

iJURC Cooperative Research Subjects 2019

(1 April 2019 ~ 31 March 2020)

STARTING-UP SUBJECTS Development of the Novel Functional Paint Using Metallic Uru-(IN SPECIFIC FIELDS CHOSEN BY iJURC) shiol Complexes TACHIBANA, Yoichi, Kyoto Municipal Institute of Industrial Ultra Directional Neutron Beam Generation by Using Laser Driven Technology and Culture Host in iJURC NAKAMURA, Masaharu X-ray and Spin Polarized Deuterium Target ARIKAWA, Yasunobu, Institute of Laser Engineering, Osaka University Photocurrent of Pb Perovskite Solar Cells by Heterodyne Inter-Host in iJURC INOUE, Shunsuke ference Spectroscopy Ι OGAWA, Yoshihiro, Joetsu University of Education Probing Ultrafast Motion of Critical Surface Pushed by Multi-Host in iJURC KANEMITSU, Yoshihiko pico-second Relativistic Radiation Pressure Network Analyses for Data-driven Exploration and Hypothesis FUJIOKA, Shinsuke, Institute of Laser Engineering, Osaka Uni-Testing in Microbial Ecology versitv Host in iJURC INOUE, Shunsuke CHAFFRON, Samuel, Laboratoire des Sciences du Numérique de Nantes (LS2N), Centre National de la Recherche Scientifique Development of New Target Material Using CNT (CNRS) Host in iJURC BLANC-MATHIEU, Romain Ι OHNISHI, Tetsuya, Nishina Center for Accelerator Based Science, RIKEN Host in iJURC WAKASUGI, Masanori Distribution of Prasinoviruses and Their Association with Natural Hosts in the Global Ocean Laser Driven Ion Acceleration Experiment Using Carbonized GRIMSLEY, Nigel, Sorbonne University Thin Tape Target Host in iJURC ENDO, Hisashi Ι KONDO, Kotaro, Kansai Photon Science Institute, National Institutes for Quantum and Radiological Science and Technology Viral Impacts on Microbial Ecosystems in the Highly-enclosed Host in iJURC HASHIDA, Masaki Inlet, Uranouchi Bay, Kochi NAGASAKI, Keizo, Faculty of Agriculture and Marine Science, Catalysis Research of Transition Metal Oxides Kochi University GUO, Haichuan, Ningbo Institute of Industrial Technology Host in iJURC ENDO, Hisashi (CNITECH) of the Chinese Academy of Sciences Host in iJURC SHIMAKAWA, Yuichi Ι Isolation of New Giant Viruses and Their Genomic and Transcriptomic Characterization Development of Iron-catalyzed Strategies for Diversity Oriented TAKEMURA, Masaharu, Faculty of Science, Tokyo University Synthesis of Heterocycles and Carbocycles of Science HAJRA, Alakananda, Department of Chemistry, Visva-Bharati Host in iJURC OGATA, Hiroyuki University Host in iJURC NAKAMURA, Masaharu Concentration of Bloom Forming Algae from Environmental I Samples and Identification of the Viruses Infecting the Alga Iron-Catalyzed Carbometalation of Heterobicyclic Alkenes: YOSHIDA, Takashi, Faculty of Agriculture, Kyoto University Development of Asymmetric Reactions and Application to Syn-Host in iJURC OGATA, Hiroyuki thesis of Polycyclic Aromatic Hydrocarbons ITO, Shingo, School of Physical and Mathematical Sciences, Exhaustive Analysis of Local Structural Changes of Biological Nanyang Technological University Networks Host in iJURC NAKAMURA, Masaharu SHIGA, Motoki, Informatics Course, Department of Electrical, Ι Electronic and Computer Engineering, Faculty of Engineering, Open-cage Fullerenes Incorporating Hydrogen as n-Type Com-Gifu University posite Materials for Polymer Solar Cell Applications Host in iJURC MAMITSUKA, Hiroshi CHUANG, Shih-Ching, Department of Applied Chemistry, National Chiao Tung University Control and Analysis of Complex Networks via Minimum Dom-Host in iJURC MURATA, Yasujiro Ι inating Sets NACHER, Jose C., Department of Information Science, Faculty Development of Mid-infrared Laser and Applications to Nanoof Science, Toho University Host in iJURC AKUTSU, Tatsuya material Sciences ITATANI, Jiro, The Institute for Solid State Physics, The University of Tokyo Application of s-Tetrazines in Guanidine Functionalization of Host in iJURC KANEMITSU, Yoshihiko Fullerenes MARGETIC, Davor, Division of Organic Chemistry and Bio-Study on the Mechanism for the Stability of an In-doped Novel chemistry, Rudjer Boskovic Institute Host in iJURC MURATA, Yasujiro Ι Fe-Pd Phase TATETSU, Yasutomi, Liberal Arts Organization, Meio University Host in iJURC TERANISHI, Toshiharu

I: International Joint Research

F: Female PI

Preparation of Novel Brunched Block Copolymer with Well-Study on Magnification of the Pulsed-neutron Transmission Image Using the Sextupole Magnet, Aimed at Visualization of controlled Stereoregularity and Evaluation of Its Molecular Aggregation State Charge and Discharge in the Electrode Materials of Li-ion HIRAI, Tomoyasu, Department of Applied Chemistry, Osaka **Batteries** Institute of Technology KINO, Koichi, Research Institute for Measurement and Analytical Host in iJURC TAKENAKA, Mikihito Instrumentation, Advanced Industrial Science and Technology Host in iJURC IWASHITA, Yoshihisa Ι Study of Anchoring Behavior of Chiral Nematic Liquid Crystal AKAGI, Kazuo, Research Organization of Science and Technol-Controlling Chiral Structure of Au Nanowires by Enantiomeric ogy, Ritsumeikan University Excess Host in iJURC TSUJII, Yoshinobu KAWAI, Takeshi, Faculty of Engineering, Tokyo University of Science Application of $\delta^{98/95}$ Mo and $\delta^{186/184}$ W Isotopes Ratios for the Host in iJURC KURATA, Hiroki Reconstruction of Late Miocene Oxygenation in the Arabian Sea GUNDIGA PUTTOJIRAO, Gurumurthy, Geochemistry Re-Crystal Structure Analysis of GraE Protein from Root-Nodulesearch Lab, Birbal Sahni Institute of Palaeosciences Forming Bacterium Host in iJURC SOHRIN, Yoshiki OIKAWA, Tadao, Faculty of Chemistry, Materials and Bioengi-Ι neering, Kansai University Investigation on the Decay Process of Hot Carriers in Heavily Host in iJURC FUJII, Tomomi Doped Semiconductor Nanocrystals DOUHAL, Abderrazzak A., Physical Chemistry, University of Enhanced Production of Fast Ions by TNSA with Pre-pulse Laser Castilla-La Mancha (UCLM) SUNAHARA, Atsushi, Institute of Laser Engineering, Osaka Host in iJURC SAKAMOTO, Masanori Ι University Host in iJURC INOUE, Shunsuke Elongational Rheology of Telechelic-type Ionomers CHEN, Quan, Changchun Institute of Applied Chemistry, Chi-Fundamental Study on Micro-fabrication of Si with Controlling nese Academy of Sciences (CAS) Laser Absorption Host in iJURC MATSUMIYA, Yumi Ι KUSABA, Mitsuhiro, Electronics, Information and Communication Engineering, Osaka Sangyo University Study on Transportation and Separation of Metal Ions Through a Host in iJURC HASHIDA, Masaki Liquid Membrane Using Ionic Liquid Development of a Fast and Efficient Neutron Trigger Device for MUKAI, Hiroshi, Faculty of Education, Kyoto University of Electron-RI Scattering Experiments Education Host in iJURC SOHRIN, Yoshiki ENOKIZONO, Akitomo, Nishina Center for Accelerator Based Science, RIKEN Host in iJURC WAKASUGI, Masanori Study on Gelation Behaviors of Polymer Oleogels OSAKA, Noboru, Graduate School of Science, Okayama University of Sicence Optimization of Fabrication Process of a Superconducting Elec-Host in iJURC TAKENAKA, Mikihito tron Accelerating Cavity Operated by Small Electricity Power for a CEP-stabilized Free-Electron Laser Investigation on the Carrier Relaxation Processes of Quantum HAJIMA, Ryoichi, Quantum Beam Science Research Division, Dots Protected with Functional Organic Molecules National Institutes for Quantum and Radiological Science and TAMAI, Naoto, School of Science and Technology, Kwansei Technology Gakuin University Host in iJURC IWASHITA, Yoshihisa Host in iJURC SAKAMOTO, Masanori High Pressure Approach to the Synthesis of Novel Ferroelectric Photovoltaic Transition Metal Oxides Preparation and Mechanical Properties of Noncovalent Bonded CHEN, Wei-Tin, Center for Condensed Matter Sciences, National Elastomers Based on Styrenic Block Copolymers NORO, Atsushi, Graduate School of Engineering, Nagoya Uni-Taiwan University Host in iJURC SHIMAKAWA, Yuichi Ι versitv Host in iJURC WATANABE, Hiroshi Small Molecule Activation Using Anionic Crypto-FLPs STREUBEL, Rainer, Institute for Inorganic Chemistry, University EXPANDING SUBJECTS of Bonn (IN SPECIFIC FIELDS CHOSEN BY iJURC) Host in iJURC TOKITOH, Norihiro Ι Advanced Functionality on Materials Induced by Intense THz Development of Unsymmetrical *n*-Electron Systems of Heavier Main Group Elements and Elucidation of Their Property Pulse Irradiation NAGASHIMA, Takeshi, Faculty of Science and Engineering, IWAMOTO, Takeaki, Department of Chemistry, Tohoku Univer-Setsunan University sitv Host in iJURC HASHIDA, Masaki Ι Host in iJURC TOKITOH, Norihiro Ι Research on the High-performance Superconducting Cavity and Mechanistic Studies of C-H Bond Functionalization Reactions the Cost Reduction by Noble Inner-surface Processes Catalyzed by 3d Transition Metals YOSHIKAI, Naohiko, Division of Chemistry and Biological SAEKI, Takayuki, Accelerator Division VI, High Energy Accelerator Research Organization Chemistry, School of Physical and Mathematical Sciences, Host in iJURC IWASHITA, Yoshihisa Ι Nanyang Technological University Host in iJURC NAKAMURA, Masaharu Ι

Study on Nickelate Complexes Constructed by a Monoanionic Tridentate Pincer-type Ligand YAMAGUCHI, Yoshitaka, Faculty of Engineering, Division of Materials Science and Chemical Engineering, Yokohama National University	The Elemental and Isotopic Composition of Particulate Trace Metals in the Subarctic Pacific Ocean: Sources and Internal Cycling HO, Tung-Yuan, Research Center for Environmental Changes, Academia Sinica
Host in iJURC NAKAMURA, Masaharu	Host in iJURC SOHRIN, Yoshiki
Mechanistic and Synthetic Studies of Poly((meth)acrylonitrile) Chain End Radicals NAKAMURA, Yasuyuki, Research and Services Division of Materials Data and Integrated System, National Institute for Materials Science	Development of Photocatalytic Materials by Quantitative Charge Carrier Dynamics and Structural Analysis TACHIBANA, Yasuhiro, School of Engineering, RMIT Univer- sity Host in iJURC TERANISHI, Toshiharu
Creation of Effective Oxidation Scavenger for Efficient Perovskite-based Solar Cells	High Frequency Rheological and Dielectric Response of Poly- meric Liquids SUKUMARAN, Sathish K., Graduate School of Organic Materi-
SASAMORI, Takahiro, Graduate School of Natural Sciences, Nagoya City University Host in iJURC WAKAMIYA, Atsushi	als Science, Yamagata University Host in iJURC WATANABE, Hiroshi
Integrating Omics Data and Module-based Network with Deep Learning to Develop Cancer Type Predictive Models	Study on the Origin and Generation Mechanism of Urban Atmospheric Aerosol NAKAGUCHI, Yuzuru, Faculty of Science and Engineering,
YANG, Jinn-Moon, Department of Biological Science and Tech- nology/Institute of Bioinformatics & Systems Biology, National Chiao Tung University	Kindai University Host in iJURC SOHRIN, Yoshiki
Host in iJURC AKUTSU, Tatsuya	Characterization of Physical Properties and Structure of Partially Fluorinated Phospholipid Membrane
Next-generation Bioinformatics Approaches for the Accurate Identification of Protease-specific Substrate Cleavage Sites SONG, Jiangning, Monash Biomedicine Discovery Institute, Monash University	SONOYAMA, Masashi, Faculty of Science and Technology, Gunma University Host in iJURC HASEGAWA, Takeshi
Host in iJURC AKUTSU, Tatsuya	
Statistical Machine Learning Methods for Molecular Network Analysis	(ON-DEMAND FROM RELATED COMMUNITIES)
KAYANO, Mitsunori, Research Center for Global Agromedicine, Obihiro University of Agriculture and Veterinary Medicine Host in iJURC MAMITSUKA, Hiroshi	Role of PX-PH-type Phospholipase Ds in Plant Intracellular Membrane Traffic OHASHI, Yohei, MRC Laboratory of Molecular Biology, Uni-
Coupling of Planar and Curved π -Systems for the Development	versity of Cambridge Host in iJURC AOYAMA, Takashi
NARITA, Akimitsu, Max Planck Institute for Polymer Research Host in iJURC HIROSE, Takashi	Proteomic Approach to Discovering Specific Inhibitors for Bile-Acid Interacting Enzymes LEL Xiaoguang, College of Chemistry and Molecular Engineer-
Design, Synthesis, and Characterization of Charge Transport Materials for Non-lead Perovskite	ing, Peking University Host in iJURC UESUGI, Motonari
SAEKI, Akinori, Department of Applied Chemistry, Graduate School of Engineering, Osaka University Host in iJURC WAKAMIYA, Atsushi	Micro- and Nano-structural Characterization by Advanced Transmission Electron Microscopy of Novel Functional Materi- als for Battery Development
Development of Novel π -Conjugated Polymers and Their Appli- cation to Organic Photovoltaics	CHAIRUANGSRI, Torranin, Industrial Chemistry, Chiang Mai University
OSAKA, Itaru, Graduate School of Engineering, Hiroshima Uni- versity	Host in iJURC KURAIA, Hiroki
Molecular Engineering of Organic Semiconductors Toward the	Using Cold-adapted Microorganisms
Control of Molecular Packing in Thin Films via a Thermal Pre- cursor Approach	west University Host in iJURC KURIHARA, Tatsuo
SUZUKI, Mitsuharu, Graduate School of Engineering, Osaka University Host in iJURC MURATA, Yasujiro	Determine the Three-dimensional Structure of 13C Labeled α -Synuclein(61-95) in the Langmuir-Blodgett Film and Supported
Synthesis and Properties of π -Conjugated Zwitterions Composed of an Electron-Donating Anion and an Electron-Accepting Cation SHIMIZU, Akihiro, Department of Materials Engineering Sci- ence Graduate School of Engineering Science, Osaka University Host in iJURC HIROSE, Takashi	Hospitolipids Brayers by p-MARKS F1-IK WANG, Chengshan, Middle Tennessee State University Host in iJURC HASEGAWA, Takeshi

Effect of Dipole Alignment along Chain Backbone on Dielectric Relaxation of Type-A Polymers at Association/Dissociation Equilibrium

KWON, Youngdon, School of Chemical Engineering, Sungkyunkwan University

Host in iJURC MATSUMIYA, Yumi

Study on the Regulatory Network of Plant Epidermal Cell Differentiation

TOMINAGA, Rumi, Graduate School of Biosphere Science, Hiroshima University

F

Host in iJURC AOYAMA, Takashi

Investigation of Magnetic and Electric Properties of Cobalt Ferrite Films for Development of High Spin-polarized Current Source

TANAKA, Masaaki, Department of Physical Science and Engineering, Nagoya Institute of Technology

Host in iJURC ONO, Teruo

Giant Isotope Effects of Deuterium Atoms Terminating on Nanocrystalline Silicon and Their Use

MATSUMOTO, Takahiro, School of Design and Architecture, Graduate School of Design and Architecture, Nagoya City University

Host in iJURC KANEMITSU, Yoshihiko

Synthesis and Biological Evaluation of Antitumor Cyclic Octadepsipeptide Containing α-Fluorinated Amino Acid NAGASAWA, Hideko, Gifu Pharmaceutical University Host in iJURC KAWABATA, Takeo

Studies on Total Synthesis of Gonytolides YOSHIMURA, Tomoyuki, Graduate School of Medical Sciences, Kanazawa University

Host in iJURC KAWABATA, Takeo

Studies on the Physiological Significance of Two Alanine Dehydrogenases in *Geobacillus kaustophilus* OMORI, Taketo, Faculty of Engineering, Osaka Institute of Technology

Host in iJURC KURIHARA, Tatsuo

Synthesis and Study of Oxides with Unusually High-valent Cation

SAITO, Takashi, Institute of Materials Structure Science, High Energy Accelerator Research Organization KEK Host in iJURC SHIMAKAWA, Yuichi

Application of Surfactant for Extraction of Platinum Group Elements Using Solvent Impregnated Resin KURAHASHI, Kensuke, Environmental and Materials Chemistry

Course, Osaka Prefecture University College of Technology Host in iJURC SOHRIN, Yoshiki

Manipulation of Three Dimensional Structure of Porous Polymer Composites Controlled by Additive Manufacturing MURASE, Hiroki, Faculty of Home Economics, Kyoritsu Women's University Host in iJURC TSUJII, Yoshinobu

Investigation of New Anti-lust Surfactant Containing a Perfluoroalkyl Chain and an Amino Acid Head Group YAMADA, Norihiro, Faculty of Education, Chiba University **Host in iJURC** HASEGAWA, Takeshi

Ring-size-dependent Excitation Dynamics of Cycloparaphenylenes FUJITSUKA, Mamoru, The Institute of Scientific and Industrial Research, Osaka University Host in iJURC YAMAGO, Shigeru Nonlinear Rheology of Semiflexible Polymer Solutions INOUE, Tadashi, Graduate School of Science, Osaka University Host in iJURC MATSUMIYA, Yumi

Analysis of Soret Effect for DNA in Molecular-Scale Temperature Gradient

SHIMADA, Ryoko, Department of Mathematical and Physical Sciences, Faculty of Science, Japan Women's University Host in iJURC WATANABE, Hiroshi

EXPANDING SUBJECTS (ON-DEMAND FROM RELATED COMMUNITIES)

Regulatory Network of Gene Expression for Plant Cell Morphogenesis

QU, Li-Jia, School of Life Sciences, Peking University Host in iJURC AOYAMA, Takashi	Ι
Site-Selective Protein Acetylation by a Small Molecule ZHOU, Lu, School of Pharmacy, Fudan University Host in iJURC UESUGI, Motonari	Ι
Study of Magnonic Properties of Ferrimagnets	

KIM, Kab-Jin, Department of Physics, Korea Advanced Institute of Science and Technology Host in iJURC ONO, Teruo

Development of Highly Efficient and Stable Blue Organic Light Emitting Diodes Using Thermally Activated Delayed Fluorescent Materials as Sensitizer

ZHANG, Dongdong, Department of Chemistry, Tsinghua University

Ι

Ι

Host in iJURC	KAJI,	Hironori	
---------------	-------	----------	--

 Highly Efficient Blue Thermally Activated Delayed Fluorescence

 Emitters Using Sterically Hindered Donor Skeleton

 KWON, Jang Hyuk, Department of Information Display, Kyung

 Hee University

 Host in iJURC KAJI, Hironori

 I

 Structural Analysis of Organic Amorphous Thin Films Using

 Solid Effect Dynamic Nuclear Polarization NMR

 KOBAYASHI, Takeshi, Ames National Laboratory, U.S. Department of Energy

 Host in iJURC KAJI, Hironori

Memory of Chirality Using Flow Electrochemistry WIRTH, Thomas, School of Chemistry, Cardiff University Host in iJURC KAWABATA, Takeo

Creation of Functional Molecules Based on Hydrogen Bond Networks

CLAYDEN, Jonathan, School of Chemistry, University of Bristol Host in iJURC KAWABATA, Takeo

Structural and Functional Analysis of the Surface Components of Bacterial Outer Membrane Vesicles

CORSARO, Maria Michela, Department of Chemical Sciences, University of Naples Federico II

Host in iJURC	KURIHARA, Tatsuo	Ι	F	

Search for Four-wave-mixing in the Vacuum –Unveiling Dark Components in the Universe–

HOMMA, Kensuke, Graduate School of Science, Hiroshima University

Host in iJURC SAKABE, Shuji

Development of Biosensors by Combining Stimuli-Responsive Polymer Brushes with Electrochemical Analysis MA, Ying, Department of Chemistry and Chemical Engineering, South China University of Technology Host in iJURC OHNO, Kohji	Fine Synthesis of Polymer Brash on Ferromagnetic Nano-Platele for Ferromagnetic Photonic LC UCHIDA, Yoshiaki, Department of Materials Engineering Sci- ence, Graduate School of Engineering Science, Osaka University Host in iJURC OHNO, Kohji
Exploring New Polyether Nanocomposite Electrolytes to En- nance Energy Storage of Lithium Ion Batteries FERRIER, Robert C., Chemical Engineering and Materials Sci- ence, Michigan State University Host in iJURC OHNO, Kohji	Ferromagnetic Single-electron Transistor MAJIMA, Yutaka, Laboratory for Materials and Structures, Insti- tute of Innovative Research, Tokyo Institute of Technology Host in iJURC TERANISHI, Toshiharu
Fluorinated Polymer-Brush-Grafted Nanoparticles: Precise Syn- thesis and Applications to Membrane Technology LADMIRAL, Vincent, Institut Charles Gerhardt (ICGM), CNRS Host in iJURC OHNO, Kohji	Development of NanoBRET-based Screening System for Peptidic CXCR4 Ligands NOMURA, Wataru, School of Pharmaceutical Sciences, Hiroshima University Host in iJURC FUTAKI, Shiroh
Real-time Imaging of Single-molecule mRNA with DifferentMethylation StatesSTASEVICH, Timothy J., Department of Biochemistry andMolecular Biology, Colorado State UniversityHost in iJURC IMANISHI, Miki	Establishment of Cell Penetrating Peptide (CPP)-based Delivery System into Resident Cancer Stem Cells in Deep Cancer Tissue OHASHI, Wakana, Graduate School of Medicine and Pharma- ceutical Sciences for Research, University of Toyama Host in iJURC FUTAKI, Shiroh
Structural and Functional Analysis of Curvature-inducing Peptides ULRICH, Anne S., Institute of Organic Chemistry (IOC) and Institute of Biological Interfaces (IBG-2), Karlsruhe Institute of Technology (KIT)	Manufacture of Shallow NV Centers in Diamond TOKUDA, Norio, Nanomaterials Research Institute, Kanazawa University Host in iJURC MIZUOCHI, Norikazu
Host in IJURC FUTAKI, Shiroh I Research of Multi-qubit Diamond Quantum Processors DOHERTY, W. Marcus, Research School of Physics and Engineering, Australian National University Host in IJURC MIZUOCHI, Norikazu I	Electrical Control and Detection of Qubit of NV Center MAKINO, Toshiharu, Energy Technology Research Institute National Institute of Advanced Industrial Science and Technology (AIST) Host in iJURC MIZUOCHI, Norikazu
Research on Shallow NV Center in Diamond BALASUBRAMANIAN, Gopalakrishnan, Max-Planck Institute for Biophysical Chemistry	SUBJECTS FOCUSING OF JOINT USAGE OF iJURC/ICR FACILITIES
New Cellular Functions of Acyldopamine ITO, Akihiro, School of Life Sciences, Tokyo University of Phar- macy and Life Sciences	Atomic Level Analysis and Fabrication of Highly Stable Per- ovskite Films and Light Emitting Diodes QIAO, Juan, Department of Chemistry, Tsinghua University Host in iJURC KAJI, Hironori
Modulation of New Cellular Functions of Vitamin D NAGASAWA, Kazuo, Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology	High-pressure Synthesis of Potential Multiferroic Oxides ATTFIELD, J. Paul, Centre for Science at Extreme Conditions and School of Chemistry, University of Edinburgh Host in iJURC SHIMAKAWA, Yuichi
Development of the Epitaxial Thin Film of Weyl Semimetal Mn ₃ Sn NAGAHAMA, Taro, Faculty of Engineering, Hokkaido Univer- sity Host in iJURC ONO, Teruo	Synthesis and Characterization of Novel Organoselenium and -Tellurium Compouds MINOURA, Mao, College of Science, Department of Chemistry Rikkyo University Host in iJURC TOKITOH, Norihiro
Effect of Microstructure on Damping Constant in Polycrystalline Bi-YIG Thin Films Prepared by Sol-Gel Method YAMADA, Keisuke, Faculty of Engineering, Gifu University Host in iJURC ONO, Teruo	Nano-electron Spectroscopic Study on Hydrogen and Helium Behavior in Plasma Facing Materials for Nuclear Fusion Devices MIYAMOTO, Mitsutaka, Interdisciplinary Faculty of Science and Engineering, Shimane University
Theoretical Study on Chemoselective Acylation Catalyzed by 4-Pyrrolidinopyridine Derivatives YAMANAKA, Masahiro, Department of Chemistry, College of Science, Rikkyo University Host in iJURC KAWABATA, Takeo	Plasmon-exciton Coupling on a Plasmonic Crystal SAITO, Hikaru, Interdisciplinary Graduate School of Engineer- ing Sciences, Kyushu University Host in iJURC KURATA, Hiroki
Analysis of the Physiological Functions of Membrane Vesicles Produced by Intestinal Bacteria and Fermented Food-derived Bacteria and Their Application KURATA, Atsushi, Faculty of Agriculture, Kindai University Host in iJURC KURIHARA, Tatsuo	Design of Flat Silicene with Perfect π-Conjugate 2D Sheet TAKAHASHI, Masae, Graduate School of Agricultural Science Tohoku University Host in iJURC TOKITOH, Norihiro

Synthesis and Structures of Acene Molecules Bearing Chalcogenopyrylium Units NAGAHORA, Noriyoshi, Department of Chemistry, Faculty of

Science, Fukuoka University Host in iJURC TOKITOH, Norihiro

Synthesis and Structural Characterization of Divalent Species of Heavier Group 14 Elements MATSUO, Tsukasa, Faculty of Science and Engineering, Kindai University Host in iJURC TOKITOH, Norihiro

Elucidation of the Fluorous Interactions in the Crystal Structures of Fluorine-containing Conjugated Molecules by the Singlecrystal X-Ray Structural Analysis

AGOU, Tomohiro, Department of Materials Science and Engineering, College of Engineering, Ibaraki University

Host in iJURC TOKITOH, Norihiro; MIZUHATA, Yoshiyuki

High Sensitive Imaging Mass Spectrometry Targeting the Carbonyl Compounds Derived from Biological Tissues HATANO, Osamu, Department of Anatomy and Cell Biology, Nara Medical University

Host in iJURC ISOZAKI, Katsuhiro

SUBJECTS ENCOURAGING JOINT PROGRAM

Fabrication of Nanotopographical Polymer Surfaces with Bactericidal Properties

ENDOH, Maya K., Department of Material Science and Chemical Engineering, Stony Brook University

Host in iJURC TAKENAKA, Mikihito I F

Synthesis of Structurally Controlled Polymers Having Green Fluorescence Protein Chromophore and Their Photophysical Properties in Solution

YANG, Jye-Shane, Department of Chemistry, National Taiwan University

Host in iJURC YAMAGO, Shigeru Ι

Vinyl Azides as New Monomers of Radical Polymerization for the Fabrication of Green Polymers Having Chemically- and **Biodegradable Properties**

CHIBA, Shunsuke, Division of Chemistry and Biological Chemistry, School of Physical and Mathematical Sciences, Nanyang Technological University

Host in iJURC YAMAGO, Shigeru Ι

The 15th International Workshop for East Asian Young Rheologists

INOUE, Tadashi, Graduate School of Science, Osaka University Host in iJURC MATSUMIYA, Yumi Ι

The 8th Japanese-Sino Symposium on Organic Chemistry for Young Scientists

HAMASHIMA, Yoshitaka, School of Pharmaceutical Sciences, University of Shizuoka

Host in iJURC KAWABATA, Takeo

26th International Workshop on Oxide Electronics MATSUNO, Jobu, Department of Physics, Osaka University Host in iJURC KAN, Daisuke

iJURC Publications (Selected Examples)

2,5-Digermaselenophenes: Germanium Analogues of Selenophenes

Sugahara, T.; Sasamori, T.; Tokitoh, N., J. Am. Chem. Soc., 140, 11206-11209 (2018).

Abstract

A stable crystalline 2,5-digermaselenophene was synthesized. In contrast to hitherto reported selenophenes, this digermaselenophene exhibits a *trans*-pyramidalized structure, which is due to its electronic properties. The practical utility of this 2,5-digermaselenophene is reflected in its ability to activate dihydrogen and acetylene at room temperature in the absence of a transition-metal complex, and this behavior can be rationalized on the basis of its physicochemical properties, which are characterized by considerable electron-donating and -accepting abilities.

Strain-Induced Double Carbon–Carbon Bond Activations of Cycloparaphenylenes by a Platinum Complex: Application to the Synthesis of Cyclic Diketones

Kayahara, E.; Hayashi, T.; Takeuchi, K.; Ozawa, F.; Ashida, K.; Ogoshi, S.; Yamago, S., *Angew. Chem. Int. Ed.*, **57**, 11418-11421 (2018).

Abstract

The carbon–carbon (C–C) bond activation of [n]cycloparaphenylenes ([n]CPPs) by a transition-metal complex is herein reported. The Pt⁰ complex Pt(PPh₃)₄ regioselectively cleaves two C–C σ bonds of [5] CPP and [6]CPP to give cyclic dinuclear platinum complexes in high yields. Theoretical calculations reveal that the relief of ring strain drives the reaction. The cyclic complex was further transformed into a cyclic diketone by using a CO insertion reaction.

Adamantyl Substitution Strategy for Realizing Solution-Processable Thermally Stable Deep-Blue Thermally Activated Delayed Fluorescence Materials

Wada, Y.; Kubo, S.; Kaji, H., Adv. Mater., **30**, [1705641-1]-[1705641-8] (2018).

Abstract

Highly efficient solution-processable emitters, especially deepblue emitters, are greatly desired to develop low-cost and lowenergy-consumption organic light-emitting diodes (OLEDs). A recently developed class of potentially metal-free emitters, thermally activated delayed fluorescence (TADF) materials, are promising candidates, but solution-processable TADF materials with efficient blue emissions are not well investigated. In this study, first the requirements for the design of efficient deep-blue TADF materials are clarified, on the basis of which, adamantylsubstituted TADF molecules are developed. The substitution not only endows high solubility and excellent thermal stability but also has a critical impact on the molecular orbitals, by pushing up the lowest unoccupied molecular orbital energy and triplet energy of the molecules. In the application to OLEDs, an external quantum efficiency (EQE) of 22.1% with blue emission having Commission Internationale de l'Eclairage (CIE) coordinates of (0.15, 0.19) is realized. A much deeper blue emission with CIE (0.15, 0.13) is also achieved, with an EQE of 11.2%. These efficiencies are the best yet among solution-processed TADF OLEDs of CIE y < 0.20 and y < 0.15, as far as known. This work demonstrates the validity of adamantyl substitution and paves a pathway for straightforward realization of solution-processable efficient deep-blue TADF emitters.

Viscoelastic and Dielectric Relaxation of Reptating Type-A Chains Affected by Reversible Head-to-Head Association and Dissociation

Watanabe, H.; Matsumiya, Y.; Kwon, Y., *Macromolecules*, **51**, 6476-6496 (2018).

Abstract

For entangled linear polymer having type A dipoles and undergoing head-to-head association and dissociation reaction, viscoelastic and dielectric behavior is theoretically analyzed on the basis of the reptation dynamics combined with the reaction kinetics. Specifically, for the dissociated unimer and associated dimer (indexed with j = 1 and 2, respectively), the normalized complex modulus $g_i^*(\omega)$ and the normalized complex dielectric permittivity $\tilde{\varepsilon}_{j}^{*}(\omega)$ are analytically calculated via eigenfunction expansion of the orientational anisotropy and orientational memory defined in terms of the bond vectors **u** of entanglement segments. The reaction activates mutual conformational transfer between the unimer and dimer. Multiple coupling occurs for the anisotropy decay modes of the unimer and dimer due to this transfer, and the viscoelastic g_1^* and g_2^* of the unimer and dimer, respectively, exhibit considerably retarded and accelerated relaxation compared to the pure reptation case. In contrast, the memory decay modes of the unimer and dimer are only pairwisely coupled, so that the reaction-induced acceleration and retardation for the dielectric $\tilde{\varepsilon}_1^*$ and $\tilde{\varepsilon}_2^*$ are much weaker than those seen for the viscoelastic g_1^* and g_2^* . The orientational anisotropy is the tensorial, second-moment average of **u** associated with no cancellation in the conformational transfer, whereas the orientational memory is the vectorial, first-moment average accompanied by partial cancellation, which results in the difference between g_j^* and $\tilde{\varepsilon}_j^*$. This difference between g_j^* and $\tilde{\varepsilon}_j^*$ is noted also for the associating/dissociating Rouse chains. Nevertheless, the reaction-induced retardation of the viscoelastic relaxation is stronger for the reptating unimer than for the Rouse unimer, whereas the reaction-induced acceleration is similar, in magnitude, for the reptating dimer and Rouse dimer. These features of g_i^* of the unimer and dimer are discussed in relation to the motional coherence along the chain backbone being present and absent in the reptation and Rouse dynamics.

Half-cycle Terahertz Surface Waves with MV/cm Field Strengths Generated on Metal Wires

Teramoto, K.; Tokita, S.; Terao, T.; Inoue, S.; Yasuhara, R.; Nagashima, T.; Kojima, S.; Kawanaka, J.; Mori, K.; Hashida, M.; Sakabe, S., *Appl. Phys. Lett.*, **113**, 051101 (2018).

https://doi.org/10.1063/1.5031873

Reproduced from [FULL CITATION], with the permission of AIP Publishing.

Abstract

Irradiating a metal wire with an intense femtosecond laser pulse induces a terahertz (THz) surface wave that travels along the wire. Here, the characteristics of the THz surface wave generated by the laser–wire interaction are investigated in detail by using an electro-optical method to determine the dependence of surface wave properties on laser energy and wire diameter. The surface wave is distributed by the Hankel function in the wire radial direction. On the wire surface, the electric field is estimated to be MV/cm. The peak electric field of the surface wave and the conversion efficiency from laser energy to surface wave energy are found to be proportional to the laser energy raised to the power of 0.67 and 0.3, respectively.