

Categories	Reference number	Title of Research Project (English)	Affiliation	Principle Researcher	Key Person in IAE
Planned joint research	ZE2021A-01	Elucidation of Hopping Conduction in Lithium Excess Solvate Ionic Liquids	Kyoto University	Atsushi Kitada	Masato Katahira
Planned joint research	ZE2021A-02	Study on lignin degradation by infrared free electron laser	High Energy Accelerator Research Organization	Takayasu Kawasaki	Heishun Zen
Planned joint research	ZE2021A-03	Study of formation process of solute clusters in stainless steel with ion irradiation	University of Fukui	Ken-ichi Fukumoto	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-04	Photoinduced electron-transfer reactions of metal complexes as photosensitizers bound to the active site of enzyme	Nara Women's University	Hiroshi Takashima	Eiji Nakata
Planned joint research	ZE2021A-05	Elucidation of redox status-dependent mitochondrial temperature fluctuation towards the development of energy production system mimicking mitochondria	University of Occupational and Environmental Health	Reiko Sakaguchi	Takashi Morii
Planned joint research	ZE2021A-06	Development of anode/electrolyte interface for advanced Na-ion battery	Tottori University	Hiroki Sakaguchi	Toshiyuki Nohira
Planned joint research	ZE2021A-07	Chemical state analysis of borocarbides	Tohoku University	Ryuta Kasada	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-08	Generation and sustainment of high-energy density plasmas via the interaction between high power laser and structured medium	Kyoto University	Yasuaki Kishimoto	Hiroshi Sakaguchi
Planned joint research	ZE2021A-09	Functionalization of amino sugar-containing polysaccharides using environmental microbes	Yokohama National University	Minoru Takeda	Masato Katahira
Planned joint research	ZE2021A-10	Interaction analysis between cellulase carbohydrate-binding module and lignin by ultra-high sensitivity NMR for biorefinery	Kyoto University	Takashi Watanabe	Masato Katahira

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Planned joint research	ZE2021A-11	Combined effect of irradiation and corrosion on hydrogen isotope permeation behavior in functional coatings for fusion reactor blanket	Shizuoka University	Takumi Chikada	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-12	NMR analysis on molecular mechanism of phase separation inhibition and elucidation of its physiological significance	Saitama Medical University	Riki Kurokawa	Masato Katahira
Planned joint research	ZE2021A-13	Influence of Alloying Elements on Radiation Damage Formation and Hydrogen Isotope Trapping in Tungsten	Toyama University	Yuji Hatano	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-14	Structural analysis of fluorine-containing compounds by NMR spectroscopy	Kyoto University	Kazuhiko Matsumoto	Masato Katahira
Planned joint research	ZE2021A-15	Effect of high energy He ion implantation on hydrogen isotope behavior in tungsten	Shizuoka University	Yasuhisa Oya	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-16	The effects of dangling-bond on anodic dissolution of ceramics	Tohoku University	Sosuke Kondo	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-17	Development of biomaterial which improve gut microbiome and health of white-leg shrimp by using heat-stable carotenoid-producing Bacillus spores	VNU University of Science, Vietnam National University, Hanoi	Nguyen Thi Van Anh	Yumiko Takatsuka
Planned joint research	ZE2021A-18	High-Fluence Irradiation Behavior of Reduced Activation Fusion Reactor Materials and its Mechanical Property	National Institutes for Quantum and Radiological Science and Technology	Masami Ando	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-19	Development of low-density stacked CNT target and fundamental process of the interaction by high-intensity laser irradiation	Kyoto University	Ryutaro Matsui	Kazunari Matsuda
Planned joint research	ZE2021A-20	Electrodeposition of Si in Molten Salts Containing Silicate Ions towards the Production of Solar-Grade Silicon	Kyoto University	Koji Yasuda	Toshiyuki Nohira

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Planned joint research	ZE2021A-21	Development of the crystalline cellulose degradation system consisting of the psychrophilic fungus-type hybrid enzymes.	Health Sciences University of Hokkaido	Masataka Horiuchi	Takashi Nagata
Planned joint research	ZE2021A-22	Advanced thermal diffusivity evaluation method using D3 miniature specimens at elevated temperature.	Osaka Prefecture University	Masafumi Akiyoshi	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-23	Study on optimization of alloying elements of tungsten alloys for improved irradiation tolerance	Tohoku University	Shuhei Nogami	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-24	Synergistic effects of electronic excitation and displacement damage in oxide/nitride ceramics	Kyushu University	Kazuhiro Yasuda	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-25	Hydrogen and helium mixed plasma irradiation effects on tungsten materials with rhenium	Osaka University	Yoshio Ueda	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-26	Analysis of element distribution changes in solid lithium electrolyte generated by electro dialysis using rf-GD-OES	Hirosaki University	Kazuya Sasaki	Keisuke Mukai
Planned joint research	ZE2021A-27	Evaluation of irradiation resistance of high entropy oxide superconductors	Yokohama National University	Naoko Oono	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-28	Study on development of compound-based anode for K-ion battery and on compatibility with ionic liquid electrolyte	Tottori University	Yasuhiro Domi	Takayuki Yamamoto
Planned joint research	ZE2021A-29	Development of Emissive Solid Materials Applicable to Luminescent Solar Concentrators	Kyoto Institute of Technology	Masaki Shimizu	Hiroshi Sakaguchi
Planned joint research	ZE2021A-30	Development of pulsed laser deposition using infrared free electron laser	Tokyo University of Science	Takashi Nakajima	Heishun Zen

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Planned joint research	ZE2021A-31	NMR analysis of peptides and nucleic acids that modulate biomolecular functions	Chiba Institute of Technology	Taiichi Sakamoto	Takashi Nagata
Planned joint research	ZE2021A-32	Irradiation and Material Variables Dependence of Bubbles/Voids Formation in Fusion Reactor Structural Materials	University of California, Santa Barbara	Takuya Yamamoto	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-33	Generation of High intensity THz pulse by superposition of undulator superradiant	Tohoku University	Shigeru Kashiwagi	Heishun Zen
Planned joint research	ZE2021A-34	Carrier diffusion process in silicide kankyo semiconductors revealed by mid-infrared free electron laser	Yamagata University	Mamoru Kitaura	Heishun Zen
Planned joint research	ZE2021A-35	Structural study of DNA binding of the replication initiator ORC	Japan women's University	Shou Waga	Masato Katahira
Planned joint research	ZE2021A-36	The temperature dependence of ductility in Al, Zr-added ODS ferritic steel treated under different MA atmospheres	Kurume College	Noriyuki Iwata	Kiyohiro Yabuuchi
Planned joint research	ZE2021A-37	Study of material development and interface design for all solid state Li-ion battery	Chiba Institute of Technology	Ikuma Takahashi	Keisuke Mukai
Planned joint research	ZE2021A-38	In-situ measurement of periodic nanostructures on semiconductor surface induced by mid-infrared free electron lasers	Kyoto University	Masaki Hashida	Heishun Zen
Planned joint research	ZE2021A-39	Study on the impact of phase reconfiguration in unbalanced distribution systems	Institute of Technology of Cambodia	Vannak VAI	Hideaki Ohgaki
Planned joint research	ZE2021A-40	Application of mode-selective phonon-excitation method in semiconductors of energy functionality with mid-infrared free-electron laser	Kyoto University	Kan Hachiya	Hideaki Ohgaki

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Planned joint research	ZE2021A-41	Elucidation of ablation mechanism based on vibrational excitation in molding materials and surface modification by infrared free electron laser	Tokyo University of science	Jun Fujioka	Heishun Zen
Planned joint research	ZE2021A-42	Clarification of hydrogen adsorption and desorption behavior for neutron multipliers for fusion applications	National Institutes for Quantum and Radiological Science and Technology	Jaehwan Kim	Keisuke Mukai
Planned joint research	ZE2021A-43	Analysis of transition from axisymmetric torus to helical axis toroidal plasma	Kyoto Institute of Technology	Akio Sanpei	Kazunobu Nagasaki
Proposal based project	ZE2021B-01	Design and investigation of complexes comprising atom-layered materials	University of Tsukuba	Susumu Okada	Kazunari Matsuda
Proposal based project	ZE2021B-02	Study on Thermal Radiation of Quantum Materials for Highly Efficient and Functional Energy Conversion	Hosei University	Satoru Konabe	Yuhei Miyauchi
Proposal based project	ZE2021B-03	Identification of quadruplexes that can regulate gene expression	Yokohama National University	Yoichiro Tanaka	Takashi Nagata
Proposal based project	ZE2021B-04	Surface processing of SiC achieved by combination of phonon excitation using FEL and electrochemistry	Kyoto University	Kazuhiro Fukami	Heishun Zen
Proposal based project	ZE2021B-05	Development of reduced activation high entropy materials for high energy reactor	Hokkaido University	Naoyuki Hashimoto	Kiyohiro Yabuuchi
Proposal based project	ZE2021B-06	The study of material degradation evaluation with irradiation hardening in tungsten for divertor	University of Fukui	Kouichi Tougou	Kiyohiro Yabuuchi
Proposal based project	ZE2021B-07	Structural studies on hierarchical molecular architectures created in microfluidic device	Kyoto Prefectural University	Munenori Numata	Eiji Nakata

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Proposal based project	ZE2021B-08	Study of Hydrogen Isotope Separation Technology by Molten Salt	Hokkaido University	Hisayoshi Matsushima	Toshiyuki Nohira
Proposal based project	ZE2021B-09	Development of tantalum added vanadium alloys for fusion reactors	Tohoku University	Takesh Miyazawa	Kiyohiro Yabuuchi
Proposal based project	ZE2021B-10	Spatially resolved measurement of atomic emission line spectra using NIR Zeeman spectroscopy	Kyoto University	Taiichi Shikama	Shinichiro Kado
Proposal based project	ZE2021B-11	Nondestructive evaluation of residual elastic strain distribution around the interface between non-irradiated areas and ion irradiated area II	Hokkaido University	Tamaki Shibayama	Kiyohiro Yabuuchi
Proposal based project	ZE2021B-12	Study of the battery technology for Improving the Solar Home System (SHS) in Rural electrification	University of Malaya, Malaysia	Nasrudin Abd Rahim	Hideaki Ohgaki
Proposal based project	ZE2021B-13	Development and application of organic spintronics materials toward energy-saving devices	Kyoto Institute of Technology	Yusuke Miyake	Hiroshi Sakaguchi
Proposal based project	ZE2021B-14	Highly efficient photochemical reactions induced by optimal laser pulses	Tohoku University	Yukiyoshi Ohtsuki	Takashi Nakajima
Proposal based project	ZE2021B-15	Dependence of the hardness increase caused by hydrogenation on irradiation temperature in ion-irradiated tungsten	Kagoshima University	Koichi Sato	Kiyohiro Yabuuchi
Proposal based project	ZE2021B-16	Clarification on retention processes of He and H in ion irradiated pyrochlore oxides	Meijo University	Bun Tsuchiya	Kiyohiro Yabuuchi
Proposal based project	ZE2021B-17	NMR analysis of the three-dimensional solution structure of the sequence-specific RNA-binding protein Musashi1 involved in translation control of the downstream target RNA	The University of Electro-Communications	Takao Imai	Takashi Nagata

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Proposal based project	ZE2021B-18	A small-molecule-based technology for live-cell imaging of energy metabolism	Kyoto University	Shinichi Sato	Takashi Morii
Proposal based project	ZE2021B-19	Research and development of enzymatic activity control using VHH antibody	Kyoto University	Akifumi Takaori	Takashi Nagata
Proposal based project	ZE2021B-20	Time-series data analysis of Heliotron-J plasma by statistical modeling	Kyushu University	Shigeru Inagaki	Kazunobu Nagasaki
Proposal based project	ZE2021B-21	Development of ultrasound-enhanced cell-internalization method and mechanism evaluation	Osaka Prefecture University	Atsushi Harada	Eiji Nakata
Proposal based project	ZE2021B-22	Measurement of coherent edge radiation spectra during free-electron laser oscillations	National Institute of Advanced Industrial Science and Technology	Norihiro Sei	Hideaki Ohgaki
Proposal based project	ZE2021B-23	Study for the development of functional peptides using NMR	National Institute of Infectious Diseases	Hideki Kusunoki	Takashi Nagata
Proposal based project	ZE2021B-24	Hydrogen pickup of ion irradiated Zry alloys	Kyushu University	Hideo Watanabe	Kiyohiro Yabuuchi
Proposal based project	ZE2021B-25	Study of spacial property of excitons in atomically thin layered materials using near-field scanning optical microscope	University of Yamanashi	Masaru Sakai	Kazunari Matsuda
Proposal based project	ZE2021B-26	Effect of irradiation on Coated Materials for Tritium Barrier	University of Science and Technology Beijing	Somei Ohnuki	Kiyohiro Yabuuchi
Proposal based project	ZE2021B-27	Quantitative relationship between plasma-produced reactive radical amount and biological/chemical reaction promotion	Osaka Prefecture University	Hiroto Matsuura	Shinichiro Kado

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Proposal based project	ZE2021B-28	Gas Ionization with Ultrafast Intense Long-Wavelegth Infrared Pulses	National Institutes for Quantum and Radiological Science and Technology	Ryoichi Hajima	Heishun Zen
Proposal based project	ZE2021B-29	Development of an RNA eiding oligonucleotide to regulate the production and utilization of biological energy	Fukuoka University	Masatora Fukuda	Takashi Morii
Proposal based project	ZE2021B-30	Development of optical devices using the interface of layered material and nitride semiconductor	Ritsumeikan University	Shinichiro Mouri	Kazunari Matsuda
Proposal based project	ZE2021B-31	Ultra-Highly Sensitive DNA/RNA Sensor	University of Hyogo	Kazushige Yamana	Takashi Morii
Proposal based project	ZE2021B-32	Natural Convection Heat Transfer for Sugar Alcohols	Kobe University	Makoto Shibahara	Kiyohiro Yabuuchi
Proposal based project	ZE2021B-33	Impact of nonlinear wave-plasma interaction on electron cyclotron current drive (ECCD) in tokamak fusion reactor	Tohoku University	Kenji Tobita	Kazunobu Nagasaki
Proposal based project	ZE2021B-34	Design of Staple oligoemr based on thermodynamic analysis	Kumamoto University	Yousuke Katsuda	Takashi Morii
Proposal based project	ZE2021B-35	Extension of operation regimes for advanced heliotron plasmas using stochastic electrostatic acceleration	University of Tsukuba	Masayuki Yoshikawa	Shinji Kobayashi
Proposal based project	ZE2021B-36	Microstructural evolution of ODS Ferritic Steels during cold working process for Next generation Nuclear components	Pukyong National University	Sanghoon Noh	Kiyohiro Yabuuchi
Proposal based project	ZE2021B-37	Analysis of reaction meachanism of haloacid dehalogenase	Nagahama Institute of Bio-Science and Technology	Takashi Nakamura	Takashi Morii



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Proposal based project	ZE2021B-38	Identification and characterization of novel antimicrobial cyclic lipopeptides derived from Bacillus sp.	Tokyo University of Agriculture	Kenji Yokota	Tomijiro Hara
Proposal based project	ZE2021B-39	Elucidation of the shrimp growth promoting mechanisms of dietary supplementation with bacillus spores	Kanagawa University	Tsuyoshi Ohira	Tomijiro Hara
Proposal based project	ZE2021B-40	Developmental research on microbial community structure analysis and biopest applications in medicinal plant cultivation	Shimane University	Makoto Ueno	Tomijiro Hara
Proposal based project	ZE2021B-41	Formation and crystalline characterization of periodic nanostructures on semiconductor substrates irradiated by intense mid-infrared laser pulses	Osaka University	Ozaki Hashida	Heishun Zen
Proposal based project	ZE2021B-42	Development of high-speed camera image analysis method using magnetic field information	Bauhutte Co. Ltd.	Nobuhiro Nishino	Shinichiro Kado
Proposal based project	ZE2021B-43	Development of a method for compoiting Li <sub>2</sub> TiO <sub>3</sub> and nanocarbon by microwave irradiation	National Institute for Fusion Science	Sadatsugu Takayama	Keisuke Mukai
Proposal based project	ZE2021B-44	Supramolecular assembling regulation of bacterial cell division protein FtsZ on DNA nanostructures	Hokkaido University	Akira Onoda	Eiji Nakata
Joint usage of facilities	ZE2021C-01	Determination of the free energy of the late-blooming phase (3)	Kumamoto University	Yoshitaka Matsukawa	Kiyohiro Yabuuchi
Joint usage of facilities	ZE2021C-02	Study of ion irradiation effects on oxide dispersion strengthened ferritic steel	National Institute for Fusion Science	Jingjie Shen	Kiyohiro Yabuuchi
Joint usage of facilities	ZE2021C-03	Fluorescent analyses of biomolecules and metals using cephem compounds	Kobe Pharmaceutical University	Ipei Takashima	Eiji Nakata

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Joint usage of facilities	ZE2021C-04	Study on emission process of scintillation material using the one electron beam and evaluation of scintillation properties for darkmater search	Tohoku University	Shunsuke Kurosawa	Hideaki Ohgaki
Joint usage of facilities	ZE2021C-05	Deuterium desorption from heavy ion irradiated tungsten using isothermal desorption method	National Institute for Fusion Science	Naoko Ashikawa	Kiyohiro Yabuuchi
Joint usage of facilities	ZE2021C-06	Influence of irradiation defects on the tritium removal behavior from tungsten by hydrogen isotope exchange	National Institute for Fusion Science	Mingzhong Zhao	Kiyohiro Yabuuchi
Joint usage of facilities	ZE2021C-07	Clarification of fine structure of environmentally compatible hydroxyapatite capsules	Kyoto University	Takeshi Yabutsuka	Kiyohiro Yabuuchi
Joint usage of facilities	ZE2021C-08	Conductivity Enhancement Mechanism of NASICON-type Lithium Ion Conductive Composite	Kyoto University	Shigeomi Takai	Takashi Morii
Joint usage of facilities	ZE2021C-09	The effect of ion beam irradiation on the properties of hevily doped nanocrystals	Kyoto University	masanori sakamoto	Kiyohiro Yabuuchi
Joint usage of facilities	ZE2021C-10	Carbon dioxide gas fixation by laser irradiation response to calculus forming bacteria.	Nihon University	Tetsuro Kono	Hideaki Ohgaki
Joint usage of facilities	ZE2021C-11	Analyses of Electroretinograms from crayfish's compound eyes evoked by KU-FEL irradiation: Fast and Late reaction	Nihon University	Fumio Shishikura	Hideaki Ohgaki
Joint usage of facilities	ZE2021C-12	Measurement of scintillation response by fast neutron	Tokushima University	Kenichi Fushimi	Keisuke Mukai
Joint usage of facilities	ZE2021C-13	Statistical analysis on edge turbulence fluctuation data in Heliotron-J	Kyushu University	Yoshihiko Nagashima	Shinsuke Ohshima

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Research meetings	ZE2021D-01	Distributed Workshop on "Physics and control of non-linear and non-equilibrium plasma based on the concept of broad-band energy science"	Kyoto University	Yasuaki Kishimoto	Kazunari Matsuda
Research meetings	ZE2021D-02	Study on how to make zero emission infrastructure more social resilient by advanced ICT	Kyoto University	Hidekazu Yoshikawa	Kazunori Morishita
Research meetings	ZE2021D-03	KU-FEL User Symposium 2021	Yamagata University	Mamoru Kitaura	Heishun Zen