

# THE 121ST ICR ANNUAL SYMPOSIUM

(10 December 2021)

## ORAL PRESENTATION

TAKEMOTO, Yasushi (Chemical Biology)  
“Chemical Biology Reveals New Functions of Squalene Synthase”

OHNO, Kohji (Chemistry of Polymer Materials)  
“Self-Assembly of Polymer-Brush-Decorated Hybrid Particles”

AOYAMA, Takashi (Molecular Biology)  
“Genetic Analysis of Plant Phosphoinositide Signaling”

OGAWARA, Ryo (Particle Beam Science)  
“Development of Resonant-Extraction Charge Breeder for Nuclear Reaction Studies of Rare-RI”

ENDO, Hisashi (Chemical Life Science)  
“Biogeography of Marine Phytoplankton”

### — ICR Award for Young Scientists —

ENDO, Hisashi (Chemical Life Science)  
“Biogeography of Marine Giant Viruses Reveals Their Interplay with Eukaryotes and Ecological Functions”

### — ICR Award for Graduate Students —

IWATA, Takahiro (Biofunctional Design-Chemistry)  
“Liquid Droplet Formation and Facile Cytosolic Translocation of IgG in the Presence of Attenuated Cationic Amphiphilic Lytic Peptides”

LI, Zhanzhao (Advanced Inorganic Synthesis)  
“Determinants of Crystal Structure Transformation of Ionic Nanocrystals in Cation Exchange Reactions”

KOSUGI, Yoshihisa (Advanced Solid State Chemistry)  
“Gigantic Barocaloric Effect by Large Latent Heat Produced by First-Order Intersite-Charge-Transfer Transition”

### — ICR Grants for Promoting Integrated Research —

NAKAMURA, Tomoya (Molecular Aggregation Analysis)  
“Efficient Perovskite Solar Cells Using Structural Analysis by Infrared Spectroscopy”

AMANO PATINO, Midori Estefani (Advanced Solid State Chemistry)  
“Investigation of Oxide Ion Mobility in a Series of Ruddlesden-Popper Perovskite Derivatives”

HAYASHI, Kan (Nanophotonics)  
“Spatially Controlled Fabrication of Shallow Nitrogen-Vacancy Centers in Diamond”

## POSTER PRESENTATIONS

**LW** : Laboratory Whole Presentation

**LT** : Laboratory Topic

**GE** : General Presentation

### — Organoelement Chemistry —

**LW** “Studies on the Synthesis and Properties of Novel Organic Compounds Containing Heavier Elements”

**GE** GARCIA, Julius Adrie; YUKIMOTO, Mariko; MIZUHATA, Yoshiyuki; TOKITOH, Norihiro  
“A Novel 1,4-Silyl Group Migration in the Reaction of a Sterically Hindered Benzylic Telluride with an Alkylolithium”

### — Structural Organic Chemistry —

**LW** “Research Activities in Structural Organic Chemistry Laboratory”

**GE** ZHANG, Sheng; HASHIKAWA, Yoshifumi; MURATA, Yasujiro  
“Cage-Expansion of Fullerenes”

### — Synthetic Organic Chemistry —

**LW** “Current Topics in Laboratory of Synthetic Organic Chemistry”

### — Advanced Inorganic Synthesis —

**LW** “Research in Advanced Inorganic Synthesis”

**GE** SUZUKI, Wataru; TAKAHATA, Ryo; TERANISHI, Toshiharu  
“Control over the Reactivity of Ligand-Exchange Reactions of a Gold Nanocluster by Bulky Incoming Ligands”

### — Chemistry of Polymer Materials —

**LW** “Recent Research in Chemistry of Polymer Materials Laboratory”

**GE** TAKAMURA, Yoshiro; KINOSE, Yuji; TSUJII, Yoshinobu  
“Anchoring Property of Liquid Crystal on Structurally Controlled Bottlebrush Thin Film”

### — Polymer Controlled Synthesis —

**LW** “Research Activities in Laboratory of Polymer Controlled Synthesis”

**GE** GOTO, Kana; TOSAKA, Masatoshi; YAMAGO, Shigeru  
“Elucidation of the Branching Effect in the Conformations of Amphiphilic Diblock Copolymers with Multibranching Structures”

[GE] ZHU, Nanyi; TOSAKA, Masatoshi; YAMAGO, Shigeru  
“Understanding and Predicting Monomer Reactivity Ratios in Radical co-Polymerization Using Machine Learning”

[GE] MORI, Takahiro; KAYAHARA, Eiichi; KATO, Tatsuhisa; YAMAGO, Shigeru  
“Synthesis and In-Plane Aromaticity of Dianion of Cyclic Paraphenylene Diketone”

#### — Inorganic Photonics Materials —

[LW] “Research Activities in Laboratory of Inorganic Photonics Materials”

#### — Nanospintronics —

[GE] FUNADA, Shinsaku  
“Temperature Dependence of the Magnetic Damping Constant in Ferromagnetic Garnet  $Gd_3Fe_5O_{12}$  Film”

#### — Biofunctional Design-Chemistry —

[LW] “Research in the Biofunctional Design Chemistry Laboratory”

[GE] OTONARI, Kenko; SHINODA, Kouki; IMANISHI, Miki; FUTAKI, Shiroh  
“Development and Perspective of Sequence-Specific RNA Demethylase”

#### — Chemistry of Molecular Biocatalysts —

[LW] “Research Activities in Laboratory of Chemistry of Molecular Biocatalysts”

#### — Molecular Biology —

[LW] “Research Activities in Molecular Biology Laboratory”

#### — Chemical Biology —

[LW] “Create New World of Bioactive Synthetic Molecules”

#### — Molecular Materials Chemistry —

[LW] “Molecular Materials Chemistry”

[GE] REN, Yongxia; WADA, Yoshimasa; SUZUKI, Katsuaki; KUSAKABE, Yu; GELDSETZER, Jan; KAJI, Hironori  
“A Novel Blue Thermally Activated Delayed Fluorescence Emitter Possessing Very Fast Reverse Intersystem Crossing”

[GE] MURAMATSU, Tomomi; TANAKA, Hiroyuki; SUZUKI, Katsuaki; KAJI, Hironori  
“Development of Solution-Processable Red Thermally Activated Delayed Fluorescence Materials”

#### — Hydrospheric Environment Analytical Chemistry —

[LW] “Reveal the Ocean by Using Trace Elements and Their Isotopes”

[GE] MATSUOKA, Kohei; TATSUYAMA, Tomomichi; TAKANO, Shotaro; SOHRIN, Yoshiki  
“Origin Analysis Using Stable Isotope Ratios of Mo and W in the Hydrosphere”

#### — Chemistry for Functionalized Surfaces —

[GE] YOSHIDA, Mariko; SHIOYA, Nobutaka; TOMITA, Kazutaka; SHIMOAKA, Takafumi; HASEGAWA, Takeshi  
“Template-Free Control of Molecular Orientation in Ph-BTBT- $C_{10}$  Thin Films”

[GE] OOTSUKI, Masashi; SHIMOAKA, Takafumi; SHIOYA, Nobutaka; HASEGAWA, Takeshi  
“Visualization of Molecular Orientation in Perfluoroalkane Particles by Raman Microscope Spectroscopy”

#### — Molecular Microbial Science —

[LW] “Introduction of Molecular Microbial Science Laboratory”

[GE] ZHU, Mengshan; OGAWA, Takuya; KAWAMOTO, Jun; IMAI, Tomoya; KURIHARA, Tatsuo  
“Construction of Hypervesiculation Mutants of *Shewanella vesiculosa* HM13 by Disrupting Genes Involved in Outer Membrane-Peptidoglycan Linkage”

#### — Polymer Materials Science —

[LW] “Polymer Materials Science”

[GE] AOKURA, Shuta; TAKENAKA, Mikihiro  
“Universality of Strain-Induced Density Fluctuations in Glassy Materials”

[GE] KUWATA, Satoshi  
“Evaluation of Heterogeneity of Nano-Scale Structure in Epoxy Adhesives by SMAXS-CT Method”

#### —Molecular Rheology —

[LW] “Research Activities in Molecular Rheology Laboratory”

#### — Molecular Aggregation Analysis —

[LW] “Research in Molecular Aggregation Analysis”

[GE] TRUONG, Minh Anh; UEBERRICKE, Lucas; FUNASAKI, Tsukasa; NOJO, Wataru; MURDEY, Richard; NAKAMURA, Tomoya; SUZUKI, Takanori; WAKAMIYA, Atsushi  
“Development of Hole-Collecting Monolayer Materials Based on Triazatruxene Skeleton”

[GE] HU, Shuaifeng; OTSUKA, Kento; MURDEY, Richard; NAKAMURA, Tomoya; TRUONG, Minh Anh; YAMADA, Takumi; HANDA, Taketo; MATSUDA, Kazuhiro; NAKANO, Kyohei; SATO, Atsushi; MARUMOTO, Kazuhiro; TAJIMA, Keisuke; KANEMITSU, Yoshihiko; WAKAMIYA, Atsushi  
“Mixed Tin-Lead Perovskite Solar Cells Achieved 23.6% Efficiency”

— Particle Beam Science —

[LW] “Particle Beam Science Laboratory”

— Laser Matter Interaction Science —

[LW] “Research Activities in Laboratory of Laser-Matter Interaction Science”

— Electron Microscopy and Crystal Chemistry —

[LW] “Research Activities in Division of Electron Microscopy and Crystal Chemistry”

[GE] LIN, I-Ching; HARUTA, Mitsutaka; NEMOTO, Takashi; KURATA, Hiroki  
“Structural Sensitivity and Atomic Vibration Effect on Ti  $L_{2,3}$ -Edge Core-Excited Spectrum”

— Atomic and Molecular Structures —

[LW] “Introduction of Atomic and Molecular Structures Laboratory”

— Synthetic Organotransformation —

[LW] “Introduction of Synthetic Organotransformation Group”

[GE] SUZUKI, Shogo; NAKAMURA, Yuki; ISOZAKI, Katsuhiro; NAKAMURA, Masaharu  
“Development of Organoacid Catalysts to Facilitate Woody Biomass Degradation Reaction”

[GE] ISERI, Kenta; ISOZAKI, Katsuhiro; NAKAMURA, Masaharu  
“Dual Catalysis of Peptide Dendron-Functionalized Gold Nanoclusters toward  $\alpha$ -C-H Alkynylation of Aliphatic Amines”

[GE] LU, Siming; AGATA, Ryosuke; ISOZAKI, Katsuhiro; NAKAMURA, Masaharu  
“Iron-Catalyzed Cross Coupling of Propargyl Electrophiles with Organoboron Reagents”

— Advanced Solid State Chemistry —

[LW] “Research Introduction in Advanced Solid State Chemistry Laboratory”

— Organometallic Chemistry —

[LW] “Recent Research Topics of the Ohki Laboratory”

[GE] WAKIOKA, Masayuki; ISHIZUKA, Risa  
“Properties of Polythiénylenevinylenes with Short Alkyl Side Chains”

[GE] SAKAI, Yuta; TANIFUJI, Kazuki; TADA, Mizuki; OHKI, Yasuhiro  
“ $N_2$  Reduction by the Co Sites Incorporated into Incomplete-Cubane  $[Mo_3S_4]$  Cores”

— Nanophotonics —

[LW] “Recent Research Topics of Nanophotonics Group”

— Chemical Life Science —

[LW] “Laboratory of Chemical Life Science”

— Mathematical Bioinformatics —

[LW] “DynCubeProd: Dynamic Solution Space Division-Based Methods for Calculating Reaction Deletion Strategies for Constraint-Based Metabolic Networks for Substance Production”

— Bio-knowledge Engineering —

[LT] NGUYEN, Canh Hao; MAMITSUKA, Hiroshi  
“Convex Clustering: Convexity, Bounding Balls and General Characteristics”