

# SELECTED GRANTS

## DIVISION OF SYNTHETIC CHEMISTRY

### — Organoelement Chemistry —

Tokitoh, N.  
Synthesis of Heavier Group 14 Element Analogues of Phenyl Anion and Their Properties  
Grant-in-Aid for Scientific Research (B)  
1 April 2016–31 March 2019

Mizuhata, Y.  
Synthesis of Novel Conjugated Molecules Utilizing Phenyl Anions as Building Blocks  
Grant-in-Aid for Scientific Research (B)  
1 April 2018–31 March 2021

### — Structural Organic Chemistry —

Hirose, T.  
Synthesis of  $\pi$ -Extended Helical Aromatic Molecules towards Creation of Novel Molecular Functions with Chirality  
Grant-in-Aid for Scientific Research (C)  
1 April 2018–31 March 2021

Murata, Y.  
Creation and Development of Nanoscale Laboratory  
Grant-in-Aid for Scientific Research (S)  
1 June 2017–31 March 2022

Murata, Y.  
Spherical  $\pi$ -Figuration Based on Functionalization of Sub-Nano Space  
Grant-in-Aid for Scientific Research on Innovative Areas  
1 April 2017–31 March 2019

Hashikawa, Y.  
Nanostructure Control and Creation of Novel Functions on Three-Dimensional  $\pi$ -Conjugated Molecules Using Weak Interactions  
Grant-in-Aid for Early-Career Scientists  
1 April 2018–31 March 2020

### — Synthetic Organic Chemistry —

Kawabata, T.  
Regioselective Molecular Transformation of Multifunctionalized Molecules  
Grant-in-Aid for Scientific Research (S)  
1 April 2014–31 March 2019

Ueda, Y.  
Synthesis of Glycoside-Based Middle Molecules via Sequential Site-Selective Functionalization  
Grant-in-Aid for Scientific Research on Innovative Area “Middle Molecular Strategy: Creation of Higher Bio-Functional Molecules by Integrated Synthesis”  
1 April 2018–31 March 2020

Ueda, Y.  
Silyl-Group-Directed Site-Selective C-H Functionalization  
Grant-in-Aid for Early-Career Scientists  
1 April 2018–31 March 2020

## DIVISION OF MATERIALS CHEMISTRY

### — Chemistry of Polymer Materials —

Tsujii, Y.  
Reinforcement of Resiliency of Concentrated Polymer Brushes and Its Tribological Applications – Development of Novel “Soft and Resilient Tribology (SRT)” System  
ACCEL Program by JST  
1 September 2015–31 March 2019

### — Polymer Controlled Synthesis —

Yamago, S.  
New Organic Chemistry and Material Science of Curved  $\pi$ -Conjugated Molecules  
Grant-in-Aid for Scientific Research (S)  
1 April 2016–31 May 2020

### — Inorganic Photonics Materials —

Mizuochi, N.  
High Sensitive and High Resolution Quantum Nano-sensor by Diamond  
Grant-in-Aid for Scientific Research (A)  
1 April 2016–31 March 2019

Mizuochi, N.  
Innovative Magnetic Sensor Based on Nano-electronics of Carbon Materials  
CREST (Core Research for Evolutional Science and Technology), JST  
1 April 2014–31 March 2019

#### Abbreviations and acronyms

JST : Japan Science and Technology Agency  
MEXT : Ministry of Education, Culture, Sports, Science and Technology  
METI : Ministry of Economy, Trade and Industry  
NEDO : New Energy and Industrial Technology Development Organization

Mizuochi, N.  
Creation of Innovative Sensor System by Advanced Control of Solid Quantum Sensor  
QLEAP (Flagship Program of Quantum Leap)  
1 November 2018–31 March 2028

Mizuochi, N.  
Creation of Energy Innovation Based on Innovative Semiconductor Technology that Holds the Key to Achieving Super Smart Society  
OPERA (Program on Open Innovation Platform with Enterprises, Research Institute and Academia)  
1 November 2018–31 March 2023

— **Nanospintronics** —

Ono, T.  
Spin-Orbitronics and Device Application  
New Research Projects under Specially Promoted Research  
1 April 2015–31 March 2020

**DIVISION OF BIOCHEMISTRY**  
— **Biofunctional Design-Chemistry** —

Futaki, S.  
New Strategies for Intracellular Delivery of Biopharmaceuticals  
Grant-in-Aid for Science Research (A)  
1 April 2015–31 March 2018

Imanishi, M.  
Construction of Strategies for Sequence Specific Epigenomic Manipulation  
Grant-in-Aid for Science Research (B)  
1 April 2016–31 March 2019

Kawano, K.  
Elucidation of the Mechanism at the Influx Point Occurrence of Membrane Penetrating Peptide Using Artificial Lipid Raft  
Grants-in-Aid for Young Scientists  
1 April 2018–31 March 2020

— **Molecular Biology** —

Aoyama, T.  
Plant Epidermal Cell Differentiation Regulated by the Transcription Factor GL2  
Grant-in-Aid for Scientific Research (B)  
1 April 2016–31 March 2020

Aoyama, T.  
Mechanism for Establishment of Planar Polarity in Plant Cell Morphogenesis  
Grant-in-Aid for Scientific Research (C), Special Field  
1 April 2016–31 March 2019

Fujiwara-Kato, M.  
Elucidation of Phospholipid Signaling for Root Hair Elongation in Plants  
Grant-in-Aid for Young Scientists (B)  
1 April 2017–31 March 2019

— **Chemical Biology** —

Uesugi, M.  
Control and Analysis of Cells by Synthetic Small Molecules  
Grant-in-Aid for Scientific Research (S)  
30 May 2014–31 March 2019

Uesugi, M.  
Chemical Biological Exploration of New Functions of Endogenous Lipid-related Molecules  
AMED-CREST  
1 October 2014–31 March 2020

Uesugi, M.  
Chemical Signals of Synthetic Nutrient Conjugates  
Grant-in-Aid for Scientific Research on Innovative Areas  
1 July 2017–31 March 2022

**DIVISION OF ENVIRONMENTAL CHEMISTRY**  
— **Molecular Materials Chemistry** —

Kaji, H.  
Fundamental Science of Organic Devices Based on Detailed Structural Analysis and Theoretical Chemistry  
Grant-in-Aid for Scientific Research (A)  
1 April 2017–31 March 2020

Shizu, K.  
Density Form of Electronic Transitions and Its Applications to Electroluminescent Materials  
Grant-in-Aid for Young Scientists (B)  
1 April 2017–31 March 2019

— **Hydrospheric Environment Analytical Chemistry** —

Sohrin, Y.  
Development of Heavy Metal Stable Isotope Marine Chemistry to Understand Marine Environment and Ecosystem  
Grant-in-Aid for Scientific Research (A)  
1 April 2015–31 March 2018

Takano, S.  
Development of the Method for Multi-Element Isotope Ratio Analysis for the Study of Trace Metals in the Marine Environment  
Grant-in-Aid for Young Scientists  
1 April 2018–31 March 2020

— **Chemistry for Functionalized Surfaces** —

Hasegawa, T.  
Development of ROA Imaging and Its Application to Visualization of Atropisomers for a Study of Fluoroorganic Chemistry  
Grant-in-Aid for Scientific Research (A)  
1 April 2015–31 March 2020

Shimoaka, T.  
Molecular Interaction Analysis for Understanding Perfluoroalkyl Compound-Specific Properties  
Grant-in-Aid for Young Scientists (B)  
1 April 2017–31 March 2020

— **Molecular Microbial Science** —

Kurihara, T.  
Mechanism of Biogenesis of Membrane Microdomain Containing Polyunsaturated Fatty Acids in Bacteria and Its Physiological Functions  
Grant-in-Aid for Scientific Research (B)  
1 April 2015–31 March 2018

Kurihara, T.  
Exploration and Development of Cold-Adapted Microorganisms Useful in Low-Temperature Biotechnology for Chemical Production and Environmental Conservation  
Grant-in-Aid for Scientific Research (B)  
1 April 2017–31 March 2020

Kurihara, T.  
Diversity of Acyl Groups of Phospholipids in Bacterial Cell Membranes: Its Generation Mechanism and Physiological Significance  
Grant-in-Aid for Scientific Research (B)  
1 April 2018–31 March 2021

Kurihara, T.  
Elucidation of the Mechanism of Extracellular Membrane Vesicle Production with a Novel Bacterium That Abundantly Produces Vesicles and Their Application  
Grant-in-Aid for Challenging Research (Exploratory)  
29 June 2018–31 March 2020

Kawamoto, J.  
Development of a Membrane Protein Production System by Using Tailor-made Membrane Vesicles Synthesized by Extremophiles  
Grant-in-Aid for Challenging Exploratory Research  
1 April 2016–31 March 2018

Ogawa, T.  
Enzymatic Analysis of Molecular Basis for *de novo* Synthesis of Phosphatidic Acid  
Grant-in-Aid for Young Scientists (B)  
1 April 2017–31 March 2019

#### **DIVISION OF MULTIDISCIPLINARY CHEMISTRY** — Polymer Materials Science —

Takenaka, M.  
Nano-Control Technologies for DSA Nano-Patterning  
Nano Defect Management Project  
1 July 2016–31 March 2018

Ogawa, H.  
Development of Visualizing Method through Cooperative Small Angle X-ray Scattering Coupled with Computed Tomography (SAXS-CT) and Information Science  
Strategic Basic Research Programs, PRESTO, JST  
1 September 2016–31 March 2020

#### — Molecular Aggregation Analysis —

Wakamiya, A.  
Development of Film Photovoltaics  
COI STREAM (Center of Innovation Science and Technology Based Radical Innovation and Entrepreneurship Program), JST  
1 April 2013–31 March 2021

Wakamiya, A.  
High Performance Pb-Free Perovskite Solar Cells  
ALCA (Advanced Low Carbon Technology Research and Development Program), JST  
16 November 2016–31 March 2021

#### **ADVANCED RESEARCH CENTER FOR BEAM SCIENCE** — Laser Matter Interaction Science —

Sakabe, S.  
Proof of Concept for Electron Optical System Using Intense Laser-driven Surface Wave  
Grant-in-Aid for Scientific Research (A)  
1 April 2016–31 March 2019

Hashida, M.  
Stable Formation of Advanced Functionality on Metal Surface Produced by High Electric Field of Laser Pulse  
Grant-in-Aid for Scientific Research (C)  
1 April 2016–31 March 2019

Hashida, M.  
Surface Structures on Solar Cells by Advanced Laser Processing for Improving the Performance  
The Amada Foundation AF-2018203-A3  
1 October 2018–31 March 2022

Hashida, M.  
Operand Measurement by Advanced Beams for the Nanostructure Formation Mechanism  
Q-LEAP Flagship Program, Basic and Fundamental Research  
1 November 2018–31 March 2028

Inoue, S.  
Time-resolved Radiograph Measurement for Ultrafast Transient Electromagnetic Fields with Intense Laser-accelerated Short Pulse Electron  
Grant-in-Aid for Scientific Research (C)  
1 April 2018–31 March 2021

Kojima, S.  
Anomalous Heating of High Dense Fusion Plasma with Crossing Fast Electron Beams  
Grant-in-Aid for JSPS Research Fellow  
26 April 2017–31 March 2020

Kojima, S.  
Probing Ultrafast Motion of Critical Surface Pushed by Multipico-second Relativistic Radiation Pressure  
Grant-in-Aid for Early-Career Scientists  
1 April 2018–31 March 2020

#### — Electron Microscopy and Crystal Chemistry —

Kurata, H.  
Advanced Characterization Nanotechnology Platform at Kyoto University  
Nanotechnology Platform Project, MEXT  
2 July 2012–31 March 2022

Kurata, H.  
Development of Precise Spatially Resolved EELS and Analysis of Interfacial Electronic States  
Grant-in-Aid for Scientific Research (B)  
1 April 2017–31 March 2020

Kurata, H.  
State Analysis of Organic Nanomaterials by High-Resolution EELS  
Grant-in-Aid for Challenging Exploratory Research  
1 April 2016–31 March 2018

Haruta, M.  
Electronic State Mapping Using Oxygen  
Grant-in-Aid for Young Scientists (A)  
1 April 2014–31 March 2018

## INTERNATIONAL RESEARCH CENTER FOR ELEMENTS SCIENCE

### — Synthetic Organotransformation —

Nakamura, M.  
Development of Selective Woody Molecular Transformations for Forest Chemical Industry  
Grant-in-Aid for Challenging Research (Exploratory)  
29 June 2018–31 March 2020

Takaya, H.  
Artificial Enzymes Base on Metalated Peptides  
Grant-in-Aid for Scientific Research (B)  
1 April 2017–31 March 2020

Iwamoto, T.  
Development of Novel Halogenation by Photocatalyst  
Grant-in-Aid for Early-Career Scientists  
1 April 2018–31 March 2020

### — Advanced Solid State Chemistry —

Shimakawa, Y.  
Solid-state Chemistry for Transition-metal Oxides: Exploring for New Materials with Novel Functionalities  
JSPS Core-to-Core Program  
1 April 2016–31 March 2020

### — Nanophotonics —

Kanemitsu, Y.  
Design of Next-generation Flexible Photonic Devices Based on Metal-halide Perovskites  
CREST(Core Research for Evolutional Science and Technology), JST  
1 October 2016–31 March 2022

Kanemitsu, Y.  
Higher Harmonic Generation in Semiconductor Nanomaterials and Strong Electric Field Nonlinear Optics  
Grant-in-Aid for Scientific Research (A)  
1 April 2018–31 March 2021

## BIOINFORMATICS CENTER

### — Chemical Life Science —

Ogata, H.  
Deciphering the Mechanisms of Virus-Host Co-Existence in Aquatic Environments  
Grant-in-Aid for Scientific Research on Innovative Area “Neovirology, the Raison d’Etre of Viruses”  
30 June 2016–31 March 2021

Ogata, H.  
Probabilistic and Statistical Theory on Non-Abelian Topological Semigroup  $A^*$  and Its Application to Environmental Microbiology and Bioengineering  
Grant-in-Aid for Scientific Research (B)  
19 July 2016–31 March 2019

Ogata, H.  
Deep Understanding of the Diversity and Ecology of Giant Viruses in Aquatic Microbial Communities  
The Kyoto University Foundation  
1 July 2017–31 March 2018

Ogata, H.  
Comprehensive Understanding of the Role of Giant Viruses in Aquatic Ecosystems  
Grant-in-Aid for Scientific Research (B)  
1 April 2018–31 March 2022

Ogata, H.  
Innovative Foundation of Viral Oceanography Based on a Comprehensive Virome Study  
Grant-in-Aid for Scientific Research (B)  
1 April 2017–31 March 2020

Ogata, H.  
Elucidation of the Origin and Mechanism of Success of Diatoms through Comparative Biological Analyses between Ancient Centric Diatoms and Their Sister Paramales  
Grant-in-Aid for Scientific Research (B)  
1 April 2017–31 March 2020

Ogata, H.  
Comprehensive Study and Establishment of Application Foundation of Carboxydrotrophic Bacteria through Spatio-Temporal Search  
Grant-in-Aid for Scientific Research (S)  
1 April 2016–31 March 2021

Blanc-Mathieu, R.  
Unraveling Evolutionary Mechanisms That Led to the Success of Diatoms  
The Kyoto University Foundation  
1 July 2018–31 March 2019

### — Mathematical Bioinformatics —

Tamura, T.  
Developing Control Methods for Biological Networks on Mathematical Models  
Grant-in-Aid for Scientific Research (C)  
1 April 2016–31 March 2019

Akutsu, T.  
Analysis and Application of Discrete Preimage Problems  
Grant-in-Aid for Scientific Research (A)  
2 April 2016–31 March 2023

Mori, T.  
Development of a Detailed Cell Classification and Evaluation Method Based on DNA Methylation Information  
Grant-in-Aid for Young Scientists (B)  
1 April 2017–31 March 2019

### — Bio-knowledge Engineering —

Mamitsuka, H.  
Reinforcement of Resiliency of Concentrated Polymer Brushes and Its Tribological Applications  
Strategic Basic Research Program, ACCEL, JST  
1 September 2015–31 March 2020

Mamitsuka, H.  
Efficiently Inferring Factors Embedded in Multiple Data Matrices  
Grant-in-Aid for Scientific Research (B)  
1 April 2016–31 March 2019

Yotsukura, S.  
Computational Breeding Design of Least Allergen Crops  
PRESTO (Precursory Research for Embryonic Science and Technology), JST  
1 October 2017–31 October 2018

Nguyen, C. H.  
Machine Learning on Large Graphs  
Grant-in-Aid for Scientific Research (C)  
1 April 2018–31 March 2021