

PROGRAM

International Symposium on Design of Advanced Materials Using Nano Space
(ISDAM-2006)

Post-Symposium of ZMPC2006

August 4th, 2006

Osaka University, Suita, Osaka, Japan

9:00-9:05 Opening Address Hiromi YAMASHITA (Osaka University)

(Chairpersons: Sang-Eon PARK and Hiroshi KOMINAMI)

9:05-9:30

KL-1 Gianmario MARTRA (Torino University, Italy)

“Metal-oxide interactions in confined nanospaces: Pt and Cs₂O nanoparticles co-hosted in BEA zeolite cavities” (Keynote Lecture)

9:30-9:55

KL-2 Kanna SRINIVASAN, Hironaka KANBE, Takuya OHKURA, Tadashi HATTORI, and Atsushi SATSUMA (Nagoya University, Japan)

“Preparation of Fe-promoted Vanadyl Pyrophosphate through Nano Space Sandwich” (Keynote Lecture)

9:55-10:20

KL-3 Jiří DĚDEČEK (J. Heyrovsky Institute of Physical Chemistry, Czech)

“Aluminum siting and local density in the zeolite framework and accommodation and siting of counter cations in silicon rich zeolites” (Keynote Lecture)

10:20-10:35 Coffee break

(Chairpersons: Gianmario MARTRA and Hisao YOSHIDA)

10:35-11:00

KL-4 Yasutaka TERAOKA (Kyushu University, Japan)

“Nano-sized perovskite catalyst supported on alumina with high activity and thermal stability in-situ synthesized in pore of alumina” (Keynote Lecture)

11:00-11:25

KL-5 Isak Rajjak SHAIKH¹, Young Hoon LEE¹, Uk LEE², and Sang-Eon PARK¹
(¹ Inha University, Korea, ² Pukyong National University)

“Catalytic applications of novel metal phosphates” (Keynote Lecture)

11:25-11:50

KL-6 Kiyotomi KANEDA (Osaka University, Japan)

”Development of high performance heterogeneous catalysts using nano-structured inorganic crystallines” (Keynote Lecture)

11:50-13:00 Lunch

13:00-13:50 (Chairperson: Masakazu ANPO)

PL-1 Martina BEJBLOVÁ, Naděžda ŽILKOVÁ, Jiří ČEJKA

(J. Heyrovsky Institute of Physical Chemistry, Czech)

“Transformations of aromatic hydrocarbons over zeolites” (Plenary Lecture)

13:50-15:20 Poster Session

(Chairpersons: Jiří DĚDEČEK and Naonobu KATADA)

15:20-15:45

KL-7 Toshimitsu SUZUKI (Kansai University, Japan)

“Reactions of palladium loaded oxidized-diamond catalysts---Hydrogenation of alkenes and oxidation of alcohol----” (Keynote Lecture)

15:45-16:10

KL-8 Gopinathan SANKAR (The Royal Institution of Great Britain, UK)

“Structure of functional sites in nano space structures” (Keynote Lecture)

16:10-16:35

KL-9 Koichi EGUCHI, Yohei TANAKA, Naohiro SHIMODA, Kajornsak FAUNGNAWAKIJ, Toshiaki MATSUI, Ryuji KIKUCHI (Kyoto University, Japan)

”Metal nano-deposit formation from spinel oxides and application to steam reforming of dimethyl ether” (Keynote Lecture)

16:35-16:50 Coffee break

(Chairpersons: Gopinathan SANKAR and Hidenori YAHIRO)

16:50-17:15

KL-10 Hong-Xian HAN¹, Michael N. PADDON-ROW¹, Russel F. HOWE²

(¹ University of NSW, Australia, ² Aberdeen University, UK)

“Charge separation in mesoporous aluminosilicates” (Keynote Lecture)

17:15-17:40

KL-11 Masakazu ANPO (Osaka Prefecture University, Japan)

“Photocatalytic reactivities of the single-site catalysts prepared within ZMPC” (Keynote Lecture)

17:40-18:05

KL-12 Freek KAPTEIJN¹, Johan van den BERGH¹, Weidong ZHU¹, Jacob A. MOULIJH¹, Kenji YAJIMA², Kunio NAKAYAMA², Toshihiro TOMITA², Shuichi YOSHIDA² (¹ DCT-TU Delft, The Netherlands, ² NGK Insulators, Ltd)

“Performance of 8- and 10-ring pore zeolite membranes in the separation of CO₂ and CH₄” (Keynote Lecture)

18:05-18:10 Closing Remarks Tsunehiro TANAKA (Kyoto University)

18:10-20:00 Reception

Poster Presentations I

Photocatalyst

P-1 Preparation of (Cr,Ti)-containing Mesoporous Silica Photocatalyst Using a Photo-assisted Deposition Method

Y. MASUI, S. OHSHIRO, Y. KUWAHARA, M. ANPO, T. OHMICH, I. KATAYAMA, K. MORI, and H. YAMASHITA (Osaka University, Japan)

P-2 Oxygenation Rate Control by Temperature with Polymeric Photosensitizer

H. KOIZUMI, Y. SHIRAISHI, and T. HIRAI (Osaka University, Japan)

P-3 Photo-SCR over TiO₂ supported MoO₃ and Nb₂O₅ Catalysts

Y. MASUTANI, S. YAMAZOE, T. SHISHIDO, and T. TANAKA (Kyoto University, Japan)

P-4 Preferential Photocatalytic Oxidation of CO with O₂ in the Presence of H₂ (photo-PROX) on Mo-MCM-41 at 293 K

T. KAMEGAWA, J. MORISHIMA, Y. HU, S. HIGASHIMOTO, M. MATSUOKA, and M. ANPO (Osaka Prefecture University, Japan)

P-5 Liquid-phase Photocatalytic Reaction in Phototransmission Flow-type Reactor

K. KITAHATA, K. HASHIMOTO, H. KOMINAMI (Kinki University, Japan)

P-6 Modification of Surface Hydrophilic-Hydrophobic Property by the Ethylene Polymerization on Transparent Cr-containing Mesoporous Silica Thin Films

Y. HORIUCHI, S. IMAOKA, S. NISHIO, M. SHIMADA, S. KAWASAKI, K. MORI, T. OHMICH, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-7 Photocatalytic Oxidation of Toluene on TiO₂/Y-zeolite Photocatalysts

M. HIDAKA, M. TAKEUCHI, and M. ANPO (Osaka Prefecture University, Japan)

P-8 Preparation of Visible-light-responding Photocatalyst by Nitrogen-doping to Titanium (IV) oxide Silane Modified

K. TAKENOCHI, K. HASHIMOTO, and H. KOMINAMMI (Kinki University, Japan)

P-9 Green Liquid Phase Oxidation of Alcohols over Niobium Oxide Photocatalysts

T. MIYATAKE, T. OHUCHI, Y. HITOMI, T. SHISHIDO, and T. TANAKA (Kyoto University, Japan)

P-10 Photo-oxidation of Benzene over Ti-Si Binary Oxide Catalysts Prepared by Sol-Gel Method

M. TANIGUCHI, Y. ICHIHASHI, S. NISHIYAMA, and S. TSURUYA (Kobe University, Japan)

P-11 Combined Application of Ti-containing Mesoporous Silica and Photo-assisted Deposition Method for Preparation of Nano-sized Pt Metal Catalyst

Y. Kondo, T. SHIMIZU, N. MIMURA, T. SAKATA, and H. MORI, K. MORI, T. OHMICH, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-12 The Enhancement of the Photo-assisted Selective Catalytic Reduction of NO with NH₃ by the Addition of WO₃ to TiO₂

S. YAMAZOE, Y. MASUTANI, T. SHISHIDO, and T. TANAKA (Kyoto University, Japan)

P-13 Preparation and Characterization of Ag(I)/Co(II)SAPO-34 and its Photocatalytic Activity for the Decomposition of NO_x

H. CHEN, M. MATSUOKA, and M. ANPO (Osaka Prefecture University, Japan)

P-14 Thermo-photocatalytic Degradation of Methanol over Metal Oxide/TiO₂ Catalyst

H. SUGAHARA, K. HASHIMOTO, and H. KOMINAMI (Kinki University, Japan)

P-15 Effects of Fluorination on The Surface Property and Photocatalytic Activity of TiO₂ and TiO₂/MCM-41

S. YUAN, K. MAKI, M. TOMONARI, S. KAWASAKI, K. MORI, T. OHMICH, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-16 Preparation and Characterization of the Cu(I)Mn/ZSM-5 Catalyst for the Direct Photocatalytic Decomposition of N₂O into N₂ and O₂

T. AKIYAMA, H. CHEN, M. MATSUOKA, and M. ANPO (Osaka Prefecture University, Japan)

P-17 Reaction Intermediates and Active Species in Oxidation of Alkane over V₂O₅/Al₂O₃ Photocatalyst

T. TANAKA, T. OHUCHI, and T. HOSOKAWA (Kyoto University, Japan)

P-18 Nano-Sized Pt Catalyst Prepared by a Photo-Assisted Deposition on Ti-Containing Mesoporous Silica Thin Films

M. SHIMADA, S. NISHIO, T. SHIMIZU, N. NISHIYAMA, K. MORI, T. OHMICH, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-19 Dispersion of Ru-containing Polyoxomolybdate on Metal Oxides Chemically Modified with Silane Coupling Agent and Their Catalytic Features for Transformations of Methanol

T. OONAKA, K. HASHIMOTO, Y. MATSUBARA, H. KOMINAMI, and Y. KERA (Kinki University, Japan)

P-20 The Partial Photooxidation of Methane with NO on Vanadium-incorporated Mesoporous Molecular Sieves

Y. NAGAI, Y. HU, M. MATSUOKA, and M. ANPO (Osaka Prefecture University, Japan)

P-21 Photooxidation of Propylene over V₂O₅/SiO₂ Photocatalyst: The Effect of Acidity on the Formation of Propylene Oxide

T. SONE, F. AMANO, T. SHISHIDO, and T. TANAKA (Kyoto University, Japan)

P-22 Alkene Conversion over Mesoporous Silica Photocatalyst

H. YOSHIDA, M. TSUBOTA, A. SATSUMA, T. HATTORI, and H. ITOH (Nagoya University, Japan)

P-23 Photo-SCR over TiO₂ supported MoO₃ and Nb₂O₅ catalysts

Y. MASUTANI, S. YAMAZOE, T. SHISHIDO, and T. TANAKA (Kyoto University, Japan)

P-24 Preparation and Characterization of Phenylene-Bridged Hybrid Mesoporous Materials Functionalized by Arene Complexes [-C₆H₄Cr(CO)₃-] and their Catalytic Activity

T. SAKAI, T. KAMEGAWA, M. MATSUOKA, and M. ANPO (Osaka Prefecture University, Japan)

P-25 Synthesis of TiO₂-Porous Material Composites Highly Effective as Environmental Photocatalysts

M. MATSUBARA, H. KOMINAMI, K. YUKISHITA, T. KIMURA, T. KAMINO, Y. KERA, and B. OHTANI (Kinki University, Japan)

P-26 Luminescence Property of Ag₂S Semiconductor Clusters Designed in Zeolite Micropores

D. MATSUO, S. YUAN, M. TOMONARI, K. MORI, T. OHMICH, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-27 Synthesis of Titanium(IV) Oxide Composites having Zeolite Layers

N. NAKAO, S. FUJITA, K. HASHIMOTO, Y. KERA, and H. KOMINAMI (Kinki University, Japan)

P-28 Selective Photooxidation of Propane on Photo-synthesized V-, Ti-containing MCM-41

Y. HU, N. WADA, Y. NAGAI, M. ANPO (Osaka Prefecture University, Japan)

P-29 Efficient Degradation of Organic Pollutants in Water by Nitrogen- and Fluorine-codoped TiO₂ Photocatalyst

K. MAKI, S. YUAN, M. TOMONARI, K. MORI, T. OHMICH, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-30 Solvothermal Synthesis of Tantalum(V) Oxide and Photocatalytic Mineralization of Organic Compounds in Aqueous Solution

A. JOUKAN, K. HASHIMOTO, and H. KOMINAMI (Kinki University, Japan)

P-31 Design of Nano-sized Pd Metal Catalyst Deposited on Ti-containing Zeolite by a Photo-assisted Deposition (PAD) Method

Y. MIURA, N. MIMURA, K. MORI, T. OHMICH, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-32 The Preparation of TiO₂ Photocatalysts on a Natural Zeolite and the Photocatalytic Reactivity for the Degradation of 2-Propanol

D. RAKHMAWATY, M. TAKEUCHI, M. ANPO (Osaka Prefecture University, Japan)

P-33 Photocatalytic Degradation of 2-Propanol on Si₃N₄-supported TiO₂ Photocatalyst

H. NOSE, K. MORI, T. OHMICH, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-34 Oxygen Concentration Dependence of Photoluminescence Properties in Er, O-codoped GaAs

T. TOKUNO, H. ICHIDA, Y. TERA, Y. KANEMATSU, and Y. FUJIWARA (Osaka University, Japan)

P-35 Photocatalytic Partial Oxidation of Organic Substrates over TiO₂ Supported on Zeolites

H. YAHIRO, N. WATANABE, T. MIYAMOTO, and H. YAMAURA (Ehime University, Japan)

P-36 Selective Photocatalytic Epoxidation of Olefins on Ti-Containing Mesoporous Organosilica

M. MORISHITA, Y. SHIRAISHI, T. HIRAI (Osaka University, Japan)

P-37 Synthesis of Y-Zeolite from Steel Slag and Its Application as the Support of Nano-Sized TiO₂ Photocatalyst

Y. KUWAHARA, T. OHMICH, K. MORI, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-38 Improved Visible-Light Induced Photocatalytic Activities of Nitrogen and Silicon co-doped Titanias by the Addition of Tungsten Oxides

H. OZAKI, S. IWAMOTO, and M. INOUE (Kyoto University, Japan)

P-39 Synthesis and Characterization of TiO₂ Loaded on SiC Support as an Efficient Photocatalyst for Degradation of Organics Diluted in Water

K. KAGOHARA, Y. NISHIDA, S. KAWASAKI, K. MORI, T. OHMICHII, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-40 Preparation of Rutile TiO₂ Nanowire Thin Films and their Photocatalytic Properties

M. KITANO, M. MATSUOKA, M. UESHIMA, and M. ANPO
(Osaka Prefecture University, Japan)

P-41 Photocatalytic Reduction of Nitrobenzene to Aniline in the Presence of Hole Scavenger and Oxygen

S. IWASAKI, T. MAEDA, K. HASHIMOTO, and H. KOMINAMI (Kinki University, Japan)

Poster Presentations II

General

P-42 Innovating Materials Science via Fenton's Chemistry. Detemplation of Porous Materials

I. MELIAN-CABRERA, A. I. HAMARNEH, F. KAPTEIJN, H. J. HEERES, and J. A. MOULIJN
(University of Groningen, Netherlands)

P-43 Selective Formation of para-Xylene over Silicalite/H-ZSM-5 Zeolite Composites

D. V. VU, M. MIYAMOTO, N. NISHIYAMA, Y. EGASHIRA, and K. UHEYAMA (Osaka University, Japan)

P-44 Gas-Phase Catalytic Oxidation of Benzyl Alcohol over Supported Ag Catalysts

H. SHIABAHRA, Y. SAWAYAMA, Y. ICHIHASHI, S. NISHIYAMA, and S. TSURUYA (Kobe University, Japan)

P-45 Catalytic Abatement of Volatile Organic Compounds over Oxide-supported Metal Catalysts

T. MITSUI, K. TSUTSUI, T. MATSUI, R. KIKUCHI, and K. EGUCHI
(Kyoto University, Japan)

P-46 Creation of Porous Glass Materials by Phase Separation in Multi-component Oxide Glass containing Fundamental Components in Waste Slag

M. SUZUKI and T. TANAKA (Osaka University, Japan)

P-47 Epitaxial Growth of Silicalite Nano-Crystals on ZSM-5 Crystals

M. MIYAMOTO, N. NISHIYAMA, Y. EGASHIRA, and K. UHEYAMA
(Osaka University, Japan)

P-48 Selective Hydrogenation of Crotonaldehyde over Sn Modified Silica-Coated Pt

K. NAKAO, S. NAITO, M. KISHIDA, Y. ICHIHASHI, S. NISHIYAMA, and S. TSURUYA
(Kobe University, Japan)

P-49 Vapor Phase Synthesis of Mesoporous Silica Films

T. MARUO, S. TANAKA, N. NISHIYAMA, Y. EGASHIRA, and K. UHEYAMA (Osaka University, Japan)

P-50 Preparation and Reactivity of Iron(III)-Hydroperoxo Species Generated from Mononuclear Non-heme Iron(III) Complex with Amidate-Based Ligand

T. ITOH, Y. HITOMI, and T. TANAKA (Kyoto University, Japan)

P-51 Synthesis of One-dimensional Microporous Todorokite

E. MATSUDA, S. TANAKA, A. TANAKA, M. SANO, and T. MIYAKE
(Kansai University, Japan)

P-52 Hydrogen Permeable Microporous Aluminosilicate Membranes Synthesized using Zeolite Precursors

M. YAMAGUCHI, M. MIYAMOTO, N. NISHIYAMA, Y. EGASHIRA, K. UHEYAMA, S. TAKATSU, and T. SATOH (Osaka University, Japan)

P-53 Oxidative Dehydrogenation of Isobutane to Isobutene in a Solid Electrolyte Membrane Reactor

M. TATSUMI, T. ARAKI, K. MORI, T. OHMACHI, I. KATAYAMA, and H. YAMASHITA
(Osaka University, Japan)

P-54 Vapor Phase Synthesis of Silicon Phosphate Films and their Proton Conductivity

K. OCHI, Y. NISHIYAMA, N. NISHIYAMA, Y. EGASHIRA, and K. UHEYAMA (Osaka University, Japan)

P-55 XAFS Characterisation of Carbon Supported PtSn and PtIn Catalysts

M. C. ROMAN, J. A. MACIÁ, D. CAZORLA, and H. YAMASHITA (University of Alicante, Spain)

P-56 Effect of Pretreatment on Cu-based Spinel Catalysts for DME Steam Reforming

N. SHIMODA, K. FAUNGNAWAKIG, T. MATSUI, R. KIKUCHI, K. EGUCHI (Kyoto University, Japan)

P-57 Magnetic Memory Cells using the Ni-Fe and Ni-Fe/Mn-Ir Asymmetric Ring Dots

I. SASAKI, R. NAKATANI, Y. ENDO, Y. KAWAMURA, M. YAMAMOTO, T. TAKENAGA, S. AYA, T. KUROIWA, S. BEYSEN, and H. KOBAYASHI (Osaka University, Japan)

P-58 Propylene Oxide Synthesis via Homogeneous Radical Chain Reaction Initiated by Supported Mo-Oxide Radical Generators

N. MIMURA, Z. SONG, T. AKITA, H. YAMASHITA, S. TSUBOTA, T. FUJITANI, and S. T. OYAMA (National Institute of Advanced Industrial Science and Technology (AIST), Japan)

P-59 Proton Conductivities of CsHSO₄/Mesoporous Silica Composites

H. TOKUNO, Y. NOZAKI, M. SAITO, and J. KUWANO (Tokyo University of Science, Japan)

P-60 Ethylene Hydrogenation on ZnO Thermal Treated under Ultrahigh Vacuum

Y. KAWAMOTO, Y. ICHIHASHI, S. NISHIYAMA, and S. TSURUYA
(Kobe University, Japan)

P-61 Photovoltaic Properties of Organic Dye-Sensitized Solar Cells with Mg-modified Titania Electrodes Prepared by the Glycothermal Method

Y. SAZANAMI, S. IWAMOTO, M. INOUE, T. INOUE, T. HOSHI, K. SHIGAKI, and M. KANEKO (Kyoto University, Japan)

P-62 Hydrothermal Synthesis of $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ and Methane Oxidation Therewith

M. KOBAYASHI, S. IKEDA, M. SANO, and T. MIYAKE (Kansai University, Japan)

P-63 Synthesis of Ordered Mesoporous Zirconium Phosphate Films by Spin Coating and Vapor Treatment

Y. NISHIYAMA, S. TANAKA, N. NISHIYAMA, Y. EGASHIRA, and K. UEYAMA (Osaka University, Japan)

P-64 YSZ Oxygen Sensor's Improvement in the Ability to Measure Extremely Low Partial Pressure of Oxygen

S. TANIGAWA, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-65 Study of Gas-Phase Oxidation of Benzene to Phenol over K/Cu/HZSM-5 Catalysts

Y. KAMIZAKI, T. UEDA, Y. ICHIHASHI, S. NISHIYAMA, and S. TSURUYA (Kobe University, Japan)

P-66 Nano-scale Study of Strong Chemical Interaction between Pt and SnO_2

N. KAMIUCHI, T. MATSUI, R. KIKUCHI, K. EGUCHI (Kyoto University, Japan)

P-67 Fabrication of Ag porous film by Unusual Wetting Phenomenon

N. TAKAHIRA, T. TANAKA (Osaka University, Japan)

P-68 Ordered Mesoporous Carbon Synthesized Using Organic Templates

T. ZHENG, J. JIN, S. TANAKA, N. NISHIYAMA, Y. EGASHIRA, and K. UEYAMA (Osaka University, Japan)

P-69 Electronic properties of benzene molecules adsorbed in Y-zeolite cavities

M. TAKEUCHI, M. HIDAKA, and M. ANPO (Osaka Prefecture University, Japan)

P-70 Dynamic Behavior of Active Sites on Cr-MCM-41 Catalysts during the Dehydrogenation of Propane with CO_2

T. SHISHIDO, Y. OHISHI, Y. WANG, K. TAKEHIRA, and T. TANAKA (Kyoto University, Japan)

P-71 Electrical Properties of Carbon-Doped Silicon Oxide Films Deposited Using TEOS at Room Temperature

K. YAMAOKA, H. KATO, D. TSUKIYAMA, Y. YOSHIZAKO, Y. TERAJ, and Y. FUJIWARA (Osaka University, Japan)

P-72 Amines-mediated Synthesis of Microporous Carbon Membranes for Gas Separation

Y.-R. DONG, N. NISHIYAMA, Y. EGASHIRA, and K. UEYAMA (Osaka University, Japan)

P-73 Simultaneous Removal of NO_x and Diesel Particulate over Ba-based Catalysts

K. MORI, G. OKAMOTO, T. TOYOSHIMA, A. MIYAUCHI, T. OHMICH, I. KATAYAMA, and H. YAMASHITA (Osaka University, Japan)

P-74 Design of Unique Photocatalysts Using Zeolite and Mesoporous Silica

H. YAMASHITA, K. MORI, T. OHMICH, and I. KATAYAMA (Osaka University, Japan)

P-75 Photocatalytic Degradation on the $\text{TiO}_2\text{-SiO}_2$ Binary Oxide Prepared by a Sol-Gel Method

S. KAWASAKI and H. YAMASHITA (Osaka University, Japan)

P-76 Preparation of Nano-sized Metal Particles by an Advanced Wet-process

M. TOMONARI and H. YAMASHITA (Osaka University, Japan)

P-77 Synthesis of MoSiO_x with Nano Range Pore Size

Y. ZHENG, T. DOU, A. DUAN, Z. ZHAO, S. KANG, Q. Li

(China University of Petroleum, Beijing, Beijing University of Agriculture, China)

P-78 Preparation and Characterization of Low SiO₂/Al₂O₃ Ratio Zeolite Beta

K. SHANJIAO, D. TAO, L. QIANG, Z. YANYING, P. HUIFANG (China University of Petroleum, China)