



Frontier Chemistry Center The 2nd International Symposium



“Advanced Materials Science”

- Date : 9 (Monday) -10 (Tuesday) December, 2013
- Venue : <Oral Session> Academic Lounge 1
<Poster Session> Academic Lounge 2
Faculty of Engineering, Hokkaido University, Sapporo, Japan
- Chair : Professor Takeshi Ohkuma (Hokkaido University)
- Organizers : Professor Yasuchika Hasegawa and Professor Toshifumi Satoh (Hokkaido University)
- Supported by : “Strategic Molecular and Materials Chemistry through Innovative Coupling Reactions” (MMC) by MEXT, JAPAN
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The Graduate School of Chemical Sciences and Engineering, Hokkaido University
Hokkaido Branch, The Chemical Society of Japan
Hokkaido Branch, The Society of Chemical Engineers, Japan

Program

<Day 1>

- 13:00- Opening Remarks
Welcome Address by Professor Takeshi Ohkuma
(Director of the Frontier Chemistry Center, Hokkaido University, Japan)
Greeting Address by Professor Naoshi Baba
(Dean of the Graduate School of Engineering, Hokkaido University, Japan)
- 13:15-14:00 Lecture by Professor Dr. Anke Weidenkaff (EMPA, Switzerland)
“Perovskite-Type Materials for Renewable Energy Technologies”
(Chair: Professor Shinichi Kikkawa)
- 14:00-14:30 Lecture by Professor Shigeto Okada (Kyushu University, Japan)
“Grand Design of Post Lithium-Ion Battery”
(Chair: Professor Shinichi Kikkawa)
- 14:30-14:45 *Coffee Break*
- 14:45-15:15 Lecture by Professor Kiyoharu Tadanaga (Hokkaido University, Japan)
“Development of All-Solid-State Alkaline Fuel Cells
Using Layered Double Hydroxides”
(Chair: Professor Yukio Hinatsu)
- 15:15-15:45 Lecture by Professor Tamotsu Inabe (Hokkaido University, Japan)
“Soluble Organic-Inorganic Hybrid Semiconductors”
(Chair: Professor Yukio Hinatsu)
- 15:45-16:00 *Coffee Break*

16:00-18:00 Poster Session
18:30- *Banquet @Restaurant "Elm"*

<Day 2>

09:00-09:45 Lecture by Dr. Redouane Borsali (CERMAV-CNRS, France)
"Sugar-Based Block Copolymer Self-Assemblies: Ultra-High Resolution Thin Films for Opto- and Bio-Electronic Devices"
(Chair: Professor Toshifumi Satoh)

09:45-10:15 Lecture by Professor Kazuki Sada (Hokkaido University, Japan)
"Cross-Linking of Metal Organic Frameworks"
(Chair: Professor Toshifumi Satoh)

10:15-10:30 *Coffee Break*

10:30-11:15 Lecture by Professor Bernd H. A. Rehm (Massey University, New Zealand)
"Bioengineering of Bacterial Inclusions towards Medical and Industrial Applications"
(Chair: Professor Ken'ichiro Matsumoto)

11:15-11:45 Lecture by Professor Yasuhide Nakayama
(National Cerebral and Cardiovascular Center, Japan)
"Biomaterial Design for Cardiovascular Regenerative Medicine"
(Chair: Professor Ken'ichiro Matsumoto)

11:45-13:30 *Lunch Break*

13:30-14:15 Lecture by Dr. Cheol Park (National Institute of Aerospace, USA)
"Boron Nitride Nanotube (BNNT): Synthesis and Application"
(Chair: Professor Sadamu Takeda)

14:15-14:45 Lecture by Professor Tsuyoshi Kawai
(Nara Institute of Science and Technology, Japan)
"Enhanced Circularly Polarized Luminescence of Chiral Coordination and Supramolecular Compounds"
(Chair: Professor Sadamu Takeda)

14:45-15:00 *Coffee Break*

15:00-15:30 Lecture by Professor Minoru Seki (Chiba University, Japan)
"Rapid and Precise Particle Manipulation in Microfluidic Devices"
(Chair: Professor Noboru Kitamura)

15:30-16:00 Lecture by Professor Manabu Tokeshi (Hokkaido University, Japan)
"Easy-to-Use Detection of Biomarkers and Fabrication of Functional Nanoparticles Using Microfluidic Devices"
(Chair: Professor Noboru Kitamura)

16:00- Closing Remarks by Professor Toshifumi Satoh

Poster Presentations

- P-01** **Systematic Exploration of Reaction Mechanism for a Vinylogous Mannich-type Reaction Activated by a Water Molecule: Kinetic Control vs. Thermodynamic Control**
Ryohei Uematsu, Satoshi Maeda and Tetsuya Taketsugu
- P-02** **First-Principle Simulations for Matrix-Isolation Vibrational Spectra of Noble Gas Compounds: Applications to HXeCl and XeBeO**
Keisuke Niimi, Akira Nakayama, Yuriko Ono and Tetsuya Taketsugu
- P-03** **Electron Transfer Kinetics in Oxygen Reduction Reaction on Cobalt-Porphyrin-Modified Electrodes**
Shino Sato, Kei Murakoshi and Katsuyoshi Ikeda
- P-04** **Tacticity Dependence of Phase Separation Dynamics of Aqueous Solutions of Thermo-Responsive Polymers**
Takanori Tada, Yukiteru Katsumoto, Koichi Ute, Tomohiro Hirano, Noboru Kitamura and Yasuyuki Tsuboi
- P-05** **Diimine Ligand Variation Effects on Photophysical Properties of Novel Tricarbonyl Rhenium(I) Complexes Having Arylborane Charge Transfer Units**
Yuanyuan Kang, Akitaka Ito, Eri Sakuda and Noboru Kitamura
- P-06** **Sequential Aryl Radical Cyclization onto Alkyne/Allene - Fixation of Carbon Dioxide under Electroreductive Conditions**
Asahi Katayama, Hisanori Senboku and Shoji Hara
- P-07** **Copper(I)-Catalyzed Intramolecular Borylative *exo*-Cyclization of Unactivated Alkenyl Halides**
Koji Kubota, Eiji Yamamoto and Hajime Ito
- P-08** **Cationic Ir(I)/Me-BIPAM Catalyzed Enantioselective Intramolecular Direct Addition of C-H Bond to Ketones**
Tomohiko Shirai, Hajime Ito and Yasunori Yamamoto
- P-09** **Asymmetric Conjugate Cyanation of α,β -Unsaturated Carbonyl Compounds Catalyzed by the Ruthenium Complex/Lithium Compound Combined Systems**
Yusuke Sakaguchi, Nobuhito Kurono and Takeshi Ohkuma
- P-10** **Copper-Catalyzed Stereodivergent Coupling Reactions between Chiral Allylic Phosphates and Alkylboranes**
Kazunori Nagao, Hirohisa Ohmiya and Masaya Sawamura
- P-11** **Development of Phosphine-Centered Cross-Linked Polymer for Transition Metal-Catalyzed Transformations of Unactivated Bonds**
Tomoya Harada, Tomohiro Iwai and Masaya Sawamura
- P-12** **Preparation and Properties of Dynamic Redox System Containing Multiple Perfluorobiphenyl Skeletons**
Hitomi Tamaoki, Ryo Katoono, Kenshu Fujiwara and Takanori Suzuki
- P-13** **Catalysis of Oxygenated Functional Groups on Carbons for Cellulose Hydrolysis**
Mizuho Yabushita, Hirokazu Kobayashi, Kenji Hara and Atsushi Fukuoka

- P-14 Preparation of An Optically Active Poly(9,9-dioctylfluoren-2,7-diyl) Using Circularly Polarized Light**
Yue Wang, Yasuhito Koyama and Tamaki Nakano
- P-15 Direct Oxidative Transformation of Glycerol to Acrylic Acid Over W-based Complex Metal Oxide Catalysts**
Kaori Omata, Keeko Matsumoto, Toru Murayama and Wataru Ueda
- P-16 Co-Formation of Ethane and Acetaldehyde from Ethanol Over Reduced Vanadium and Molybdenum Oxide Catalysts**
Yoichi Nakamura, Toru Murayama and Wataru Ueda
- P-17 New Octahedral Molecular Sieves Constructed by Polyoxometalates and Metal Ion Linkers with Zeolite-like 3D Frameworks**
Zhenxin Zhang, Toru Murayama, Masahiro Sadakane and Wataru Ueda
- P-18 TEM and SEM Study of Pt-Ru Particles Formation Mechanism on Rc1000 Carbons**
Napan Narischat, Tatsuya Takeguchi, Takeshi Mori, Isao Ogino, Shin R. Mukai and Wataru Ueda
- P-19 Cu Modified Orthorhombic MoVO Catalyst for Catalytic Oxidation of Acrolein to Acrylic Acid**
Chuntian Qiu, Toru Murayama and Wataru Ueda
- P-20 Heptagonal Channel Micropore of Orthorhombic Mo₃VO₁₃ Catalysts Field for the Selective Oxidation of Ethane**
Satoshi Ishikawa, Toru Murayama and Wataru Ueda
- P-21 Hydrothermal Synthesis of W-V-Sb-O Complex Oxide and These Propane Ammoxidation Properties**
Yoshinori Goto, Toru Murayama and Wataru Ueda
- P-22 Pt-Cluster Catalyzed Alkylation of Methyquinolines and Oxindoles with Alcohols**
Chaudhari Chandan, Siddiki S.M.A. Hakim and Ken-ichi Shimizu
- P-23 Nb₂O₅-Catalyzed Synthesis of Cyclic Imides from Dicarboxylic Acids and Amines**
Md. Ayub Ali, S.M.A. Hakim Siddiki and Ken-ichi Shimizu
- P-24 Dehydrogenative Self-Esterification of Alcohols by SnO₂-Supported Pt Catalyst**
Sandomoyee Konika Moromi, S.M.A. Hakim Siddiki and Ken-ichi Shimizu
- P-25 Preparation of MTW Type Zeolite Membrane for High Purification of Organic Solution Production by Pervaporation**
Yaqi Zhang, A. Hirata, Y. Nakasaka, T. Tago and T. Masuda
- P-26 Effect of Type of OSDA on Crystal Size of MTW Zeolite and Their Catalytic Performance in n-Hexane Cracking**
Taichi Taniguchi, Yuta Nakasaka, Teruoki Tago and Takao Masuda
- P-27 Measurement of the Residence Time Distribution of a Honeycomb-type Carbon: Comparison with a Packed Bed and Multicapillary Columns**
Yoshitaka Satoh, Shunpei Takahashi, Isao Ogino and Shin R. Mukai
- P-28 Highly Efficient Blue Emission Based on Thermally Activated Delayed Fluorescence of Mononuclear Copper(I)-Halide Complexes**
Hiroki Ohara, Atsushi Kobayashi and Masako Kato

- P-29 Organic-Inorganic Hybrid Copper-Bromide Perovskite: Electronic Properties and Device Fabrication**
Giancarlo S. Lorena, Tsuyoshi Osaki, Hiroyuki Hasegawa, Yukihiro Takahashi, Jun Harada and Tamotsu Inabe
- P-30 Systematically Modified Structures and Physical Properties of TCNQ Salts Using Different Size of Dications**
Hiroyuki Kubota, Yukihiro Takahashi, Hiroyuki Hasegawa, Jun Harada and Tamotsu Inabe
- P-31 Application of Wide Band Gap Semiconductor Crystal Which Shows Neutral-to-Ionic Transition**
Seya Yokokura, Yukihiro Takahashi, Hiroyuki Hasegawa, Jun Harada and Tamotsu Inabe
- P-32 Crystal Structure and Superconductivity of Quaternary Niobium Oxynitrides Nb_{1-x}M_x(O,N) (M = Mg, Al and Si)**
Yoshio Ohashi
- P-33 Diamond Like Carbon Doped with Highly π -Conjugated Molecules**
Wei Xie, Naoki Muraya, Takashi Yanase, Taro Nagahama and Toshihiro Shimada
- P-34 Promotion of α -Al₂O₃ Formation on Ni-Al Alloy Using Ni-Fe₂O₃ Nano-Composite Seeding Layer**
Ali Shaaban, Kazuhisa Azumi and Shigenari Hayashi
- P-35 Electrocodeposition of Al-Zn Alloy Coatings from Al and Zn including Ionic Liquid Electrolyte Bath**
Yusuke Sato and Kazuhisa Azumi
- P-36 Formation of Composite Coatings of Porous Anodic Oxide/ Polypyrrole for Corrosion Protection on Steels**
Yoshiki Konno, Etsushi Tsuji, Yoshitaka Aoki, Toshiaki Ohtsuka and Hiroki Habazaki
- P-37 Remarkable Magneto-Optical Properties of EuS Nanocrystals with Gold Nanoparticles**
Akira Kawashima, Takayuki Nakanishi, Tamaki Shibayama, Seiichi Watanabe, Koji Fujita, Katsuhisa Tanaka, Hitoshi Koizumi, Koji Fushimi and Yasuchika Hasegawa
- P-38 General Corrosion Behavior of Super Duplex Stainless Steel in a Acid Chloride Solution**
Jun-Seob Lee, Koji Fushimi, Takayuki Nakanishi, Yasuchika Hasegawa and Yong-Soo Park
- P-39 Collective Response of Dynamic Microtubule Network to External Mechanical Perturbation**
Daisuke Inoue, Kazuki Sada and Akira Kakugo
- P-40 Preparation of MOF-Polymer Composite with Fractal Surface**
Shunjiro Nagata, Hiroki Sato, Kouta Sugikawa, Kenta Kokado and Kazuki Sada
- P-41 Enhanced Biomimetic Synthesis of Pd Nanomaterials Through the p53 Tetramerization Domain**
Jose Isagani B. Janairo, Tatsuya Sakaguchi, Junya Wada, Yoshiro Chuman, Kenji Hara, Hironobu Hojo, Atsushi Fukuoka and Kazuyasu Sakaguchi
- P-42 Overexpression of Protein Phosphatase PPM1D Induced Phosphorylation of Nucleolar Protein by CDK1-PLK1 Cascade**
Yuuki Kozakai, Hiroaki Yagi, Yoshiro Chuman and Kazuyasu Sakaguchi

- P-43 Development of New Nanostructure Control Method via Oligomerization of Biom mineralization Peptide**
Tatsuya Sakaguchi, Jose Isagani B. Janairo, Yoshiro Chuman and Kazuyasu Sakaguchi
- P-44 Effect of Arginine Modification of p53 Tetramerization Domain on Structural Stability**
Junya Wada, Rui Kamada, Yoshiro Chuman and Kazuyasu Sakaguchi
- P-45 Conformational Gating in the Electron Transfer Reaction from Cytochrome *c* to Cytochrome *c* Oxidase in Mitochondrial Respiratory Chain**
Mizue Imai, Kyoko Shinzawa-Ito, Takeshi Uchida, Shinya Yoshikawa and Koichiro Ishimori
- P-46 Functional Analysis of H3K36 Methyltransferase Set2 for Heterochromatic Silencing in *Schizosaccharomyces Pombe***
Shota Suzuki, Atsushi Shimada, Shinya Takahata and Yota Murakami
- P-47 A JmjC Protein Dissolves Epigeomic Mutation and "Variegation" Phenotype**
Masato Sorida, Atsushi Shimada, Takahiro Hirauchi, Yuji Chikashige, Shinya Takahata and Yota Murakami
- P-48 Functional Analysis of Non-Coding RNA Which Transcribed within Kinetochore Domain at Fission Yeast Centromere**
Miyuki Mori, Shinya Takahata and Yota Murakami
- P-49 Heterologous Production of Bioactive Fungal Polyketides**
Ryuya Fujii, Atsushi Minami, Katsuya Gomi and Hideaki Oikawa
- P-50 Synthetic Studies on Azadirachtin**
Kentaro Sakurai, Daisuke Nakagawa, Shuuhei Oosaka, Masaaki Miyashita and Keiji Tanino
- P-51 Synthetic Studies on Psiguadial B**
Masahiko Kinebuchi, Ryohei Uematsu and Keiji Tanino
- P-52 Synthesis and Morphological Characterization of Maltoheptaose End-Functionalized Polycaprolactones**
Takuya Isono, Issei Otsuka, Toshifumi Satoh, Redouane Borsali and Toyoji Kakuchi
- P-53 Preparation of Water-Soluble Polyisocyanates with Oligo(ethylene glycol) Side-Chain**
Naoya Sakai, Shin-ichiro Sato, Toshifumi Satoh and Toyoji Kakuchi
- P-54 Precise Synthesis of Aliphatic Polyesters and Polycarbonates Using Organic Acid as an Efficient Catalyst**
Kosuke Makiguchi, Shin-ichiro Sato, Toshifumi Satoh and Toyoji Kakuchi
- P-55 Expand the Scope of Group Transfer Polymerization of Acrylates Catalyzed by Organic Strong Acid: Synthesis of End-Functionalized Polymers**
Kenji Takada and Toyoji Kakuchi
- P-56 Efficient Production of Poly(lactate-co-3-hydroxybutyrate) Using Hemicellulose-derived Sugar, Xylose, in Engineered *Escherichia Coli* Overexpressing a Galactitol Transporter**
John Masani Nduko, Ken'ichiro Matsumoto, Tashihiko Ooi and Seiichi Taguchi
- P-57 Biosynthesis, Physical Properties and Enzymatic Degradation of Isotactic (R)-2-Hydroxybutyrate-based Polyester**
Jian Sun, Ken'ichiro Matsumoto, John Masani Nduko and Seiichi Taguchi

- P-58 Functional Analysis of Prenyltransferases Responsible for Diterpene Biosynthesis in Fungi**
Chengwei Liu, Motoyoshi Noike, Atsushi Minami, Hideaki Oikawa and Tohru Dairi
- P-59 Increase of Type 2 Collagen Accumulation in Cartilage-like Cell Sheet Derived from Bone Marrow Mesenchymal Stem Cells**
Yasushi Sato, Shigeyuki Wakitani and Mutsumi Takagi
- P-60 Identification of a Novel Positive Regulator of the cGAS/STING Pathway**
Kai Li, Kojiro Ishibashi, Takaya Hayashi, Seiichi Sato and Akinori Takaoka
- P-61 Interaction between Normal and Transformed Epithelial Cells -Roles for Caveolae Microdomains and Caveolin-1-**
Atsuko Ohoka and Yasuyuki Fujita