu Anpo, and Sir John Meurig Thomas (Osaka Prefecture University, University of Cambridge)

14:10-14:30

OL-8 Surface Platinization and Surface Fluorination of TiO₂ as a Mean of Modifying Photocatalytic Reactivities

Wonyong Choi, Jaesang Lee, and Hyunwoong Park (Pohang University of Science & Technology)

14:30-14:50

OL-9 Surface-Nitrogen Removal in NO and N₂O Reduction on Pd(110); Angular Distribution Studies of Desorbing Products

Tatsuo Matsushima and Yunsheng Ma (Hokkaido University)

14:50-15:10

OL-10 Surface Photochemical Reactions Observed by Scanning Probe Microscopes

Hiroshi Onishi (Kobe University)

15:10-15:25 Coffee Break

15:25-17:05 5 Orals (20min/talk including Q&A)

Chairpersons: Jae Sung Lee (Pohang University of Science and Technology)
 Nobuyuki Ichikuni (Chiba University)

15:25-15:45

OL-11 Preparation and Characterization of Nano-structured TiO₂ using Ionic Liquid-Assisted Sol-Gel Method

Kye Sang Yoo, Dong Ju Moon, Eun Hyun Choi, Sang Deuk Lee and Byoung Sung Ahn (Korea Institute of Science & Technology)

15:45-16:05

OL-12 Shape Selective Adsorption Property of Molecular Sieving Silica Overlayer Prepared by Chemical Vapor Deposition Method using Organic Template on Tin Oxide

Naonobu Katada, Shohei Yamakita and Miki Niwa (Tottori University, PRESTO, Japan Science and Technology Agency)

16:05-16:25

OL-13 Nanocrystalline Mo-Co Thin Films: Low-Temperature Electrodeposition and their Catalytic Activities

Habib M Pathan, Sun-ki Min, Kwang-Deog Jung and Oh-Shim Joo (Korea Institute of Science and Technology)

16:25-16:45

OL-14 The CO-H₂ and CO-H₂O Reactions over TiO₂ Nanotubes Filled with Pt Metal Nanoparticles

Shuichi Naito, Makiko Koizumi, Yasushi Sato, and Toshihiro Miyao (Kanagawa University)

16:45-17:05

OL-15 Catalysis by Novel Ni-Containing Open Framework Materials

Sang-Eon Park (Inha University)

17:10-18:40 Poster Session (GP1)

The 10th Japan-Korea Symposium on Catalysis
Program for the General Oral Session (May 12th , Thursday)

8:30- 9:00	Registration
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9:00- 9:50	Plenary Lecture (50min/talk including Q&A)
Chairperson:	Seong Ihl Woo (Korea Advanced Institute of Science and Technology)

PL-2 Correlation between Acidic Properties of Solid Acid Catalysts and Catalytic Activities for Acid Catalysis
Jong Rack Sohn (Kyungpook National University)

9:50-10:30 2 Orals (20min/talk including Q&A)

Chairpersons: Masatoshi Nagai (Tokyo University of Agriculture and Technology)
Wonyong Choi (Pohang University of Science and Technology)

9:50-10:10

OL-16 Ultra Deep HDS over Silica-Alumina Supported Sulfide Catalysts
Isao Mochida, Naoyuki Kunisada, Ki-Hyouk Choi, Koji Nakano (Kyushu University, Saudi Aramco, Catalyst and Chemicals Ind. Co., Ltd.)

10:10-10:30

OL-17 Performance of Sonochemically Synthesized MoS₂ Catalysts Supported on Mesoporous Carbon in the Deep Hydrodesulfurization of Dibenzothiophenes
Jae Hyun Koh, Jung Joon Lee, Heeyeon Kim, Ara Jo, and Sang Heup Moon (Seoul National University)

10:30-10:45 Coffee Break

10:45-11:45 3 Orals (20min/talk including Q&A)

Chairpersons: Sang Heup Moon (Seoul National University)
Atsushi Satsuma (Nagoya University)

10:45-11:05

OL-18 The Effect of Sulfur Treatment on Ag/Al₂O₃ Catalyst for the Selective Catalytic Reduction of NO_x
Jin S. Yoo, Myoung-Jin Kha, Seung-Jae Lee, Jihn-Koo Lee, Du-Soung Kim (Kocat Inc.)

11:05-11:25

OL-19 Effect of Promoters including Tungsten and Barium on the Thermal Stability of V₂O₅/sulfated TiO₂ Catalyst for NO Reduction by NH₃

Jin Woo Choung, In-Sik Nam, Sung-Won Ham, and Jeong-Bin Lee (Pohang University of Science and Technology, Kyungil University, Korea Electric Power Research Institute)

11:25-11:45

OL-20 Development of Multi-Component DeNO_x Catalyst by Newly Constructed Combinatorial Evaluation System, SUPER-I

Kwang Seok Oh, Seong Ihl Woo (Korea Advanced Institute of Science and Technology)

11:45-13:10 Lunch

13:10-14:40 Poster Session (GP2)

14:40-17:10 5 Invited Lectures from industry (30min/talk including Q&A)

Chairpersons: Tsuyoshi Kugita (Teikyo University of Science and Technology)
Jin S. Yoo (Kocat.)

14:40-15:10

IL-1 The Development and Industrialization of the Vapor Phase Beckmann Rearrangement Process for the Production of ε-Caprolactam

Keisuke Sugita (Sumitomo Chemical Co., Ltd.)

15:10-15:40

IL-2 Preparation of Mo-V-Te-Nb-O Catalysts with Acidic Additives

Won H. Lee, Kyong Y. Cha, and Jin D. Kim (LG Chemicals Inc.)

15:40-16:10

IL-3 Development of Ultra Deep HDS Catalyst for Production of Clean Diesel Fuels

Takashi Fujikawa, Hiroshi Kimura, Kazuyuki Kiriya, and Kazuhiko Hagiwara (COSMO Oil Co., Ltd.)

16:10-16:40

IL-4 BTX Production by Upgrading of Hydrocarbons over Metal Promoted Zeolite Catalysts

Seung Hoon Oh, Sang Il Lee, Kyeong Hak Seong, Jong Hyung Lee, and Sang Hoon Park (SK Corporation)

16:40-17:10

IL-5 Beta Zeolite as a Selective Catalyst for Hydroxylation of Aromatics

Takashi Atoguchi, Tomonori Kanougi, Harunori Fujita (UBE Industries, LTD.)

17:10-17:25 Coffee Break

17:25-18:45 4 Orals (20min/talk including Q&A)

Chairpersons: Won H. Lee (LG Chem. Co.)
 Kazuhisa Murata (National Institute of Advanced Industrial Science and Technology)

17:25-17:45

OL-21 Advanced Catalysts for Fine Chemical
 Takashiro Muroi (N. E. Chemcat Corp.)

17:45-18:05

OL-22 Selective Catalytic Oxidation of Carbon Monoxide with Carbon Dioxide, Water Vapor and Excess Hydrogen on CuO-CeO₂ Mixed Oxide Catalysts
 Chul Min Bae, Jung Bong Ko, You Shick Jung, Dong Hyun Kim (Kyungpook National University)

18:05-18:25

OL-23 Formation of Methyl Methacrylate from Methyl Propionate and Methanol
 Mamoru Ai (Niigata Institute of Technology)

18:25-18:45

OL-24 Friedel-Crafts Reactions over Mesoporous Silica Materials
 Haruro Ishitani, Hiroyoshi Naito, Atsushi Okita and Masakazu Iwamoto (Tokyo Institute of Technology)

18:45-18:50 Closing Remarks

19:30-21:00 Banquet (Matsue Tokyu Inn Hotel)

Young Scientists Poster Presentations (May 10th, YP)

- P-1** An Enhanced N₂-Adsorption Capability of Copper Ion-Exchanged ZSM-5 Zeolite: Effect of Addition of Acetic Compound to the Exchange Solution
Masashi Tanaka, Atsushi Itadani, Yasushige Kuroda, and Mahiko Nagao (Okayama University)
- P-4** NO_x Adsorption Properties of Inorganic Porous Materials in the Presence of Water Vapor and SO₂
K. Ito, S. Kakino, K. Ikeue and M. Machida (Kumamoto University)
- P-5** Catalytic Property of Pt-M/Mg-Al-O (M=Mo and W) for Low Temperature NO-H₂-O₂ Reactions
S. Hamada, K. Ikeue and M. Machida (Kumamoto University)
- P-6** Selective Catalytic Reduction of NO_x with Propene over Double Wash-coated Monolith Catalysts
Chan-Soon Kang, Young-Jae You, Ki-Joong Kim, Ho-Geun Ahn (Sunchon National University)
- P-9** Simultaneous Abatement of NO and Aromatic Hydrocarbons at Low Temperature over Pd Supported Catalyst
Ryosuke Yoshimoto, Takashi Ninomiya, Kazu Okumura, Miki Niwa (Tottori University)
- P-10** Adsorption-Desorption Characteristics of VOCs over Impregnated Activated Carbon
Ho-Geun Ahn, Ki-Joong Kim, Chan-Soon Kang, Young-Jae You, Min-Chul Chung, Myung-Wu Woo and Woon-Jo Jeong (Sunchon National University, Chosun College Science & Technology)
- P-11** Selective Adsorption of Hydrocarbons onto Fibrous Nanostructured Materials
Kwang-Min Choi, Jeong-Boon Koo and Sang-Eon Park (Inha University)
- P-15** Abatement of Diesel Particulate Matters (PM) over Potassium Dtitanate (K₂Ti₂O₅) Catalyst
Ji Hyang Son, Kyung Shik Yang and Jong Shik Chung (Pohang University of Science and Technology)
- P-16** Effect of Zn-Modification on the Catalytic Activity of γ -Ga₂O₃-Al₂O₃ for the NO Reduction with Methane
Masaru Takahashi, Tetsu Nakatani, Shinji Iwamoto, Tsunenori Watanabe, and Masashi Inoue (Kyoto University, The Kansai Electric Power Company, Inc.)

P-17 Catalytic Decomposition of Nitrogen Trifluoride

Yutaka Hirose, Hiroyasu Nishiguchi, Katsutoshi Nagaoka, Yusaku Takita (Oita University)

P-19 Efficient TiO₂ Photocatalyst for Photoassisted Selective Catalytic Reduction of NO with NH₃

Seiji Yamazoe, Kentaro Teramura, and Tsunehiro Tanaka (Kyoto University)

P-20 Selective Oxidation of Hydrogen Sulfide Containing Excess Water and Ammonia over Vanadia-Titania Aerogel Catalysts

M. I. Kim, D. W. Park, S. W. Park, I. Kim, X. Yang, and D. J. Suh (Pusan National University, Korea Institute of Science and Technology)

P-22 Oxidative Dehydrogenation of Methanol over a Ru-Containing Polyoxomolybdate Supported on Metal Oxides Chemically Modified with Silane Coupling Agent

Tomohiro Oonaka, Keiji Hashimoto, Yoshio Matsubara, Hiroshi Kominami, and Yoshiya Kera (Kinki University)

P-23 Partial Oxidation of Ethane to Synthesis Gas over Co-Loaded Catalysts

Na-oyoshi Iwasaki, Na-oki Ikenaga, Takanori Miyake, and Toshimitsu Suzuki (Kansai University)

P-24 Ozone Decomposition on MnO₂-loaded TiO₂ Catalysts

Sang-Min Lee, Hak Su Han, H.S. Kim, Yo Soon Song and Yong-Gun Shul (Yonsei University)

P-26 CO Oxidation over Au/ γ -Al₂O₃

Eun Duck Park, Eun-Yong Ko, and Kyung Won Seo (Ajou University)

P-27 Phosphovanadomolybdate/Fluorapatite Solid-Phase System for Aerobic Oxidative Dehydrogenation

Katsuma Iteya, Yoh Sasaki, Seishiro Itoh, and Junko Ichihara (Kinki University, Osaka University)

P-29 Doping Effect of Precious Metal on the Activity of CuO-CeO₂ Catalyst for Selective Oxidation of CO

Chang Ryul Jung, Kyung Yeol Kim, Jonghee Han, Suk-Woo Nam, Tae-Hoon Lim, Seong-Ahn Hong, and Ho-In Lee (Seoul National University, Korea Institute of Science and Technology)

P-32 Iron-Based Nano Catalysts for Oxidation of *o*-Dichlorobenzene

Jinseong Choi, Kyung Shik Yang, Buho Kwak and Jong Shik Chung (Pohang University of Science and Technology)

- P-35** Solvent-Free H₂O₂-Epoxidation in Tungstate/Hydrotalcite Solid-Phase System
Shunsaku Hoshi, Yoh Sasaki, Shunro Yamaguchi, Tsutomu Nosu and Junko Ichihara
(Kinki University, Osaka University, Kyowa Chemical Industry Co.)
- P-36** Catalytic Oxidation of Olefins over Co(Cyclam) Functionalized SBA-materials with H₂O₂
Sujandi, Sang-Cheol Han, Young-Hoon Lee, and Sang-Eon Park (Inha University)
- P-37** Epoxidation of Cyclohexene with Aqueous Hydrogen Peroxide over Nanoporous Nickel Phosphate VSB-5
Jin Ho Lee, Sung Hwa Jhung, Anothony K. Cheetham, Jong-San Chang (Korea Research Institute of Chemical Technology, University of California Santa Barbar)
- P-38** High Efficiency of Hydrogen Peroxide in Fluorapatite Solid-Phase Epoxidation System
Kenji Sato, Yoh Sasaki, and Junko Ichihara (Kinki University, Osaka University)
- P-39** Dehydrogenation of Ethylbenzene with Carbon Dioxide over MgO Doped V-Sb-Al-O Catalysts
Do-Young Hong, Jong-San Chang, Ji-Hye Lee, Vladislav P. Vislovskiy, Sung Hwa Jhung, Sang-Eon Park, and Yeung-Ho Park (Korea Research Institute of Chemical Technology, Hanyang University, Inha University)
- P-43** Acid-Catalyzed Reactions using Sulfonated Amorphous Carbon Materials (Carbon-Based Solid Acids)
Atsushi Takagaki, Mai Okamura, Masakazu Toda, Junko N. Kondo, Kazunari Domen, Shigenobu Hayashi, Michikazu Hara (Tokyo Institute of Technology, The University of Tokyo, National Institute of Advanced Industrial Science and Technology)
- P-44** The Nature of Active Sites on Zirconium Oxide Modified with Phenylsilane
Akiyasu Sasano, Manami Kawamura, Gaku Sato, Hirofumi Yamada, and Yuzo Imizu (Kitami Institute of Technology)
- P-46** Support Modification of Pt/C Catalyst for PEMFC by Surface Oxidation
Dong Baek Kim, Heock-Hoi Kwon and Ho-In Lee (Seoul National University, Soongsil University)
- P-47** Solvothermal Synthesis of Gallium Oxide
Sung-Wook Kim, Shinji Iwamoto, Masashi Inoue (Kyoto University)
- P-51** Design of SiO₂-Supported Cu-BOX Complexes and their Enantioselectivity for Asymmetric Diels-Alder Reaction
Satoka Tanaka, Mizuki Tada, and Yasuhiro Iwasawa (The University of Tokyo)
- P-53** Ru Doped SnO₂ Thin Films: Synthesis and Gas Sensing Properties
Hye-Kyung Kim, Young Kyu Hwang, S. D. Sathaye, and Jong-San Chang (Korea

Research Institute of Chemical Technology)

- P-57** Ni-based Catalyst for Steam Reforming of LPG in Hydrogen Station and Fuel Processor Systems
Dae Hyun Kim, Dong Ju Moon, Kye Sang Yoo, Byung Gwon Lee, Young-Seek Yoon, Byong-Sung Kwak and Suk In Hong (Korea Institute of Science & Technology, SK Corporation, Korea University)
- P-58** Development of Water Gas Shift Catalyst for Fuel Processor and Hydrogen Station
Jong Woo Ryu, Dong Ju Moon, Mi Hyun Heo, Byung Gwon Lee and Suk In Hong (Korea Institute of Science & Technology, Korea University)
- P-59** A Novel Catalyst Fabricated from Al-Cu-Fe Quasicrystal for Steam Reforming of Methanol
Toyokazu Tanabe, Satoshi Kameoka and An Pang Tsai (Tohoku University)
- P-60** MgO Supported Transition Metal Catalysts for Autothermal Reforming of n-Butane
Katsutoshi Sato, Katsutoshi Nagaoka, Hiroyasu Nishiguchi, Yusaku Takita (Oita University)
- P-64** Preparation of Platinum Nanoparticles using Surfactant for Anode Catalyst in the Low-Temperature Fuel Cell
Dong-Ha Lim, Jae-Sik Choi, Dong-Baek Kim, Yeon-Su Kim, Dal-Ryung Park, and Ho-In Lee (Seoul National University, KOGAS R&D Center)
- P-65** Electrocatalytic Activity of $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ ($x=0.2-0.8$) Nanocubes for Oxygen Reduction
Upendra A. Joshi, Jae Sung Lee (Pohang University of Science and Technology)
- P-67** Operation Time Dependence of Pt and PtRu Black Catalysts for Direct Methanol Fuel Cell
Min Ku Jeon, Jing Hua Liu, Shuang Li, Won Choon Choi and Seong Ihl Woo (Korea Advanced Institute of Science and Technology, Korea Research Institute of Chemical Technology)
- P-68** Discovery of New Types of Proton Conductors for Electro-Oxidation of Methanol
Sang-Won Ahn, Hyun-Jong Kim, Haksoo Han and Yong-Gun Shul (Yonsei University)
- P-70** Development of Micro Fuel Cell Based on PCB (Printed-Circuit Board)
Seung-Wan Kim, Hyun-Jong Kim, Yong-Gun Shul and Hak-Su Han (Yonsei University)
- P-72** Photocatalytic Property and Electronic Structure of Layered Perovskites,
 $\text{A}'\text{A}_{n-1}\text{B}_n\text{O}_{3n+1}$ ($\text{A}'=\text{H, Na, Rb, Cs}$, $\text{A}=\text{La, Ca, Sr}$, $\text{B}=\text{Nb, Ta}$)
Tomohiro Mitsuyama, Keita Ikeue, Shigenori Matsushima, Masato Machida

(Kumamoto University, Kitakyushu National College of Technology)

- P-73** Effect of Alkali Ion Addition to Silica-Supported Vanadium Oxide on the Selective Photocatalytic Oxidation of Propylene

Fumiaki Amano, Tsuyoshi Yamaguchi, and Tsunehiro Tanaka (Kyoto University)

- P-76** Photocatalysis and Photo-Induced Super-Hydrophilic Property on Transparent Ti-Containing Mesoporous Silica Thin Films

Shinichiro Nishio, Takashi Tanaka, Hiromi Tada, Norikazu Nishiyama, Hidetoshi Fujii, Iwao Katayama, Hiromi Yamashita (Osaka University)

- P-81** The Selective Elimination of CO in H₂ using Mo-oxide Photocatalysts Highly Dispersed on SiO₂

R. Takeuchi, T. Kamegawa, M. Matsuoka and M. Anpo (Osaka Prefecture University)

- P-82** GaN:ZnO Solid Solution as a Photocatalyst for Visible-Light-Driven Overall Water Splitting

Kazuhiko Maeda, Nobuo Saito, Tsuyoshi Takata, Junko N. Kondo, Michikazu Hara, Hisayoshi Kobayashi, Yasunobu Inoue, Kazunari Domen (The University of Tokyo, Nagaoka University of Technology, Tokyo Institute of Technology, Kurashiki University of Science and the Arts, Japan Science and Technology co.)

- P-83** Effects of Salinity on Photocatalytic Dye Decomposition in Seawater

Makoto Makita and Akira Harata (Kyushu University)

- P-84** Characterization of RuO₂ co-Catalyst Supported on (Ga_{1-x}Zn_x)(N_{1-x}O_x) Photocatalyst

Kentaro Teramura, Kazuhiko Maeda, Takafumi Saito, Tsuyoshi Takata, Michikazu Hara, Yasunobu Inoue and Kazunari Domen (The University of Tokyo, Tokyo Institute of Technology, Nagaoka University of Technology, Japan Science and Technology Agency)

- P-89** Catalytic Performance of Noble Metals Supported on Alumina-modified MCM-41 for Thiophene Hydrodesulfurization

Y. Kanda, T. Kobayashi, Y. Uemichi, S. Namba and M. Sugioka (Muroran Institute of Technology, Teikyo University of Science and Technology)

- P-90** Intrinsic Catalytic Activity of SiO₂-supported Co-Mo and Co-W Sulfide Catalysts for the Hydrodesulfurization of Thiophene

Akira Kato, Usman, Kenji Sato, Takeshi Kubota, and Yasuaki Okamoto (Shimane University)

- P-91** Performance of a Sonochemically Synthesized MoS₂ Catalyst Supported on Mesoporous Carbon in the Deep Hydrodesulfurization of Dibenzothiophenes

Jae Hyun Koh, Jung Joon Lee, Heeyeon Kim, Ara Jo, and Sang Heup Moon (Seoul National University)

P-92 Evaluation of a Relative Edge Dispersion of Supported MoS₂ and WS₂ Catalysts by Using Co(CO)₃NO as a Probe Molecule

Kenji Sato, Akira Kato, Usman, Takeshi Kubota, and Yasuaki Okamoto (Shimane University)

P-93 Characterization of Molybdenum Nitride and Sulfide Catalysts Encaged in Cation Exchanged Zeolite

Takeshi Kadono, Hironori Chatani, Takeshi Kubota, Yasuaki Okamoto (Shimane University)

P-103 Preparation and Characterization of Heteropolyacid/Mesoporous Carbon Catalyst for the Vapor-Phase Alcohol Conversion Reaction

Heesoo Kim, Pil Kim, Kwan-Young Lee, Sung Ho Yeom, Jongheop Yi, and In Kyu Song (Seoul National University, Korea University, Kangnung National University)

P-104 PtSn Encapsulated Mesoporous Silica for Selective Dehydrogenation of n-Dodecane

Deok-Kyu Kim, Young Kyu Hwang, Jong-San Chang, Sung Hwa Jung, and Sang-Eon Park (Korea Research Institute of Chemical Technology, Inha University)

P-112 The Preparation of Unique Inorganic-Organic Hybrid Mesoporous Materials Incorporating a Cr- π Arene Complex and Their Catalytic Activities

Takashi Kamegawa, Takahiro Sakai, Masaya Matsuoka, and Masakazu Anpo (Osaka Prefecture University)

P-113 Synthesis of Mesoporous Materials with Pore Walls of Zeolytically ordered Structure

Kyung Yeol Kim, Suk-Woo Nam, Jonghee Han, Tae-Hoon Lim, Seong-Ahn Hong, and Ho-In Lee (Seoul National University, Korea Institute of Science and Technology)

P-114 Preparation of Mesoporous Carbon Templated by Silica Particle for Use as a Catalyst Support of Polymer Electrolyte Membrane Fuel Cell

Ji Bong Joo, Pil Kim, Wooyoung Kim, Jongsik Kim and Jongheop Yi (Seoul National University)

P-115 Template-Free Synthesis of the Nanoporous Nickel Phosphate VSB-5 under Microwave Irradiation

Ji Woong Yoon, Sung Hwa Jung, Anthony K. Cheetham and Jong-San Chang (Korea Research Institute of Chemical Technology, University of California)

P-128 Pd-Catalyzed Asymmetric Allylic Substitution with Immobilized Chiral Phosphine

Ligands

Myung-Jong Jin, Ik Hyun Kwon, Dae Soo Han, Young Hun Lee, Sang-Eon Park
(Inha University)

P-129 Asymmetric Transformation of Aromatic Aldehydes and Ketones over Optically Active Norephedrine and Ephedrine Immobilized SBA-15 Catalysts

Myung-Jong Jin, Ik Hyun Kwon, Sang Chul Han, Dae Soo Han, Sang-Eon Park (Inha University)

P-131 Effect of Ligand in Copolymerization of Ethylene with 1,1-Dibstituted- α -olefins Catalyzed by Half-Titanocenes Containing Aryloxo Ligands

Koji Itagaki, Michiya Fujiki, and Kotohiro Nomura (Nara Institute of Science and Technology)

P-132 Catalytic Dehydration of Alcohols over Ni-SIPA Materials

Kwang Min Choi, Jong Hak Lee, and Sang-Eon Park (Inha University)

P-133 Performance of a Microchannel Reactor Combined with Combustor for Methanol Steam Reforming

Jung Yeon Won, Hee Kwon Jun, Min Ku Jeon, Seong Ihl Woo (Korea Advanced Institute of Science and Technology)

P-144 Visible Light Induced Photo-Decomposition of Formic Acid on Rutile $\text{TiO}_2(001)$ Studied by STM

H. Ariga, T. Taniike, H. Morikawa, M. Tada and Y. Iwasawa (The University of Tokyo)

P-145 Infrared Chemiluminescence Study of $\text{CO}+\text{O}_2$ Reaction on Pd Surfaces: Activated Complex of CO_2 Formation with High CO Coverage

Kenji Nakao, Shin-Ichi Ito, Keiichi Tomishige and Kimio Kunimori (University of Tsukuba)

P-146 Defect Promoting Catalytic Decomposition Reaction of formic acid on $\text{TiO}_2(110)$ studied by STM

Masaki Aizawa, Yoshitada Morikawa, Harumo Morikawa, and Yasuhiro Iwasawa
(The University of Tokyo, Osaka University)

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- P-3** Direct Decomposition of Nitric Oxide on Barium Catalysts Supported on Various Metal Oxides
Shinji Iwamoto, Ryosuke Takahashi, Masashi Inoue (Kyoto University)
- P-7** Selective Catalytic Reduction of Lean NO_x with Propylene over Platinum Catalysts Supported on Mesoporous Silicates
Kwang-Eun Jeong, Joo-Il Park and Son-Ki Ihm (Korea Advanced Institute of Science and Technology)
- P-11** Selective Adsorption of Hydrocarbons onto Fibrous Nanostructured Materials
Kwang-Min Choi, Jeong-Boon Koo and Sang-Eon Park (Inha University)
- P-13** CO₂ Absorption and Regeneration of Alkali Metal Based Solid Sorbents
Soo Chool Lee, Bo Yun Choi, Young Soo Ahn, Chong Kul Ryu, and Jae Chang Kim (Kyungpook National University, Korea Institute of Energy Research, Korea Electric Power Research Institute)
- P-15** Abatement of Diesel Particulate Matters (PM) over Potassium Ditungstate (K₂Ti₂O₅) Catalyst
Ji Hyang Son, Kyung Shik Yang and Jong Shik Chung (Pohang University of Science and Technology)
- P-21** Development of Air Purification Devices through Application of Thin-Film Photocatalyst
Jong-Ho Kim, Gon Seo, Dong-Lyun Cho, Byung-Chul Choi, Jong-Beom Kim, Hee-Ju Park, Myung-Wan Kim, Geon-Joong Kim and Shigekazu Kato (Chonnam National University, Photo & Environmental Technology Co. Ltd., Inha University, Photocatalytic Materials Inc.)
- P-25** Active and Reusable Catalyst in the Benzylation of Anisole Derived from a Heteropoly Acid
Kazu Okumura, Katsuhiko Yamashita, Miho Hirano and Miki Niwa (Tottori University)
- P-29** Doping Effect of Precious Metal on the Activity of CuO-CeO₂ Catalyst for Selective Oxidation of CO

Chang Ryul Jung, Kyung Yeol Kim, Jonghee Han, Suk-Woo Nam, Tae-Hoon Lim, Seong-Ahn Hong, and Ho-In Lee (Seoul National University, Korea Institute of Science and Technology)

P-31 Quick XAFS Studies on the Y-Type Zeolite Supported Au Catalysts for CO-O₂ Reaction

Kazuo Kato, Kazu Okumura, Katsuhiko Yoshino and Miki Niwa (Tottori University)

P-33 CO Concentration Dependence in CO Oxidation over Gold Catalysts and Application of the Catalysts for Indoor Air Purification

Hiroaki Sakurai, Susumu Tsubota, Masato Kiuchi, and Masatake Haruta (National Institute of Advanced Industrial Science and Technology)

P-37 Epoxidation of Cyclohexene with Aqueous Hydrogen Peroxide over Nanoporous Nickel Phosphate VSB-5

Jin Ho Lee, Sung Hwa Jhung, Anothony K. Cheetham, Jong-San Chang (Korea Research Institute of Chemical Technology, University of California Santa Barbar)

P-39 Dehydrogenation of Ethylbenzene with Carbon Dioxide over MgO Doped V-Sb-Al-O Catalysts

Do-Young Hong, Jong-San Chang, Ji-Hye Lee, Vladislav P. Vislovskiy, Sung Hwa Jhung, Sang-Eon Park, and Yeung-Ho Park (Korea Research Institute of Chemical Technology, Hanyang University, Inha University)

P-41 Effect of Pore Structure on Catalyst Deactivation in Vapor Phase Beckmann Rearrangement

Takeshige Takahashi, Mayumi Nakanishi, and Takami Kai (Kagoshima University)

P-45 Reaction Kinetics of Carbon Dioxide with Glycidyl Methacrylate using Aliquat 336 as a Catalyst

Sang-Wook Park, Mi-Young Park, Byoung-Sik Choi, Dae-Won Park, and Seong-Soo Kim (Pusan National University, Catholic University of Pusan)

P-49 Preparation of Copper Catalysts with High Thermal Stability and Activity by the Immiscible Interaction between Copper and Iron or Chromium

Satoshi Kameoka, Mika Okada and An Pang Tsai (Tohoku University)

P-53 Ru Doped SnO₂ Thin Films: Synthesis and Gas Sensing Properties

Hye-Kyung Kim, Young Kyu Hwang, S. D. Sathaye, and Jong-San Chang (Korea

Research Institute of Chemical Technology)

P-55 Analysis of Factors Controlling Catalytic Activity by Neural Network

Tadashi Hattori and Shigeharu Kito (Aichi Institute Of Technology)

P-57 Ni-based Catalyst for Steam Reforming of LPG in Hydrogen Station and Fuel Processor Systems

Dae Hyun Kim, Dong Ju Moon, Kye Sang Yoo, Byung Gwon Lee, Young-Seek Yoon, Byong-Sung Kwak and Suk In Hong (Korea Institute of Science & Technology, SK Corporation, Korea University)

P-61 In-Situ XAFS Analysis of Pd-Pt Catalysts during Hydrotreatment of Model Oil

Kyoko K. Bando, Toshihide Kawai, Kiyotaka Asakura, Takashi Matsui, Yuji Yoshimura and S. Ted Oyama (National Institute of Advanced Industrial Science and Technology, Japan Atomic Energy Research Institute, Hokkaido University, Virginia Polytechnic Institute and State University)

P-63 XAFS Study on Mesoporous Silica Anchored Mo Photo-Catalysts for a 1-Butene Metathesis Reaction

Nobuyuki Ichikuni, Toru Fujikawa, Kyoko K. Bando, Shogo Shimazu and Takayoshi Uematsu (Chiba University, National Institute of Advanced Industrial Science and Technology)

P-65 Electrocatalytic Activity of $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ ($x=0.2-0.8$) Nanocubes for Oxygen Reduction

Upendra A. Joshi, Jae Sung Lee (Pohang University of Science and Technology)

P-67 Operation Time Dependence of Pt and PtRu Black Catalysts for Direct Methanol Fuel Cell

Min Ku Jeon, Jing Hua Liu, Shuang Li, Won Choon Choi and Seong Ihl Woo (Korea Advanced Institute of Science and Technology, Korea Research Institute of Chemical Technology)

P-69 Internal Reforming of CO_2 by CH_4 over Electrolyte Supported Cell of SOFC System

Dong Ju Moon, Jong Min Park, Jung Shik Kang, Honggon Kim, Suk Woo Nam and Tae Yoon Kim (Korea Institute of Science and Technology, University of Pennsylvania)

P-71 Development of Tri-Reforming Catalyst for Fuel Processor of SOFC and MCFC Systems

Dong Ju Moon, Jung Shik Kang, Dae Hyun Kim, Sang Deuk Lee and Byoung Sung

Ahn (Korea Institute of Science & Technology)

P-75 Endowment of Visible-Light Responsiveness onto the Tubular TiO₂ Sample

Toshinori Mori, Yuka Morishita, Yasushige Kuroda, Yuzo Yoshikawa, Mahiko Nagao, and Shigeharu Kittaka (Okayama University)

P-77 Preparation of TiO₂ having Nano-Size Channel via Esterification and its Photocatalytic Oxidation

Song-Taek Oh, Heock-Hoi Kwon, and Ho-In Lee (Seoul National University, Soongsil University)

P-79 Electron Transfer Mediating Behaviors of Polyoxometalate in UV-Illuminated Suspensions of TiO₂ and Pt/TiO₂

Hyunwoong Park and Wonyong Choi (Pohang University of Science & Technology)

P-85 NiMo/TiO₂-Al₂O₃ Catalysts for the Ultra Deep Hydrodesulfurization

Kohichi Segawa, Masato Nagata, Youssef Saih, and Takako Funamoto (Sophia University)

P-87 CVD Preparation of Ni-Promoted Tungsten Nitride Catalyst and its Activity for Thiophene HDS

Masatoshi Nagai, Masahiro Fujioka, and Shinzo Omi (Tokyo University of Agriculture and Technology)

P-95 Liquid-phase Degradation of HDPE over Alkali-treated MFI Zeolites

Dong-Ho Choi, Jong-Ho Kim, and Gon Seo (Chonnam National University)

P-97 Dehydroisomerization of Butane into Isobutene over Platinum-Loaded MFI-Type Ferrisilicate Catalysts

Hideo Nagata, Haruki Mori and Masahiro Kishida (Sasebo National College of Technology, Kyushu University)

P-99 A Green Process for Synthesis of 2,2-Dimethylpropanoic Acid: Vapor Phase Koch-Type Carbonylation of *tert*-Butyl Alcohol over H-Zeolites

Tao Li, Nobuko Tsumori, Yoshie Souma, and Qiang Xu (National Institute of Advanced Industrial Science and Technology)

P-101 Rapid Synthesis of (Na, H) ZSM-5 using Continuous Crystallization Microwave Equipment

Taihuan Jin, Young Kyu Hwang, Sung Hwa Jhung, Jong-San Chang, Jin-Soo Hwang, Sang-Eon Park (Korea Research Institute of Chemical Technology, Department of Chemistry of Inha University)

P-103 Preparation and Characterization of Heteropolyacid/Mesoporous Carbon Catalyst for the Vapor-Phase Alcohol Conversion Reaction

Heesoo Kim, Pil Kim, Kwan-Young Lee, Sung Ho Yeom, Jongheop Yi, and In Kyu Song (Seoul National University, Korea University, Kangnung National University)

P-105 Conversion of Sugars Catalyzed by Sulfonated Mesoporous Silicas

Pareesh L. Dhepe, Masataka Ohashi, Shinji Inagaki, Masaru Ichikawa and Atsushi Fukuoka (Japan Science and Technology Agency, Toyota Central R&D Labs. Inc., Hokkaido University)

P-107 Acceleration of Base-Catalyzed Aldol Reaction by Ordered Porous Silicate

Yoshihiro Kubota, Takashi Yamada, Shintaro Miyata, Yoshihiro Sugi, and Takashi Tatsumi (Yokohama National University, Gifu University)

P-109 High Concentrated Toluene Decomposition on the Dielectric Barrier Discharge (DBD) Plasma-Photocatalytic Hybrid System with Mn-Ti-Incorporated Mesoporous Silicate Photocatalyst (Mn-Ti-MPS)

Ji-Young Ban, Yeon-Hee Son, Suk-Jin Choung, and Misook Kang (College of Environment and Applied Chemistry, Kyung Hee University)

P-111 Methanol Synthesis over Pd/SiO₂ with Narrow Pd Size Distribution by using MCM-41 as a Support Precursor

Deogseong Lee, Gyu Sung Jung, Hyun Chul Lee, and Jae Sung Lee (Pohang University of Science and Technology)

P-113 Synthesis of Mesoporous Materials with Pore Walls of Zeolytically ordered Structure

Kyung Yeol Kim, Suk-Woo Nam, Jonghee Han, Tae-Hoon Lim, Seong-Ahn Hong, and Ho-In Lee (Seoul National University, Korea Institute of Science and Technology)

P-115 Template-Free Synthesis of the Nanoporous Nickel Phosphate VSB-5 under Microwave Irradiation

Ji Woong Yoon, Sung Hwa Jhung, Anthony K. Cheetham and Jong-San Chang (Korea

Research Institute of Chemical Technology, University of California)

P-117 Synthesis and Characterization of Nano-Scale Tubular Hydrous Oxide Material

Masashi Ookawa, Yoshihiko Inoue, Masako Watanabe, Masaya Suzuki and Tsutomu Yamaguchi (Ehime University, National Institute of Advanced Industrial Science and Technology)

P-119 Aliphatic Polycarbonate Synthesis by Copolymerization of Carbon Dioxide with Epoxides over Double Metal Cyanide Catalyst Prepared by using ZnX_2 (X=F, Cl, Br, I)

Il Kim, Min Ju Yi, Kyoung Ju Lee, Dae-Won Park, Bu Ung Kim, Chang-Sik Ha (Pusan National University)

P-121 Enantioselective Hydrogenation of α , β -unsaturated Carboxylic Acids with Cinchonidine-modified Pd Catalyst

Yuriko Nitta, Junya Watanabe, Takashi Sugimura, and Tadashi Okuyama (University of Hyogo)

P-123 Novel Ni(II)-Based Catalysts for the Polymerization of Ethylene

Gi Wan Son, Bijal K B, Chang-Sik Ha, Il Kim (Pusan National University)

P-125 Synthesis of Organic Hydrogen Storage Materials in Supercritical Carbon Dioxide Solvent

Masayuki Shirai, Norihito Hiyoshi, C.V. Rode, and Osamu Sato (National Institute of Advanced Industrial Science and Technology)

P-127 Hydrolysis behavior of poly(ethylene-2,6-naphthalene dicarboxylate) in subcritical and supercritical water

Osamu Sato, Kunio Arai, Naoko Ishikawa, and Masayuki Shirai (National Institute of Advanced Industrial Science and Technology)

P-129 Asymmetric Transformation of Aromatic Aldehydes and Ketones over Optically Active Norephedrine and Ephedrine Immobilized SBA-15 Catalysts

Myung-Jong Jin, Ik Hyun Kwon, Sang Chul Han, Dae Soo Han, Sang-Eon Park (Inha University)

P-133 Performance of a Microchannel Reactor Combined with Combustor for Methanol Steam Reforming

Jung Yeon Won, Hee Kwon Jun, Min Ku Jeon, Seong Ihl Woo (Korea Advanced Institute of Science and Technology)

P-135 Pure Hydrogen Production by Methane Steam Reforming with Hydrogen Permeable Membrane Reactor

Yasuyuki Matsumura and Jianhua Tong (National Institute of Advanced Industrial Science and Technology, Research Institute of Innovative Technology for the Earth)

P-137 Steam Reforming of Ethanol over Cobalt Catalysts Supported on Various Perovskite-Type Oxides

Kohei Urasaki, Kazuhisa Tokunaga, Yasushi Sekine, Eiichi Kikuchi, and Masahiko Matsukata (Waseda University)

P-139 CO₂-Free Hydrogen Production by Thermocatalytic Decomposition of Propane over Carbon Blacks

Suk Hoon Yoon, Jung Hwa Jung, Gi Bo Han, Jin Hyuk Jun, No-Kuk Park, Jong Dae Lee, Si-Ok Ryu, Tae Jin Lee, Ki June Yoon, Gui Young Han (Yeungnam University, Sung Kyun Kwan University)

P-141 Fischer-Tropsch Synthesis over Co/SiO₂ Catalysts with Bimodal Pore Structure Prepared by the Alkoxide Method

Kiyomi Okabe, Xiaohong Li, Makoto Toba, and Yuji Yoshimura (National Institute of Advanced Industrial Science and Technology)

P-143 Cobalt CVD Process on a Molybdenite Basal Plane observed by Ultra-high Vacuum Scanning Tunneling Microscopy

Masaharu Komiyama, Kohei Kiyohara, Eisuke Yoda, Takeshi Kubota, and Yasuaki Okamoto (Yamanashi University, Shimane University)

P-147 Selective Catalytic Reduction of Nitrogen Oxide with Methanol in Excess Oxygen: Difference in Activity among Commercial Alumina Catalysts

Noriyasu Okazaki, Ran Yokoyama, Seiji Ikemoto, Akio Tada (Kitami Institute of Technology)

P-149 Highly Dispersed H₃PW₁₂O₄₀ Supported on SBA-15 Mesoporous Silica for
(YO-3) Catalytic Dehydration of Acetic Acid

Chang-Soo Woo, Nong-Yue He, and Ho-In Lee (Seoul National University, Zhuzhou Institute of Technology)

P-151 Self Chirality Creation and Catalytic Performance on Surfaces: Chiral Self

(YO-6) Dimerized V-dimer Catalysts on SiO₂ for Highly Enantioselective Oxidative Coupling of 2-Naphthol

Mizuki Tada, Toshiaki Taniike, and Yasuhiro Iwasawa (The University of Tokyo)

P-153 Synthesis of Macrostructured MCM-41 and Application to Lean NO_x SCR

(YO-5) Kwang-Eun Jeong, Joo-Il Park and Son-Ki Ihm (Korea Advanced Institute of Science and Technology)

P-155 Support Effect on Automotive Precious Metal Catalysts: An Accelerated

(YO-10) Quantum Chemical Molecular Dynamics and Density Functional Theory Study

Changho Jung, Hideyuki Tsuboi, Michihisa Koyama, Momoji Kubo, Ewa Broclawik and Akira Miyamoto (Tohoku University, PRESTO, Japan Science and Technology Agency)

P-157 High Temperature Separation of Water/Methanol/Hydrogen Mixtures through

(YO-2) a ZSM-5 Membrane

Kenichi Sawamura, Teruaki Izumi, Yasushi Sekine, Eiichi Kikuchi, Kiminori Sato, Takashi Nakane, Tomoko Watanabe, and Masahiko Matsukata (Waseda University, Bio-nanotech Research Institute, Japan Oil, Gas and Metals National Corporation)

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- P-2** Comparative Studies in the Reduction Properties of Cu Ions in CuZSM-5 Zeolites Prepared by using the Exchange Solutions with Different Types of Counter Ions
Atsushi Itadani, Yasushige Kuroda, Masayuki Sonoyama, and Mahiko Nagao (Okayama University)
- P-6** Selective Catalytic Reduction of NO_x with Propene over Double Wash-coated Monolith Catalysts
Chan-Soon Kang, Young-Jae You, Ki-Joong Kim, Ho-Geun Ahn (Sunchon National University)
- P-8** Oxidation State of Supported-Metal (Ag, Pt, Ir) Species as an Important Factor for the Selective Catalytic Reduction of NO in Hydrogen Containing Atmosphere
Atsushi Satsuma, Junji Shibata, Ken-ichi Shimizu, Hisao Yoshida, and Tadashi Hattori (Nagoya University)
- P-10** Adsorption-Desorption Characteristics of VOCs over Impregnated Activated Carbon
Ho-Geun Ahn, Ki-Joong Kim, Chan-Soon Kang, Young-Jae You, Min-Chul Chung, Myung-Wu Woo and Woon-Jo Jeong (Sunchon National University, Chosun College Science & Technology)
- P-12** The H₂S Removal and Regeneration Properties of Zn-Al Based Sorbents Promoted with Various Promoters
Suk Yong Jung, Soo Jae Lee, Tae Jin Lee, Chong Kul Ryu, and Jae Chang Kim (Kyungpook National University, Yeungnam University, Korea Electric Power Research Institute)
- P-14** Synthesis of Nano-Wire Type ZnO Sorbents for Hot Gas Desulfurization
No-Kuk Park, Gi Bo Han, Jong Dae Lee, Si Ok Ryu, Tae Jin Lee, Won-Chul Chang (Yeungnam University, Pung Nam Semicon Tech. Co.)
- P-18** Cu-Mn Mixed Oxide for Low Temperature NO Reduction with NH₃
Min Kang, Eun Duck Park, Ji Man Kim, and Jae Eui Yie (Ajou University)
- P-20** Selective Oxidation of Hydrogen Sulfide Containing Excess Water and Ammonia over Vanadia-Titania Aerogel Catalysts

M. I. Kim, D. W. Park, S. W. Park, I. Kim, X. Yang, and D. J. Suh (Pusan National University, Korea Institute of Science and Technology)

P-24 Ozone Decomposition on MnO₂-loaded TiO₂ Catalysts

Sang-Min Lee, Hak Su Han, H.S. Kim, Yo Soon Song and Yong-Gun Shul (Yonsei University)

P-26 CO Oxidation over Au/ γ -Al₂O₃

Eun Duck Park, Eun-Yong Ko, and Kyung Won Seo (Ajou University)

P-28 Wet Air Oxidation of Phenol over the CuO_x/Al₂O₃ Catalysts

Sang-Kyung Kim, Kyoung-Hun Kim, and Son-Ki Ihm (Korea Advanced Institute of Science and Engineering)

P-30 Effects of Transition Metals Supported on ZrO₂ on the Synthesis of Phenol by Hydroxylation of Benzene with Oxygen and Acetic Acid on Palladium Catalyst

Kazuhiisa Murata, Liu Yanyong, Megumu Inaba (Institute of Advanced Industrial Science and Technology)

P-32 Iron-Based Nano Catalysts for Oxidation of *o*-Dichlorobenzene

Jinseong Choi, Kyung Shik Yang, Buho Kwak and Jong Shik Chung (Pohang University of Science and Technology)

P-34 Adsorption and Catalytic Deep Oxidation of Toluene over Hydrophobic Zeolite Supported Silver Catalysts

Se-Won Baek, Jeong-Rang Kim and Son-Ki Ihm (Korean Advanced Institute of Science and Technology)

P-36 Catalytic Oxidation of Olefins over Co(Cyclam) Functionalized SBA-materials with H₂O₂

Sujandi, Sang-Cheol Han, Young-Hoon Lee, and Sang-Eon Park (Inha University)

P-40 Study on the Heterogeneous Catalyst System for the Production of Biodiesel from used Vegetable Oils

Young-Moo Park, Hak-Joo Kim, Deog-Keun Kim, Jin-Suck Lee and Kwan-Young Lee (Korea University, Korea Institute of Energy Research)

P-42 Determination of Relative Acid Strength and Acid Amount of Solid Acids by Ar Adsorption

Hiromi Matsuhashi and Ayumi Futamura (Hokkaido University of Education)

- P-46** Support Modification of Pt/C Catalyst for PEMFC by Surface Oxidation
Dong Baek Kim, Heock-Hoi Kwon and Ho-In Lee (Seoul National University, Soongsil University)
- P-48** Reduction of PtRu Catalyst Size by Addition of Non-metallic Elements
Hideo Daimon and Yukiko Kurobe (Hitachi Maxell Ltd.)
- P-50** Preparation of Nano-sized Perovskite Catalysts Supported on Alumina by Incipient Wetness Method
Yasutake Teraoka, Hajime Kusaba, Teruaki Asada, Teppei Kayama, and Kazunari Sasaki (Kyushu University)
- P-52** Aerosol Assisted Process for NiO_x Thin Films using Aqueous Ni Acetate Solutions
J. D. Desai, Sun-Ki Min, Kwang-Deog Jung and Oh-Shim Joo (Korea Institute of Science and Technology)
- P-54** DFT Studies of Interaction of Ir₁₃ Cluster with O₂, CO, and NO
M. Okumura, Y. Irie, Y. Kitagawa, T. Fujitani, Y. Maeda, T. Kasai, and K. Yamaguchi (Osaka University, National Institute of Advanced Industrial Science and Technology)
- P-56** A Theoretical Study on Brønsted Acidity of WO₃ Clusters Supported on Metal Oxide Supports by “Paired Interacting Orbitals”(PIO) Analysis
Akinobu Shiga, Naonobu Katada, and Miki Niwa (LUMMOX Research Labo., Tottori University)
- P-58** Development of Water Gas Shift Catalyst for Fuel Processor and Hydrogen Station
Jong Woo Ryu, Dong Ju Moon, Mi Hyun Heo, Byung Gwon Lee and Suk In Hong (Korea Institute of Science & Technology, Korea University)
- P-62** Time-Resolved XAFS Study on the Reduction Process of Rh₄ and Rh₆ Clusters
Akane Suzuki, Yasuhiro Inada and Masaharu Nomura (High Energy Accelerator Research Organization)
- P-64** Preparation of Platinum Nanoparticles using Surfactant for Anode Catalyst in the Low-Temperature Fuel Cell
Dong-Ha Lim, Jae-Sik Choi, Dong-Baek Kim, Yeon-Su Kim, Dal-Ryung Park, and Ho-In Lee (Seoul National University, KOGAS R&D Center)
- P-66** Promotion Effect of TaO_x and NbO_x on Pt/C Catalyst for Electrochemical Oxidation of

Hydrogen in the Co-Presence of Carbon Monoxide

Atsushi Ueda, Yusuke Yamada, Hiroshi Shioyama and Tetsuhiko Kobayashi (National Institute of Advanced Industrial Science and Technology)

P-68 Discovery of New Types of Proton Conductors for Electro-Oxidation of Methanol

Sang-Won Ahn, Hyun-Jong Kim, Haksoo Han and Yong-Gun Shul (Yonsei University)

P-70 Development of Micro Fuel Cell Based on PCB (Printed-Circuit Board)

Seung-Wan Kim, Hyun-Jong Kim, Yong-Gun Shul and Hak-Su Han (Yonsei University)

P-74 Photochemical and Enzymatic Synthesis of Formic Acid from CO₂ with Chlorophyll and Dehydrogenase System

Ikue Tsujisho, Masahiro Toyoda and Yutaka Amao (Oita University)

P-78 Surface Complex-Mediated Photocatalytic Degradation of 4-Chlorophenol and Phenolic Compounds on Pure TiO₂ under Visible Light

Soonhyun Kim and Wonyong Choi (Pohang University of Science and Technology)

P-80 Water Treatment by TiO₂ Photocatalysts Supported on Stainless Steel Fiber

Jong-Ho Kim, Kyong Ju Na, Gon Seo, Dong-Lyun Cho, Byung-Chul Choi, Jong-Beom Kim, Sun-Jung Song, Sang-Mi Lee, Hee-Ju Park and Geon-Joong Ki (Chonnam National University, Photo & Environmental Technology Co. Ltd., Inha University)

P-86 Characterization of the Effect of Support on Tungsten Sulfide Catalysts using XAFS Technique

Takeshi Kubota, Akira Kato, Takeshi Kadono, Usman, Kyoko K. Bando, Yasuaki Okamoto (Shimane University, The National Institute of Advanced Industrial Science and Technology)

P-88 Effect of Lanthanum Addition on the Thiophene Hydrodesulfurization Activity over Al-MCM-41 Supported Molybdenum Catalysts

Seon-Ki Song, Yuhong Wang, Murid Hussain and Son-Ki Ihm (Korean Advanced Institute of Science and Technology)

P-94 Bio-ethanol Conversion to Hydrocarbons over Several Zeolite Catalysts

Megumu Inaba, Kazuhisa Murata, Masahiro Saito, and Isao Takahara (National Institute of Advanced Industrial Science and Technology)

P-96 Hydroamination of Alkenes with Amines over Zeolite Catalyst

Kenichi Komura, Jana Horniakova, Hisashi Osaki, and Yoshihiro Sugi (Gifu University)

P-98 Catalytic Degradation of LDPE-LLDPE-EVA Copolymer Mixture with used HZSM-5 Catalyst

Jong-Ki Jeon, Young-Kwon Park, Seungsoo Kim, Daechul Cho (Kongju National University, University of Seoul, Donghae University, Soonchunhyang University)

P-100 Methylenedianiline Synthesis over Zeolite Catalyst

Tsuyoshi Kugita, Shigekazu Hirose, Seitaro Namba (Teikyo University of Science and Technology)

P-102 Synthesis, Characterization and Catalytic Properties of Titanium Incorporated ZSM-5

Taihuan Jin, Young Kyu Hwang, Young Ho Kim, Sung Hwa Jung, Jong-San Chang, Jin-Soo Hwang, Sang-Eon Park (Korea Research Institute of Chemical Technology, Chungnam National University, Inha University)

P-104 PtSn Encapsulated Mesoporous Silica for Selective Dehydrogenation of n-Dodecane

Deok-Kyu Kim, Young Kyu Hwang, Jong-San Chang, Sung Hwa Jung, and Sang-Eon Park (Korea Research Institute of Chemical Technology, Inha University)

P-106 Visible Light Sensitive (Cr,Ti)-Containing Mesoporous Silica Photocatalyst Prepared using a Photo-Assisted Deposition Method

Hiromi Yamashita, Osamu Chiyoda, Yosuke Masui, Satoshi Ohshiro, Keiko Kida and Masakazu Anpo (Osaka University, Osaka Prefecture University)

P-108 Phenol Hydroxylation using Fe-MCM-41 Catalysts

Jung-Sik Choi, Sang-Soon Yoon, Soo-Hyun Jang, and Wha-Seung Ahn (Inha University)

P-110 Synthesis of Highly Ordered Mesoporous $P6_3/mmc$ and $p6mm$ Phases by Adding Alcohols to the System for the SBA-1 Synthesis

Pavuluri Srinivasu, SungHyun Lim, YoshihiroKubota and TakashiTatsumi (Yokohama National University)

P-114 Preparation of Mesoporous Carbon Templated by Silica Particle for Use as a Catalyst Support of Polymer Electrolyte Membrane Fuel Cell

Ji Bong Joo, Pil Kim, Wooyoung Kim, Jongsik Kim and Jongheop Yi (Seoul National University)

P-116 Catalytic Dimerization of TFE over Activated Carbon Supported Metal Catalyst

Dong Ju Moon, Young Jun Lee, Jong Woo Ryu, Kye Sang Yoo and Honggon Kim (Korea Institute of Science & Technology)

P-118 Effect of Alkali Promoters on the Mechanism of Biphenol Hydrogenation over Pd/C Catalyst

Hong-Baek Cho, Jong-Chan Lee, Yeung-ho Park (Hanyang University)

P-120 Enhanced Enantioselectivity and Stabilization of an Enzyme using Novel Ionic Liquids

Toshiyuki Itoh, Shi-Hui Han, Yuichi Matsushita, Shohei Wada, Shuichi Hayase (Tottori University)

P-122 Ethylene Dimerization over NiSO₄ Supported on Fe₂O₃-Promoted ZrO₂ Catalyst

Jong Rack Sohn, Young Tae Kim, Sung Gyu Lee, and Jun Seob Lim (Kyungpook National University)

P-124 Environmentally Benign Synthesis of Polycarbonate by Oxidative Carbonylation of Bisphenol A by use of Palladium Catalysts

Kazuhiko Takeuchi, Ken-Ichi Okuyama, Jun-Ichi Sugiyama, Ritsuko Nagahata, and Mitsuru Ueda (National Institute of Advanced Industrial Science and Technology, Tokyo Institute of Technology)

P-126 Highly Stereospecific Polymerization of 1,3-Butadiene with Cobalt(II) Pyridyl Bis(imine) Complexes in the Presence of Ethylaluminum Sesquichloride: Effect of Methyl position in the Ligand

Jae Sung Kim, Chang-Sik Ha, Il Kim (Pusan National University)

P-128 Pd-Catalyzed Asymmetric Allylic Substitution with Immobilized Chiral Phosphine Ligands

Myung-Jong Jin, Ik Hyun Kwon, Dae Soo Han, Young Hun Lee, Sang-Eon Park (Inha University)

P-130 Carbonylation of Formaldehyde Catalyzed by *p*-Toluenesulfonic Acid

Tao Li, Yoshie Souma and Qiang Xu (National Institute of Advanced Industrial Science and Technology)

P-132 Catalytic Dehydration of Alcohols over Ni-SIPA Materials

Kwang Min Choi, Jong Hak Lee, and Sang-Eon Park (Inha University)

P-134 Development of over Cu/ZnO-Based Multicomponent Catalysts for the Water-Gas Shift Reaction

Masahiro Saito, Isao Takahara, Kazuhisa Murata, Megumu Inaba, and Kazumi Tomoda (National Institute of Advanced Industrial Science and Technology, New Energy and Industrial Technology Development Organization)

P-136 Thermal Stability of Co-Mo-S Structure in a Co-MoS₂/Al₂O₃ Catalyst for the HDS of Thiophene

Usman, Akira Kato, Takeshi Kubota, and Yasuaki Okamoto (Shimane University)

P-138 Hydrogen Production with Steam Reforming of Dimethyl Ether

Kaoru Takeishi, and Yoshimi Akaike (Shizuoka University)

P-140 Deposited Carbon over Ni Catalysts Prepared from Layered Double Hydroxides for Steam Reforming of Methane

Koichi Itoh, Masayoshi Takeda, and Masahide Honda (Western Hiroshima Prefecture Industrial Research Institute)

P-142 A Possibility for Surface Reaction Control by Tunable Pulse Infrared Free Electron Laser

Shinsuke Sato, Md.Golam Moula, Hironobu Niimi, Shushi Suzuki, Wang.-Jae. Chun, Katsumi Irokawa, Haruo Kuroda and Kiyotaka Asakura (Hokkaido University, Core Research for Evolutional Science and Technology, Tokyo University of Science)

P-148 Kinetic Studies on Transesterification of Ethylene Carbonate with Methanol

(YO-1) to Produce Dimethyl Carbonate in the Presence of K/MgO Heterogeneous Catalysts

Haznan Abimanyu, Byoung Sung Ahn, Kye Sang Yoo (Korea Institute of Science and Technology)

P-150 Synthesis, Electronic Structure and Photocatalytic Properties of Lanthanoid

(YO-4) Oxysulfide

Keita Ikeue, Yusuke Ohta, Kiyotaka Kawamura, Tomohiro Mitsuyama, Shigenori Matsushima and Masato Machida (Kumamoto University, Kitakyushu National

College of Technology)

P-152 Hydrogen Production for Fuel Cell by Steam Reforming of Methanol in a Micro-
(YO-9) Reactor Coated with Cu/ZnO/ZrO₂/Al₂O₃-Based Catalyst

Heondo Jeong, Kweon Ill Kim, Tae Hwan Kim, Chang Hyun Ko, Hwa Choon Park,
and In Kyu Song (Seoul National University, Korea Institute of Energy Research)

P-154 Catalyst Developments for Partial Oxidation of Tar Derived from Biomass

(YO-8) Tomohisa Miyazawa, Takeo Kimura, Jin Nishikawa, Kimio Kunitomi, Keiichi
Tomishige (University of Tsukuba)

P-156 A Study on Reaction Characteristics of the SO₂ Reduction using Coal Gas over
(YO-7) SnO₂-ZrO₂ Catalyst

Gi Bo Han, Jin Hyuk Jun, No-Kuk Park, Jong Dae Lee, Si-Ok Ryu, Tae Jin Lee, Won
Chul Chang (Yeungnam University, Pung Nam Semicon Tech. Co.)

P-158 Conversion of Methane over In-loaded ZSM-5 Zeolite in the Presence of Ethene

Kazuhito Murai, Ko-ji Inazu and Toshihide Baba (Tokyo Institute of Technology)