# 4th International Symposium on Precisely Designed Catalysts with Customized Scaffolding

Kinsho Hall in Todaiji Culture Center

**December 3 (Tue), 2019**

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<td>13:50-13:55</td>
<td>Opening Remarks (Prof. Nobuharu Iwasawa)</td>
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<td>13:55-14:35</td>
<td>Kuiling Ding (Chinese Academy of Sciences, China) SpinPhox/Ir Catalyzed Enantioselective Hydrogenations and Beyond</td>
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<td>14:35-15:05</td>
<td>Choon Hong Tan (Nanyang Technological University, Singapore) Chiral Cationic Ion-Pairing Catalysis</td>
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<td>15:05-15:35</td>
<td>Didier Bourissou (Université de Toulouse, CNRS, France) Gold-Redox Catalysis: It is all a Question of Ligand Design</td>
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<td>15:35-15:55</td>
<td>Shigeki Matsunaga (Hokkaido University) Chiral Sulfonate-Enabled Achiral Cp*Rh(III) -Catalyzed Asymmetric C-H Bond Functionalization</td>
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<td>15:55-16:20</td>
<td>Coffee Break</td>
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<td>16:20-16:50</td>
<td>Connie C. Lu (University of Minnesota, USA) Innovating Bimetallic Active Sites for Small-Molecule Activation</td>
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<td>16:50-17:20</td>
<td>Armido Studer (Westfälische Wilhelms University, Germany) Boron an Emergent Element in Radical Chemistry</td>
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<td>17:20-17:40</td>
<td>Shin Takemoto (Osaka Prefecture University) Synthesis and Reactivity of Metal-Containing Ligands</td>
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<td>17:40-18:00</td>
<td>Kazuaki Ishihara (Nagoya University) Chiral Macrocyclic O-Shaped Catalysts for Enantioselective Addition of Lithium Acetylides to Simple Ketones</td>
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<td>19:00-21:00</td>
<td>Banquet</td>
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### December 4 (Wed), 2019

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<tr>
<td>9:00-9:40</td>
<td>Paul J. Chirik (Princeton University, USA)</td>
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<td>PL2 Electronically-Enhanced, Site-Selective Cobalt-Catalyzed C–H Borylation</td>
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<td>9:40-10:10</td>
<td>Shunsuke Chiba (Nanyang Technological University, Singapore)</td>
<td>IL5</td>
<td>Synthetic Organic Reactions by Main Group Metal Hydrides</td>
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<td>10:10-10:35</td>
<td><strong>Coffee Break</strong></td>
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<td>10:35-11:05</td>
<td>Gerard Roelfes (University of Groningen, The Netherlands)</td>
<td>IL6</td>
<td>Designer Enzymes Featuring Unnatural Catalytic Functionalities</td>
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<td>11:05-11:25</td>
<td>Osami Shoji (Nagoya University)</td>
<td>JO4</td>
<td>Material Transformation Using Biocatalysts Assisted by External Additives</td>
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<td>11:25-11:45</td>
<td>Nobutaka Fujieda (Osaka Prefecture University)</td>
<td>JO5</td>
<td>Development of Artificial Metalloenzymes with a Small Barrel Protein</td>
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<td>11:45-13:15</td>
<td><strong>Lunch Break</strong></td>
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<td>13:15-13:35</td>
<td>Junichiro Yamaguchi (Waseda University)</td>
<td>JO6</td>
<td>Dearomative Transformation via $\pi$-Benzyl Complex Intermediate</td>
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<td>13:35-13:55</td>
<td>Yusuke Sunada (The University of Tokyo)</td>
<td>JO7</td>
<td>Catalyst Design Based on the Cooperative Functions Between Metal and Organosilyl Ligands</td>
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<td>13:55-14:15</td>
<td>Yoshiaki Nakao (Kyoto University)</td>
<td>JO8</td>
<td>Cross-coupling Reactions of Nitroarenes</td>
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<td>14:40-15:20</td>
<td>Joost NH Reek (University of Amsterdam, The Netherlands)</td>
<td>PL3</td>
<td>Transition metal catalysis in confined spaces</td>
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<td>From enzyme mimics towards tools for complexity in catalysis</td>
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<td>15:20-15:40</td>
<td>Takuya Hashimoto (Chiba University)</td>
<td>JO9</td>
<td>p-Block Element Catalysis for Alkene Functionalization</td>
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<td>15:40-16:00</td>
<td>Naoya Kumagai (Institute of Microbial Chemistry)</td>
<td>JO10</td>
<td>Catalytic Function Dictated by the $\text{B}_3\text{NO}_2$ Ring System</td>
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<td>16:00-18:00</td>
<td><strong>Poster Session</strong></td>
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<tr>
<td>9:00-9:40</td>
<td>Christophe Copéret (ETH Zürich, Switzerland)</td>
<td>Single-sites: Concept and Methods to Decipher Industrial Catalysts</td>
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<td>9:40-10:10</td>
<td>Brad P. Carrow (Princeton University, USA)</td>
<td>Catalyst Polarization by Design for Selective Non-Directed C–H</td>
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<td>Functionalization</td>
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<td>10:10-10:30</td>
<td>Mitsuhiro Arisawa (Osaka University)</td>
<td>Recyclable, Low-Leaching, and Ligand-Free Suzuki–Miyaura Coupling /</td>
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<td>Carbon-Nitrogen Bond Formation Using Iron(0) Nanoparticles</td>
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<td>10:30-10:50</td>
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<td>Coffee Break</td>
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<td>10:50-11:20</td>
<td>Ian A. Tonks (University of Minnesota, USA)</td>
<td>Small Molecule Amination via Ti-Catalyzed Nitrene Transfer</td>
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<td>11:20-11:40</td>
<td>Takashi Koike (Tokyo Institute of Technology)</td>
<td>New Design of Highly Reducing Organic Photoredox Catalysts</td>
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<td>11:40-12:00</td>
<td>Hideki Yorimitsu (Kyoto University)</td>
<td>Aromatic Metamorphosis of Benzofurans</td>
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<td>12:00-13:20</td>
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<td>Lunch Break</td>
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<td>13:20-13:40</td>
<td>Yoshiharu Iwabuchi (Tohoku University)</td>
<td>Aerobic Oxidative Kinetic Resolution of Racemic Secondary Alcohols</td>
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<td>Using Chiral AZADO/Copper Catalysis</td>
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<td>13:40-14:00</td>
<td>Mamoru Tobisu (Osaka University)</td>
<td>Nickel-Catalyzed Decarbonylation of Carbonyl Compounds</td>
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<td>14:00-14:20</td>
<td>Yoshiaki Nishibayashi (The University of Tokyo)</td>
<td>Molybdenum-Catalyzed Reduction of Molecular Dinitrogen into Ammonia</td>
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<td>under Ambient Conditions</td>
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<td>14:20-14:50</td>
<td>Jun Okuda (RWTH Aachen University, Germany)</td>
<td>Artificial Metalloenzymes for Olefin Metathesis</td>
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<td>14:50-15:00</td>
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<td>Closing Remarks (Prof. Kazushi Mashima)</td>
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* Lunch is included in the registration fee.
Poster Presentation

PA-1 **Kyoko Nozaki** (The University of Tokyo)
Selective Hydrogenolysis of Phenols to Arenes Enabled by Metal-Support Cooperation

PA-2 **Noritaka Mizuno** (The University of Tokyo)
Methyl-Selective Oxygenation of Tertiary Amines to Formamides by Employing Copper/Nitroxyl Radical

PA-3 **Hidetoshi Tokuyama** (Tohoku University)
Oxidative Transformations of 1,3-Dithiane Derivatives Catalyzed by Metal Phthalocyanine Complexes

PA-4 **Seiji Mori** (Ibaraki University)
DFT Investigations of Oxidative Kinetic Resolution of Racemic Secondary Alcohols Using Chiral Ligand-Hybridized Nitroxyl Radical/Copper Cooperative Catalysis

PA-5 **Junji Ichikawa** (University of Tsukuba)
Cyclizations in Cation-Stabilizing Hexafluoroisopropyl Alcohol, (CF₃)₂CHOH (HFIP)

PA-6 **Hideki Amii** (Gunma University)
Solvent-Promoted Catalyst-Free Fluoroalkylation of Carbonyl Compounds

PA-7 **Yasuhiro Ohki** (Nagoya University)
N₂ Activation by Bio-inspired Mo-Fe-S Cubes Supported by C₅Me₄R Ligands

PA-8 **Susumu Saito** (Nagoya University)
Reaction of H₂ with Krebs Cycle-Relevant Metabolites Using Single-Metal Molecular Catalysts

PA-9 **Takuya Kurahashi** (Kyoto University)
A Ferric Boroperoxo Porphyrin for Aerobic Oxidation of Alkenes

PA-10 **Ken-ichi Fujita** (Kyoto University)
Synthesis of 2-Methylquinoxaline Derivatives from Glycerol and Diamines Catalyzed by Iridium Complex

PA-11 **Takashi Nishikata** (Yamaguchi University)
Stereoconvergent tertiary alkylation of beta-substituted styrenes

PA-12 **Ryo Yazaki** (Kyushu University)
Chemoselective Catalytic α-Oxidation of Carboxylic Acids
PA-13 Tatsuya Uchida (Kyushu University)  
Catalytic Asymmetric Acyl Nitrene Transfer: Synthesis of Chiral N-Acyl Sulfides

PA-14 Masanari Kimura (Nagoya University)  
Copper Catalyzed Three-component Coupling Reaction of Terminal Alkyne, Organoborane, and Aldehyde

PA-15 Tetsuya Satoh (Osaka City University)  
Iridium-Catalyzed Dehydrogenative and Decarboxylative Coupling of Salicylic Acids with Internal Alkynes

PA-16 Takuya Kochi (Keio University)  
Asymmetric Functionalization of Unreactive Methylene C(sp³)-H Bonds via Chain Walking

PA-17 Laurean Ilies (RIKEN)  
Iron-Catalyzed Multifold C–H Coupling

PA-18 Nobuharu Iwasawa (Tokyo Institute of Technology)  
Selective Hydrosilylation of Nitriles to Imines Catalyzed by Rhodium Complexes Having Pincer-type Group 13 Metallylene Ligands

PA-19 Masaya Sawamura (Hokkaido University)  
Iridium-Catalyzed Alkene-Selective Transfer Hydrogenation with 1,4-Dioxane as Hydrogen Donor

PA-20 Sensuke Ogoshi (Osaka University)  
Nickel-catalyzed Synthesis of Ben佐xasiloles: Ligand-Controlled Switching from Inter- to Intramolecular Aryl-Transfer Process

PA-21 Kazuhiro Yoshida (Chiba University)  
Versatile and Enantioselective Preparation of Planar-Chiral Metallocene-Fused 4-Dialkylaminopyridines and Their Application in Asymmetric Organocatalysis

PA-22 Takayoshi Arai (Chiba University)  
Chiral Dinuclear Palladium Complexes for Catalytic Asymmetric Mannich reaction

PA-23 Kounosuke Oisaki (The University of Tokyo)  
A Bond-Weakening Borinate Complex for Improved Scope of Photoredox α-C–H Alkylation of Alcohols

PA-24 Fuyuhiko Inagaki (Kobe Gakuin University)  
Construction of 2,2-Dimethyloxepane Frameworks by Using Coinage Metal Catalyzed 7-Endo-Trig Cyclization of Ene-Dios
PA-25 Fumitoshi Shibahara (Gifu University)  
Synthesis of 5-(Arylsulfonyl)imidazo[1,5-a]pyridine-3-ylidene and Its Catalytic  
Applications

PA-26 Yoshihiro Miyake (Nagoya University)  
Direct C–H Fluorination of Alkanes with Manganese Diazaporphyrin  
Complexes

PA-27 Masato Kitamura (Nagoya University)  
Catalytic Asymmetric Dehydrative Allylation of Protic Nucleophiles Using a  
Monocationic CpRu Complex

PA-28 Ken Kamikawa (Osaka Prefecture University)  
Catalytic Asymmetric Synthesis of Planer-Chiral Ferrocenyl Complexes via  
Rh-Catalyzed Asymmetric Ring-Opening Reaction

PA-29 Yoshihiro Sohtome (RIKEN)  
Cross-Coupling of Persistent Tertiary Carbon-Centered Radicals with Azo  
Compounds

PA-30 Yumiko Nakajima (National Institute of Advanced Industrial Science and Technology)  
Catalytic Transformation of Chlorosilanes via Si–Cl Bond Cleavage

PA-31 Takashi Hayashi (Osaka University)  
A Proton Transfer Pathway for an H2-Evolving Molecular Diiron Catalyst  
Embedded within a Protein Scaffold

PA-32 Jun-ya Hasegawa (Hokkaido University)  
Mechanistic Investigation for the Copolymerization of CO2 and Cyclohexene  
Oxide Catalyzed by Novel Bifunctional Al(III) Porphyrin Catalyst

PA-33 Hiroyasu Yamaguchi (Osaka University)  
Creation of Supramolecular Catalysts with Monoclonal Antibodies as the  
Second Coordination Sphere

PA-34 Yoshio Hisaeda (Kyushu University)  
Construction of Bioinspired Catalytic System with Specific Reaction  
Environment

PA-35 Yutaka Hitomi (Doshisha University)  
Development of Artificial Nonheme Iron-dependent Peroxidase through  
Covalent Conjugation of Tetradentate Ligand with Protein

PA-36 Kazushi Mashima (Osaka University)  
Protic Compounds Mediated Telomerization of Alternating Copolymerization  
of CO2 and Epoxides by Macrocyclic CeZn3 Catalysts
PA-37 Michinori Suginome (Kyoto University)  
Copper–Bipiridine-Catalyzed Stereoinvertive Intramolecular C–C Bond Formation of α-(2-Bromobenzamido)benzylboronic Esters

PA-38 Ken Motokura (Tokyo Institute of Technology)  
Accelerating Effect of co-Immobilized Organic Functionality on Rh Complex-Catalyzed Heterogeneous Hydrosilylation

PA-39 Masahiko Inouye (University of Toyama)  
Development of Pyridine–Acetylene–Aniline Molecules having 4-Dimethylaminopyridine Units as Acylation Catalysts for Saccharides

PA-40 Tetsuaki Fujihara (Kyoto University)  
Remarkable Steric Effect of Carboxylate Ligand: Pd-Catalyzed Intramolecular C–H Bond Arylation Reactions

PA-41 Keisuke Asano (Kyoto University)  
Organocatalytic Enantio- and Diastereoselective Construction of syn-1,3-Diol Motifs via Dynamic Kinetic Resolution of In Situ Generated Chiral Cyanohydrins

PA-42 Kenji Hara (Tokyo University of Technology)  
Utilization of High-density Molecular Monolayers Aiming for Synergistic Unique Catalysis

PA-43 Norie Momiyama (Institute for Molecular Science, SOKENDAI)  
Development of Organocatalyst based on the Halogen Bond
PB-1  **Falk William Seidel**  (The University of Tokyo)  *et al.*
A novel rigid bidentate B/P ligand: Synthesis and Coordination Chemistry

PB-2  **Satoshi Takayama**  (The University of Tokyo)  *et al.*
Hybrid relay catalysis using Pd/C and p-toluenesulfonic acid for synthesizing unsymmetrically substituted triarylamines via acceptorless dehydrogenative aromatization

PB-3  **Meng Fanqiang**  (The University of Tokyo)  *et al.*
Catalytic Reduction of Dinitrogen to Ammonia and N(SiMe₃)₃ Using Rhenium Complexes

PB-4  **Ikuya Fujii**  (Kyoto University)  *et al.*
Magnesiation of Aryl Fluorides Catalyzed by Rhodium–Aluminum Bimetallic Complexes

PB-5  **Kosuke Okada**  (Tohoku University)  *et al.*
Total Synthesis of (−)-Deoxoapodine

PB-6  **Ryota Sasaki**  (Tohoku University)  *et al.*
Nitroxy Radical/Copper-Catalyzed Chemoselective Aerobic Oxidation of Divalent Sulfur-Containing Alcohols and Vicinal Amino Alcohols

PB-7  **Ryoma Fujii**  (Ibaraki University)  *et al.*
Theoretical Investigations of Ir-Catalyzed Enantioselective Carbene C(sp³)-H Insertion of ethylbenzene

PB-8  **Kosei Hachinohe**  (University of Tsukuba)  *et al.*
Synthesis of Difluoroalkenes and Fluorothiophenes via Difluorinated Thiiranes

PB-9  **Sichen Yue**  (Gunma University)  *et al.*
Copper-Catalyzed Trifluoromethylation of Haloalkenes

PB-10  **Kodai Ishihara**  (Nagoya University)  *et al.*
Hydride-Bridged Dinuclear Mo-Fe complexes: Synthesis and Catalytic N₂ Silylation

PB-11  **Shota Yoshioka**  (Nagoya University)  *et al.*
Development of Highly Active Ruthenium Catalysts for Selective Hydrogenation of Carboxylic Acids

PB-12  **Toshifumi Takahashi**  (Kyoto University)  *et al.*
Nickel-Catalyzed Cycloaddition of Benzothiophenes and Alkynes

PB-13  **Hayate Saito**  (Kyoto University)  *et al.*
Copper-Catalyzed Ring-Opening Silylation of Benzofurans with Disilane
PB-14  **Jaeyoung Jeong** (Kyoto university) *et al.*
Iridium-Catalyzed Rapid Conversion of 2,5-Dimethylpiperazine into 2,5-Dimethylpyrazine Accompanying the Evolution of Hydrogen

PB-15  **Shun Sakurai** (Osaka University) *et al.*
Iridium-Mediated Arylation of Quinoline via the Cleavage of Carbon-Carbon and Carbon-Nitrogen Bonds of N-Heterocyclic Carbenes

PB-16  **Tukasa Inishi** (Yamaguchi University) *et al.*
Iron-catalyzed Michael additions of indoles

PB-17  **Yohei Matsumoto** (Kyushu University) *et al.*
Radical Cross-Coupling of Amino Acid Schiff Bases for Highly Congested Unnatural α-Amino Acid Synthesis

PB-18  **Daiki Doiuchi** (Kyushu University) *et al.*
Ruthenium-Catalyzed Regio-Selective C–H Oxidation

PB-19  **Junya Nakao** (Nagasaki University) *et al.*
Palladium Catalyzed Coupling Reaction of 3-Hydroxy-4-pentenoic Acid with Aldehyde via C-C Bond Cleavage Reaction

PB-20  **Risa Yoshimoto** (Osaka City University) *et al.*
Rhodium(III)-Catalyzed Functionalization of α-Trifluoromethylacrylic Acid

PB-21  **Shota Kanno** (Keio University) *et al.*
Selective Long-Distance Isomerization of Terminal Alkenes via Nondissociative Chain Walking

PB-22  **Miki Kurosawa** (Waseda University) *et al.*
Pd-Catalyzed Deoxygenative C–P Bond Formation of Aromatic Esters with Organophosphorus Compounds

PB-23  **Yuya Ota** (Institute of Microbial Chemistry) *et al.*
TriQuinoline and Its O-Embedded Congeners

PB-24  **Ryota Nakaya** (Tokyo Institute of Technology) *et al.*
C–H Bond Transformation of Benzene Mediated by PSiP-Pincer Platinum Complexes and a Silver Salt

PB-25  **Deliang Zhang** (Hokkaido University) *et al.*
Acceptorless Dehydrogenation of N-Heterocycles with a Polystyrene-Cross-Linking Bisphosphine-Ir Catalyst

PB-26  **Eiki Tomita** (Hokkaido University) *et al.*
Synthesis of Cp^δIr(III) Complexes and Their Application
PB-27 **Keita Ashida** (Osaka University) *et al.*
Enantioselective Synthesis of Chiral γ-Lactams by Ni(0)-Catalyzed Asymmetric Carbonylative Cycloaddition

PB-28 **Risa Yasue** (Chiba University) *et al.*
Synthesis and Application of Planar Chiral Cyclic (Amino)(ferrocenyl)carbene Ligands Bearing FeCp*

PB-29 **Takumi Suzuki** (Chiba University) *et al.*
Electrophilic Activation of 2-Alkenylindoles through C-I···π Halogen Bond for [4+2] Cycloaddition

PB-30 **Kentaro Sakai** (The University of Tokyo) *et al.*
Identification of Bond-Weakening Spirosilane Catalyst for Photoredox α-C–H Alkylation of Alcohols

PB-31 **Yoshinao Kobayashi** (The University of Tokyo) *et al.*
Four Coordinated Iron Disilyl- and Digermyl Complexes: Effective Catalysts for Reduction Reactions

PB-32 **Seiya Tanaka** (Tokyo Institute of Technology) *et al.*
Atom-economical Sulfony-fluoroalkylation of Unsaturated C-C Bonds by Photoredox Catalysis

PB-33 **Hiroto Tanishima** (Kobe Gakuin University) *et al.*
Synthesis of (Au→B)₈-type gold complex and its catalytic reaction

PB-34 **Yoshifuru Shibata** (Gifu University) *et al.*
Substituent Effect on 1,5-Diarylindazo[1,5-a]pyridine-3-ylidene–Pd Complexes and Their Catalytic Applications

PB-35 **Tsubasa Nishimura** (Nagoya University) *et al.*
Selective Hydroxylation of Alkanes Catalyzed by Transition Metal Pyridinophane Complexes

PB-36 **Thien Phuc Le** (Nagoya University) *et al.*
Water, an Essential Element for a Zn²⁺-Catalyzed Asymmetric Quinone Diels–Alder Reaction: Multi-Selective Construction of Highly Functionalized cis-Decalines

PB-37 **Hiroaki Fujita** (Osaka Prefecture University) *et al.*
Ru₂ complex / SnO Dual Catalytic System for Conversion of Formic Acid to Methanol

PB-38 **Tomoka Hosokawa** (Osaka Prefecture University) et al.
PB-39  Nai-Yuan Jheng (National Institute of Advanced Industrial Science and Technology) et al.
Synthesis and Properties of Co(0) complexes bearing a tetradentate-PNNP ligand: A New Mode of Metal-ligand Cooperation

PB-40  Shunsuke Kato (Osaka University) et al.
Directed Evolution of a Rh(III)-Linked Biohybrid Catalyst for Isoquinoline Synthesis via C–H Bond Activation

PB-41  Liming Zhao (Hokkaido University) et al.
Controlled intersystem crossing in iron porphycene substituted myoglobin for cyclopropanation reaction: a theoretical study

PB-42  Kai Yonemura (Nagoya University) et al.
Regulation of the Reaction Site of Cytochrome P450BM3 with Peptide Derivatives

PB-43  Miki Shiihara (Osaka University) et al.
Utilization of Monoclonal Antibodies as an Asymmetric Reaction Field to Synthesize Spiro Compounds

PB-44  Yuki Anai (Kyushu University) et al.
Development of Visible Light Responsive Vitamin B_{12} Photocatalytic System for Green Molecular Transformation

PB-45  Miho Yuasa (Osaka Prefecture University) et al.
Development of Artificial Metalloenzyme for Stereoselective Michael Addition Reaction

PB-46  Keisuke Amanai (Doshisha University) et al.
Alkene Epoxidation with Electrochemically Generated Percarbonate Catalyzed by Manganese Complex

PB-47  Kohei Nishi (Osaka University) et al.
Chromium-Catalyzed Cyclopropanation of Alkenes with Bromoform Using 2,3,5,6-Tetramethyl-1,4-bis(trimethylsilyl)-1,4-dihydropyrazine

PB-48  Daiki Kato (Osaka University) et al.
Alkoxide-bridged Dinuclear Manganese Complexes as Catalysts for Esterification of Simple Tertiary N,N-Dialkylamides

PB-49  Nagataka Tsujimoto (Osaka University) et al.
Asymmetric Hydrogenation of Simple Olefins Catalyzed by A Mononuclear Monohydriderichloro Rhodium(III) Complex bearing (S)-DTBM-SEGPHOS

PB-50  Takuya Mochizuki (Nagoya University) et al.
Extremely Active Chiral Dilithium(I) Binaphthyldisulfonate Catalysts for Enantio- and Chemoselective Strecker-Type Reactions
| PB-51 | **Naoaki Kamiya** (Kyoto University) *et al.*  
Asymmetric Suzuki–Miyaura Cross-coupling Reactions in Pure Water with Water-Soluble Helical Polymer Ligands |
| PB-52 | **Yuto Shimazaki** (Kyoto University) *et al.*  
Indanol-Based Chiral Organoiodine Catalysts for Enantioselective Hydrative Dearomatization |
| PB-53 | **Chihiro Nakagawa** (Tokyo Institute of Technology) *et al.*  
Homogeneous and Heterogeneous Organocatalysts for Carbon Dioxide Reduction with Silicon Based Reducing Agents |
| PB-54 | **Tomoya Hayashi** (University of Toyama) *et al.*  
Developments of New Hydrogen-bond-donating Catalysts Consisting of Two Phenol Rings Liked by a Benzene Ring |
| PB-55 | **Ryo Hamaguchi** (Kyoto University) *et al.*  
Steric Effect of Carboxylate Ligands on Pd-Catalyzed Intermolecular C–H Bond Arylation Reactions |
| PB-56 | **Ryuichi Murata** (Kyoto University) *et al.*  
Desymmetrization of *gem*-Diols via Enantio- and Diastereoselective Cycloetherification of Using Bifunctional Organocatalysts |
| PB-57 | **Makito Yamada** (Osaka University) *et al.*  
Ligand-Free Suzuki-Miyaura Coupling of Aryl Chloride Using a Continuous Irradiation Type Microwave and Metal Nanoparticle Catalyst: Effect of a Coexisting Metal |
| PB-58 | **Hiroshi Mizukoshi** (Tokyo University of Technology) *et al.*  
Immobilization of TiO₂ Nanosheet on Gold Surface via Organic Monolayer |
| PB-59 | **Chanantida Jongwohan** (Institute for Molecular Science, SOKENDAI) *et al.*  
Brønsted Acid-initiated Formal [1,3]-Rearrangement Reaction of β-Substituted Ene-Aldimines |