# **SELECTED GRANTS**

## DIVISION OF SYNTHETIC CHEMISTRY — Organoelement Chemistry —

Tokitoh, N.

Creation of Novel Catalysts Centered on the Coordination Diversity of Heavy Typical Elements Grant-in-Aid for Scientific Research on Innovative Area "Stimuliresponsive Chemical Species for the Creation of Functional Molecules" 28 June 2012-31 March 2017 Tokitoh. N. Electron-state Control of Aromatic Compounds Containing Heavier Group 14 Elements by Substituent introduction and Element Substitution Grant-in-Aid for Scientific Research (B) 1 April 2013-31 March 2016 Tokitoh, N. Synthesis and Properties of Alumoles Having an Aluminum-Halogen Bond Grant-in-Aid for Challenging Exploratory Research 1 April 2014-31 March 2016 Tokitoh. N. Synthesis and Properties of Phenyl Anion Analogs Containing Heavier Group 14 Elements Grant-in-Aid for Scientific Research (B) 1 April 2016-31 March 2019 Sasamori, T. Construction of [2]Ferrocenophanes Linked by  $\pi$ -Bond between Heavier Group 14 Elements and Control of Their Ring-opening Polymerization Grant-in-Aid for Scientific Research on Innovative Area "Emergent Chemistry of Nano-scale Molecular Systems" and "New Polymeric Materials Based on Element-Blocks" 1 April 2013-31 March 2017 Sasamori, T. Development of Transformations of Small Molecules and Multicomponent Couplings Utilizing Low-valent Compounds of Heavier Group 14 Elements Grant-in-Aid for Scientific Research (B)

1 April 2015–31 March 2018

Sasamori, T. Construction of d-π Electron Systems Containing Heavier Group 14 Elements and Their Functionalization Grant-in-Aid for Challenging Exploratory Research 1 April 2015–31 March 2017 Mizuhata, Y.

Construction of Silicon-containing Dehydroannulenes and Their Aromaticity and Antiaromaticity Grant-in-Aid for Scientific Research (C) 1 April 2014–31 March 2017

#### - Structural Organic Chemistry -

Murata, Y. Synthesis of Tailor-made Nanocarbons and Their Application to Electronic Devices Grant-in-Aid for Scientific Research (A) 1 April 2011–31 March 2016

## Murata, Y.

Molecular Interface Science of π-Conjugated Carbon Complexes on Non-Equilibrated States PRESTO (Precursory Research for Embryonic Science and Technology), JST 1 October 2012–31 March 2016

#### Murata, Y.

Spherical  $\pi\textsc{-}Figuration$  Based on Functionalization of Sub-Nano Space

Grant-in-Aid for Scientific Research on Innovative Areas "π-System Figuration"

1 April 2015-31 March 2017

#### Murata, Y.

Functional Molecular Systems Based on Dynamic Behavior of Active Species

Grant-in-Aid for Scientific Research on Innovative Areas "Stimuliresponsive Chemical Species for the Creation of Functional Molecules"

1 April 2015-31 March 2017

## Murata, Y.

Creation of New Reactive Chemical Species by the Ultimate Steric Protection Grant-in-Aid for Challenging Exploratory Research 1 April 2015–31 March 2017

Wakamiya, A. Development of Organic Dyes Based on Fine Tuning of  $\pi$ -Orbitals using DFT Calculations PRESTO (Precursory Research for Embryonic Science and Technology), JST 1 October 2010–31 March 2016

- 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

Wakamiya, A. Creation of Wireless Electric Power Supply Center of Innovation Program (COI) 1 October 2013–31 March 2022

Wakamiya, A. High Dimensional Structural Control of π-Conjugated Systems and Their Functionalization Grant-in-Aid for Scientific Research (B) 1 April 2014–31 March 2017

## Wakamiya, A. Development of High Performance and Environmentally Friendly Perovskite Type Solar Cells Advanced Low Carbon Technology Research and Development Program (ALCA) 16 November 2016–31 March 2021

Murata, M. Organization of Nanocarbon Molecules Based on Metal Coordination Grant-in-Aid for Challenging Exploratory Research 1 April 2014–31 March 2016

## Murata, M.

Development of Neutral Thermoelectric Materials Based on  $\pi$ -Extended Metal-Bis(dithiolene) Complexes PRESTO (Precursory Research for Embryonic Science and Technology), JST 1 October 2016–31 March 2020

Murata, M. Exploratory Studies on Materials for Energy Conversion Based on Efficient Synthesis of  $\pi$ -Conjugated Multimetallic Complexes Grant-in-Aid for Challenging Exploratory Research 1 April 2016–31 March 2018

Murata, M. Development of Functional Materials Based on Efficient Synthesis of PAHs Containing Pentagon Rings Grant-in-Aid for Scientific Research (B) 1 April 2016–31 March 2019

Murata, M. Exploration of Functions of Cyclopenta-Fused Polycyclic Aromatic Hydrocarbons CP-PAHs Research Encouragement Grants, The Asahi Glass Foundation 1 April 2016–31 March 2018

## - Synthetic Organic Chemistry -

Kawabata, T. Regioselective Molecular Transformation Based on Organocatalytic Molecular Recognition Grant-in-Aid for Scientific Research on Innovative Area 1 October 2011–31 March 2015

Kawabata, T. Regioselective Molecular Transformation of Multifunctionalized Molecules Grant-in-Aid for Scientific Research (S) 1 April 2014–31 March 2018 Furuta, T. Direct Intra and Intermolecular Aldol Reaction by Catalytic Discrimination of Aldehydes Grant-in-Aid for Scientific Research (C) 1 April 2014–31 March 2017

## Ueda, Y.

Site-Selective Molecular Transformation Promoted by Anion-Exchange of Cationic Intermediates in Nucleophilic Catalysis Grant-in-Aid for Young Scientists (B) 1 April 2015–31 March 2017

### Ueda, Y.

Synthesis of Carbohydrate-Related Middle Molecules Based on Sequential Site-Selective Functionalization Grant-in-Aid for Scientific Research on Innovative Areas 1 April 2016–31 March 2018

Yoshida, K.

Total Synthesis of Natural Products by Using Organocatalytic Asymmetric Construction of All-carbon Quaternary Stereocenter Grant-in-Aid for Young Scientists (B) 1 April 2016–31 March 2019

## - Advanced Inorganic Synthesis -

## Teranishi, T.

Establishment of Deeply Penetrating Photoacoustic Imaging Technology Based on Fucntional Probes: Design and Synthesis of Activatable Probes and Development of in vivo Imaging Technology Industry-Academia Collaborative R&D Programs, Japan Agency for Medical Research and Development 1 December 2011–31 March 2017

## Teranishi, T.

Synthesis of Magnetic Nanoparticles for Creating Novel Nanocomposite Magnetic Materials Elements Strategy Initiative, MEXT 1 July 2012–31 March 2022

## Teranishi, T.

Research on Nanoscale Phase-Controlled Nanocomposite Magnets Mirai Kaitaku Research Project, NEDO 1 October 2012–31 March 2022

## Teranishi, T.

Development of Green Sustainable Chemical Process Mirai Kaitaku Research Project, NEDO 1 November 2012–31 March 2022

Teranishi, T. Novel Development of Asymmetry Chemistry in Inorganic Nanocrystals Grant-in-Aid for Scientific Research on Innovative Areas 30 June 2016–31 March 2021

Teranishi, T. Formation of Novel Metallic Phase Nanoparticles and Development of Their Catalytic Properties Grant-in-Aid for Scientific Research (B) 1 April 2016–31 March 2019 Sakamoto, M.

Investigation on the Gain-of-function Process by the Formation of Nanoparticle Assemblage Using DNA Origami SPIRITS (Supporting Program for Interaction-based Initiative Team Studies)

1 April 2015–31 March 2017

Sato, R. Development of The Novel and Versatile Alloying Process via Nanosized Phosphorus Compounds Grant-in-Aid for Challenging Exploratory Research 1 April 2015–31March 2017

Saruyama, M. Orientational Control and Structure-specific Properties of Heterostructural Nanoparticles Grant-in-Aid for Research Activity Start-up 1 October 2015–31March 2017

## 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, JST 1 September 2015–31 March 2019

Tsujii, Y. Super Lubrication of Novel Nano-Brushes Advanced Environmental Materials of Green Network of Excellence (GRENE) program, MEXT 6 December 2011–31 March 2016

Tsujii, Y. Development

Development of High-Performance Li-ion Batteries using Highcapacity, Low-cost Oxide Electrodes NEDO Project for Development of Novel Technology in Li-ion Batteries 1 October 2012–27 February 2017

Ohno, K. Development of Ionic Liquid-Containing Blend Films PRESTO (Precursory Research for Embryonic Science and Technology), JST 1 October 2013–31 March 2017

Sakakibara, K. Construction of Cellulosic Bottlebrushes with Regioselectively Substituted Side Chains Grant-in-Aid for Young Scientist (B) 1 April 2016–31 March 2018

- 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 March 2021 Yamago, S. Highly Value-added Polymer Material Created by New Living Radical Polymerization Agent Next Generation Technology Transfer Program (NexTEP), JST 1 April 2014–31 March 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 2021

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

Mizuochi, N. Research on Diamond Quantum Information Device TORAY Science and Technology Research Grant 1 January 2016–31 March 2018

Morishita, H. Electrical Coherent Detection of Electron Spin of NV Centers in Diamond Grant-in-Aid for Encouragement of Young Scientists (B) 1 April 2016–31 March 2018

## - 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

## - Chemistry of Molecular Biocatalysts -

Watanabe, B. Synthesis of γ-Glutamyl Transpeptidase-Specific Chemical Probes and Their Application to Cancer Immunotherapy Grant-in-Aid for Young Scientists (B) 1 April 2015–31 March 2017

## - 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

## - 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

## DIVISION OF ENVIRONMENTAL CHEMISTRY — Molecular Materials Chemistry —

Kaji, H.

Structure and Function of Organic Thin-Film Solar Cells: Specially-Shaped Polymers and Hierarchical Structure Analysis Grant-in-Aid for Scientific Research (A) 1 April 2013–31 March 2016

## Kaji, H.

Adachi Molecular Exciton Engineering Project ERATO (Exploratory Research for Advanced Technology), JST 1 April 2014–31 March 2018

## Fukushima, T.

Solid-State NMR Analysis of Bulk Heterostructures toward Highefficiency Organic Solar Cells Grant-in-Aid for Young Scientists (B) 1 April 2014–31 March 2016

Fukushima, T.

Study on Weather Resistance of Solution-Processable Organic Solar Cells Suga Weathering Technology Foundation 1 April 2015–31 March 2016

## Shizu, K. A Method of Visualizing Radiative and Non-Radiative Decays and Its Applications to Design for Deep-Blue Organic Emitters Grant-in-Aid for Young Scientists (B)

1 April 2015–31 March 2017

## Kaji, H.

Analysis of Organic Photovoltaics Materials by Solid-State Dynamic Nuclear Polarization SPIRITS (Supporting Program for Interaction-based Initiative Team Studies) 1 April 2015–31 March 2017

Fukushima, T.
A Fundamental Study on Weather Resistance of Solution-Processed Organic Solar Cells by Solid-State NMR
Grant-in-Aid for Scientific Research (C) 1 April 2016–31 March 2018

## - Hydrospheric Environment Analytical Chemistry -

## Sohrin, Y.

Development of Novel Proxies for Paleoceanography on the Precise Analysis of Stable Isotope Ratios of Heavy Metals Grant-in-Aid for Challenging Exploratory Research 1 April 2014–31 March 2017

## Sohrin, Y.

Development of Heavy Metal Stable Isotope Marine Chemistry to Understand Marine Environment and Ecosystems Gtant-in-Aid for Scientific Research (A) 1 April 2015–31 March 2018

## - Solution and Interface Chemistry -

## 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

## Hasegawa, T.

Development of Novel Analytical Techniques for Revealing Molecular Orientation of Adsorbed Molecules on a Rough Surface or on Nano Particles Grant-in-Aid for challenging Exploratory Research 1 April 2014–31 March 2016

## Hasegawa, T.

Development of a Novel Analytical Spectroscopy for Strategic Molecular Design of a Fluorine-containing Acryl Polymer Enabling Us to Overcome Environmental Regulations

Matching Planner Program: Cooperation Research with a Company 1 June 2016–31 March 2017

## Shimoaka, T.

Development of Analytical Techniques for Studying the Structure and Property of a Polymer Influenced by Minute Water Molecules Involved in a Polymer Thin Film Grant-in-Aid for Young Scientists (B) 1 April 2014–31 March 2017

## - 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.

Analysis of Cold-Adaptation Mechanism of Food Spoilage Bacteria and Its Application to Food Industry Grant-in-Aid for Challenging Exploratory Research 1 April 2015–31 March 2017 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. Research on Acyltransferases that Create Heterogeneity of Bacterial Biomembranes Grant-in-Aid for Research Activity Start-up 23 August 2015–31 March 2017

## DIVISION OF MULTIDISCIPLINARY CHEMISTRY — Polymer Materials Science —

Takenaka, M. Photon and Quantum Basic Research Coordinated Development Program, JST 1 September 2013–31 March 2018

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 (Precursory Research for Embryonic Science and Technology), JST 1 September 2016–31 March 2020

## - Molecular Rheology -

Watanabe, H. Relationship Between Chemical Structure and Extensional Behavior of Entangled Polymer Chain Grant-in-Aid for Scientific Research (B) 1 April 2015–31 March 2018

Matsumiya, Y. Experimental Test on the Dynamics of Telechelic Polymers Grant-in-Aid for Scientific Research (C) 1 April 2015–31 March 2018

## ADVANCED RESEARCH CENTER FOR BEAM SCIENCE — Particle Beam Science —

Iwashita, Y. Quantum Improvement of the Superconducting Acceleration Cavity Performance by the Laminated Film Structure Grant-in-Aid for Challenging Exploratory Research 1 April 2014–31 March 2016

Iwashita, Y. Fundamental Technology Development for High Brightness X-ray Source and the Imaging by Compact Accelerator Photon and Quantum Basic Research Coordinated Development Program

1 April 2013-31 March 2017

## - Laser Matter Interaction Science -

Sakabe, S. Proof of Concept for Electron Optics 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.

Advanced Research Program for Energy and Environmental Technologies/Manufacturing Technologies Development of High Quality Laser Material Processing for Inducing New Functionalities New Energy and Industrial Technology Development Organization 4 January 2016–4 January 2017

## Inoue, S.

Demonstration of Laser-driven Ultrafast and Intense Electron Source with Solid-plasma Hybrid Cathode Grant-in-Aid for Encouragement of Young Scientists (B) 1 April 2016–31 March 2018

## - 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.

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 Scientist (A) 1 April 2014–31 March 2018

#### Haruta, M.

Basic Research of Atomic Resolution Organic Crystal Image Using STEM Grant-in-Aid for Challenging Exploratory Research 1 April 2014–31 March 2017

# INTERNATIONAL RESEARCH CENTER FOR ELEMENTS SCIENCE

-Synthetic Organotransformation-

Nakamura, M. Synthesis of Nitrogen-Containing Polycyclic Aromatic Compounds via Iron-catalyzed C-H Amination Grant-in-Aid for Challenging Exploratory Research 1 April 2015–31 March 2016

Takaya, H. Solution-Phase Characterization of Paramagnetic Metal Complex by X-ray Absorption Spectroscopy Grant-in-Aid for Challenging Exploratory Research 1 April 2015–31 March 2017

## Isozaki, K.

Development of Catalytic Multi-photon-excited Photoreactions in the Reaction Field Localizing Substrates and Excitation Sources Grant-in-Aid for Scientific Research on Innovative Areas "Application of Cooperative Excitation into Innovative Molecular Systems with High-Order Photofunctions" 1 April 2015-31 March 2017

## Iwamoto, T.

Development of Aromatic C-H Functionalization Base on Cation- $\pi$ Interaction Grant-in-Aid for Young Scientists (B) 1 April 2015-31 March 2017

## - 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

## - Organometallic Chemistry -

Ozawa, F.

Synthesis and Catalytic Properties of Stimulus-responsible Transition Metal Complexes Bearing Low-coordinate Phosphorus Ligands Grant-in-Aid for Scientific Research on Innovative Areas "Stimuliresponsive Chemical Species for the Creation of Functional Molecules" 1 April 2012-31 March 2017

Ozawa, F. Synthesis and Catalytic Applications of Non-innocent Phosphaalkene Ligands Grant-in-Aid for Scientific Research (B) 1 April 2014-31 March 2017

## Wakioka, M.

Development of Highly Efficient Catalytic Systems for Direct Arylation Polymerization based on Equilibrium between Active and Dormant Species Grant-in-Aid for Young Scientists (B)

1 April 2015-31 March 2017

Ozawa, F. Development of Highly Efficient Catalysts for Synthesizing of  $\pi$ -Conjugated Polymers via Direct Arylation ACT-C, JST 1 October 2012-31 March 2018

## - Nanophotonics -

Kanemitsu, Y. Evaluation of Nonradiative Carrier Recombination Loss in Concentrator Heterostructure Solar Cells CREST(Core Research for Evolutional Science and Technology), **JST** 

1 October 2011-31 March 2017

## **BIOINFORMATICS CENTER**

— Chemical Life Science —

Ogata, H.

Neo-virology, the Raison D'être of Viruses - Deciphering the Mechanisms of Virus-host Co-existence in Aquatic Environments Grant-in-Aid for Scientific Research on Innovative Areas 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.

A Holistic Ecosystemic Investigation on Marine Giruses, Virophages and Their Eukaryotic Hosts Grant-in-Aid for Scientific Research (C) 1 April 2014-31 March 2017

## Ogata, H.

Are Viruses Elementary Particles that Generate and Maintain the Diversity of Marine Organisms? Pursuit of Ideal, CANON Foundation 1 April 2014-31 March 2017

## Goto, S Development of Integrated Proteome Database jPOST Database Integration Coordination Program, JST 1 April 2015-31 March 2018

#### Goto, S.

Bioinformatics for Marine Microbial Genomes and Environmental Data CREST (Core Research for Evolutional Science and Technology), JST 1 October 2012-31 March 2017

#### Goto, S.

Elucidation on Evolutionary Mechanisms of Antigenic Variation Gene Families Grant-in-Aid for Scientific Research (B)

1 April 2014-31 March 2018

#### — 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.

Feasibility Study of Allergen Genes Identification and Prediction of the Gene Expression Level Associated with Cultivation Conditions Specific Project Investigation, JST 1 October 2016-31 March 2017

Yamada, M. Nonlinear Feature Selection for Ultra-High Dimensional Data Grant-in-Aid for Young Scientists (B) 1 April 2016–31 March 2018

Yamada, M. Nonlinear Feature Selection for Science Discovery PRESTO (Precursory Research for Embryonic Science and Technology), JST 1 December 2016–31 March 2020