

生命科学・化学専攻
Department of Life Science and Chemistry

化学・創薬領域
Chemistry and Medicinal Sciences

As of April 1, 2023

役職 Title	教員名 Name	教育・研究分野 Educational and Research Area	
		名称 Specialization	内容 Theme
Professor	Masato Ikeda	Biomolecular Chemistry	Education and research on nanobiotechnology based on molecular machinery and supramolecular materials
Professor	Hiroshi Ueda	Medical molecular engineering	Education and research on cellular response mechanisms through biological membranes
Professor	Hiroshi Takemori	Therapeutic Science	Education and research for understanding of disease mechanisms and energy metabolism
Professor	Tetsuro Fujisawa	Structural Biophysics	Education and research on protein dynamics probed by synchrotron radiation
Professor	Takashi Yokogawa	Gene expression engineering	Education and research on the engineering of the protein synthesis systems
Professor	Toyokazu Yoshida	Bioprocess engineering	Education and research on functional analysis of novel enzymes and application to the synthesis of useful compounds
Professor	Lee Wah Lim	Instrumental and separation chemistry	Education and research on optimization and application of separation and instrumental analytical systems/devices
Professor	Natsuhisa Oka	Design of functional molecules	Education and research on design, synthesis, and applications of functional organic molecules
Associate Professor	Satoshi Ohno	Gene expression engineering	Education and research on development of methods for the synthesis of novel proteins
Associate Professor	Kentaro Oh-hashii	Biochemistry of signal transduction	Education and research on cellular stress responses and signal transduction
Associate Professor	Fumitoshi Shibahara	Design of Transformation in Organic Synthesis	Education and research on design of transformations for organic synthesis of valuable compounds
Associate Professor	Hiroko Koyama	Bioorganic chemistry	Education and research on design and synthesis of functional in vivo molecular probe
Associate Professor	Koichi Mitsukura	Biocatalysis and green chemistry	Education and research on chemo-biocatalytic synthesis of useful compounds and on screening for novel enzymes and thier applications
Associate Professor	Hidekazu Miyaji	Supramolecular Chemistry	Education and research on molecular recognition and artificial construction of biological functions by supramolecules
Assistant Professor	Yoshiaki Kitamura	Biomolecular Chemistry	Education and research on development of new methodologies in organic synthesis for drug discovery and chemical biology
Assistant Professor	Aya Shibata	Biomolecular Chemistry	Education and research of the development of functional molecule using nucleic acids

環境社会基盤工学専攻
Department of Civil and Environmental Engineering

環境社会基盤工学領域
Civil and Environmental Engineering

As of April 1, 2023

役職 Title	教員名 Name	教育・研究分野 Educational and Research Area	
		名称 Specialization	内容 Theme
Professor	Tomoyuki Ohtani	Engineering Geology	Geothermal resource geology and fault rock study of active fault
Professor	Kohji Kamiya	Groundwater engineering	Education and research for groundwater resources management
Professor	Minoru Kumieda	Construction Materials	Advanced construction materials and structures for resilient infrastructures
Professor	Fumitaka Kurauchi	Transport System Design	Research and education on planning, designing and evaluating transport system for improving its efficiency, safety and sustainability
Professor	Koichi Kobayashi	Maintenance Engineering	Education and research on evaluation of materials and their deterioration for building infrastructure maintenance systems
Professor	Kazuhide Sawada	Geotechnical Engineering	Engineering technique and information for prevention or reduction of geo-disaster
Professor	Akiyoshi Takagi	Regional Planning	Education and research on regional planning based on socio-economic evaluation of safety, comfort and convenience
Professor	Ichiro Tamagawa	Hydrometeorology	Energy and water exchange between land and atmosphere and atmospheric boundary layer
Professor	Yoshifumi Demura	Urban History, Landscape Planning	Spatial and Historical Study of Urban and Humanized Landscape, Landscape Design
Professor	Nobuoto Nojima	Earthquake Engineering	Seismic Hazard and Risk Assessment and its Application to Earthquake Disaster Prevention and Mitigation
Professor	Shigeyuki Murakami	Bridge Engineering	Education and Study on Satability, Ductility and Maintainance of Bridge Structures
Professor	Fusheng Li	Environmental and water quality engineering	Water quality; Water and wastewater treatment; Pollution control; Solid waste treatment and reuse
Associate Professor	Koji Kinoshita	Steel Structural Engineering, Fracture Mechanics, Earthquake Engineering	Seismic performance and fatigue performance of bridges; linear and nonlinear analytical techniques for bridges subject to dynamic loads, earthquake and aging protective systems, and experimental large-scale bridges testing
Associate Professor	Masumitsu Kuse	earthquake engineering	Prediction of ground motion, Estimation of the fault model based on the strong motion records
Associate Professor	Toshiharu Kojima	Hydrology	Education and investigation of rainfall-runoff process and related various phenomena with remote sensing and GIS
Associate Professor	Yuki Kojima	Environmental Soil Physics	Education and research relevant to coupled heat, water, and chemical transfer in vadose zone
Associate Professor	Maki Koyama	Disaster Risk Reduction, Earthquake Engineering	Mechanism of human casualties and building disaster resilient communities
Associate Professor	Yuji Suzuki	Environmental and water quality engineering	Education and research on behavior of hazardous pollutants in water environment and their treatment technology
Associate Professor	Toshiyuki Nakamura	Travel Behavior Analysis and Urban Transportation planning	Urban Transportation Planning Research and education based on travel behavior analysis using a wide variety of data
Associate Professor	Morihiro Harada	River Engineering	River basin management harmonized with disaster prevention and environmental conservation
Associate Professor	Kayako Hirooka	environmental sanitary engineering	Research and Education on recovery of energy and material from wastewater and solid waste, and Energy-saving wastewater treatment technology
Assistant Professor	Yuki Banno	Steel structural engineering	Fatigue of steel structure: life extension and defect tolerance analysis of peened welds
Assistant Professor	Hideto Yoshimura	Hydraulics, Computational Fluid Dynamics	Education and research on dynamics of free-surface turbulent flow and its application

物質・ものづくり工学専攻
Department of Materials Science and Processing

物質化学領域
Materials Chemistry Division

As of April 1, 2023

役職 Title	教員名 Name	教育・研究分野 Educational and Research Area	
		名称 Specialization	内容 Theme
Professor	Shigeyuki Uemiya	Reaction and separation engineering	Research and education on reaction and separation materials for environmentally-friendly chemical reaction processes
Professor	Shoichi Kutsumizu	Soft Matter Chemistry	Development of self-assembled materials such as liquid-crystalline and polymeric materials and elucidation of their structure-property relationship
Professor	Mamoru Koketsu	Functional Organic Molecular Chemistry	Study on preparation, analysis and characterization of functional organic molecule
Professor	Osamu Sakurada	Processing of Inorganic Materials	Study and education on processing, characterization and analysis of inorganic materials
Professor	Mutsuhiro Shima	Materials Science	Materials science with particular focus on investigating structure-property relationships in functional magnetic nanomaterials and composites
Professor	Akiyoshi Takeno	Functional polymer materials	Education and research on the functional polymer materials covering structure-property relationship and control
Professor	Takayuki Ban	Inorganic Materials Chemistry	Education and research on the syntheses of ceramic nanomaterials by solution processes and their characterization methods
Professor	Kazumasa Funabiki	Design of Functional Organic Molecule	Study and education on the synthesis of useful organic molecules and evaluation of their properties
Professor	Yohei Miwa	Chemistry in Molecular Assembly	Research and Education in Field of Self-Assemble Polymers and Liquid Crystals
Associate Professor	Toshiyasu Inuzuka	Natural Product Chemistry	Isolation, structure elucidation and biological activity evaluation of novel natural products
Associate Professor	Toshihira Irisawa	Design of Fiber Reinforced Plastics	Education and research on the design of polymeric fiber, carbon fiber and nano carbon reinforced plastics
Associate Professor	Kazuhiro Uemura	Coordination Chemistry	Education and Studies on the Synthesis and Physical Properties of Novel Assembled Coordination Compounds
Associate Professor	Yasunori Oumi	Separation materials and engineering	Development of the design method and function elucidation of separated materials for realizing low environmental load process
Associate Professor	Hiroshi Kimura	Polymer&Surface Chemistry	Education and research relevant to behavior and functional development of surface in polymeric system
Associate Professor	Kenichi Komura	Materials for Catalyst & Catalysis Chemistry	Education and research on catalyst design for environmental benign chemical process.
Associate Professor	Chika Takai	Design of Functional Inorganic Nanoparticles	Research and Education on Design of Functional Inorganic Nanoparticles and Control of their Dispersibility
Associate Professor	Yuji Naruse	Structual organic chemistry	Research and education on design of molecules and reactions and their applications for materials
Associate Professor	Kazuhiro Manseki	Materials science for photoenergy conversion	Development of solar cells and photocatalysts using organic-inorganic hybrid systems
Associate Professor	Manabu Miyamoto	Reaction and Separation Engineering	Catalysis, adsorption and membrane separation using porous materials
Associate Professor	Taro Udagawa	Quantum and computational chemistry	Development of computational methods for quantum mechanics and its applications
Associate Professor	Keisuke Yamada	Spintronics	Education and research on fabrication of nano magnetic materials and evaluation of these physical properties
Assistant Professor	Yasuhiro Kubota	Organic Functional Chemistry	Molecular design and synthesis of functional dyes
Assistant Professor	Michiyuki Yoshida	Ceramic Materials	Education and research for structural and material design based on powder technology
Assistant Professor	Kei Hashimoto	Soft Matter & Solution Chemistry	Research and Education in Field of Self-Assemble Polymers and Liquid Crystals in Solution

設計生産領域
Materials Processing Division

役職 Title	教員名 Name	教育・研究分野 Educational and Research Area	
		名称 Specialization	内容 Theme
Professor	Yoshihiko Uematsu	Strength and Fracture of Materials	Research and education for the understanding of fracture mechanisms of engineering materials, improvement of structural reliability and fracture prevention.
Professor	Hiroyuki Kousaka	Functional Surface Manufacturing	Research and education on functional surface manufacturing focusing on tribology and plasma technologies
Professor	Asami Nakai	Engineering of Composites	Education and research on basic theory on molding, structure, properties, and functions of composite materials and its application
Professor	Kisaragi Yashiro	Computational Materials Science	Research and education on various computational approaches for deformation and fracture of solid materials
Professor	Minoru Yamashita	Plasticity engineering	Research and education of elastic plastic deformation and plastic forming process of solid materials, and their numerical simulation
Professor	Yoshinori Yoshida	Advanced Structural Materials	Study on engineering structural materials and its control deformation processing technology
Professor	Zhigang Wang	Combined forming processes	Development of combined forming processes to make precise products with complicated shapes
Associate Professor	Yoshihiro Inoue	Complex Turbulent Shear Flow	Research and education of instrumentation system development and data analysis for turbulent structures in complex shear flows
Associate Professor	Toshifumi Kakiuchi	Strength and Fracture of Materials	Education and study on evaluation of strength in materials used for machine structures.
Associate Professor	Makoto Niiawa	Processing engineering	Research and education on various processing phenomena focusing on die and mold
Associate Professor	Keishi Naito	Polymer Materials Science and Engineering	Research and education on properties (mainly mechanical), process development and composite material of polymeric

知能理工学専攻
Department of Intelligence Science and Engineering

知能機械領域
Intelligent Mechanical Engineering Division

As of April 1, 2023

役職 Title	教員名 Name	教育・研究分野 Educational and Research Area	
		名称 Specialization	内容 Theme
Professor	Kazuaki Ito	Motion control	Education and research on advanced motion control for mechatronic systems
Professor	Satoshi Ito	Engineering of intelligent control systems	Education and research on motor control systems of humans and robots
Professor	Takeshi Miyasaka	Space Propulsion Engineering	Education and Research on plasma and physical gas dynamics of space propulsion systems
Professor	Tetsuya Mouri	Intelligent Mechanical Engineering	Education and Research on System Integration of Robotics and Virtual Reality
Professor	Takayoshi Yamada	Industrial Robotics and Mechatronics	Education and Research on Robotics, Mechatronics, and Robotic Assembly
Professor	Hironao Yamada	Computer Control Engineering	Education and research on computer control engineering, image processing, human support engineering
Professor	Hirohisa Tamagawa	Polymeric materials	Education and Research on Fabrication of electroactive polymer, Elucidation of electric characteristics of hydrophillic polymer
Associate Professor	Makoto Asahara	Space energy engineering	Development of engines for aircraft and spacecraft, investigation of production and combustion characteristics of green fuels and hydrogen on Earth, and energy management outside Earth
Associate Professor	Satoshi Ueki	Intelligent mechatronics	Education and research on Intelligence, measurement, and control of mechatronic system
Associate Professor	Gakuji Nagai	Computational Engineering	Education and Research on Strength of Materials, Finite Element Method for Smart Materials, High Performance Computing, Visualization
Associate Professor	Kojiro Matsushita	Human Assist Robotics	Education and research on motion & bio-signal analysis and autonomous robots for human assist
Associate Professor	Ryosuke Morita	Systems Control Theory	Synthesis and analysis for control systems and their applications

知能情報学領域
Informatics Division

役職 Title	教員名 Name	教育・研究分野 Educational and Research Area	
		名称 Specialization	内容 Theme
Professor	Kunihito Kato	Computer Vision	Image processing, Image recognition, Computer Vision
Professor	Keiichirou Kusakari	Program Theory	Research on computational models that are mathematical models and define the semantics of functional programs, and formal verification of functional programs
Professor	Masahiro Tanaka	Computer Simulation	Education and research on computational methods, numerical techniques, and algorithms in computer simulation
Professor	Takeshi Hara	Medical Image Analysis and Processing	Quantitative imaging and computerized analysis for medical images
Professor	Miwako Mishima	Discrete Mathematics and its Applications	Education and research on digital communications, cryptography, and their underlying algebra and combinatorics
Professor	Yasumari Yokota	Signal and Image Processing	Education and study related to processing and analysis for sound, biological signals, images, and videos.
Professor	Tadashi Yamaguchi	Numerical Analysis	Education and Research on Coupled Analysis between Recent Finite Element Method and Various Equations
Professor	Kazunori Terada	Intelligent Interaction	Education and research on intelligent interaction between human-human and human-machine
Associate Professor	Alexander Carballo	Intelligent Autonomous Systems	Research on intelligent autonomous systems, such as robots and self-driving vehicles, in the areas of autonomous mobility, environment perception and modeling, and motion behavior understanding, from a human-centric perspective.
Associate Professor	Yoshihiro Kaneko	Network Theory	Education and research based on graph-theoretic network system
Associate Professor	Ryugo Kijima	Human Computer Interaction	Human sensation and perception for interfacing to computer, especially for Virtual Reality.
Associate Professor	Xiangrong Zhou	High-dimensional medical image processing	Education and research on automatic recognition, extraction, modeling and application of human body information from high-dimensional medical images
Associate Professor	Yu Suzuki	Data Engineering	Education and research of data analysis based on data centric approach
Associate Professor	Satoshi Tamura	Multimodal processing	Integration, application and information processing of multiple modalities such as audio and visual ones
Associate Professor	Hidekazu Fukai	Biological Signal Processing	Studies on from systems biology to cognition by signal processing and statistical science
Associate Professor	Tadahiro Matsumoto	Natural Language Processing	Education and research on computer processing and representations of natural language
Associate Professor	Xiao-Nan Lu	Codes, Cryptography, and Combinatorics	Combinatorial theory and algorithms for network communication, data storage, information security, and information processing
Assistant Professor	Keigo Imai	Programming Languages and Concurrent/Distributed Systems	Theory and practice of programming languages and their type systems, and formal models for concurrent/distributed computing
Assistant Professor	Shun Lu	Information theory and coding theory for multiuser communications	Research and education on the evaluation of the theoretical limits and encoding/decoding methods to approaching the theoretical limits for multiuser communications

応用数学物理領域
Applied Mathematics and Physics Division

役職 Title	教員名 Name	教育・研究分野 Educational and Research Area	
		名称 Specialization	内容 Theme
Professor	Atsushi Kameyama	Dynamical Systems	Mathematics of vector fields, discrete dynamical systems, and chaos
Professor	Takanichi Terao	Computational science and engineering	Computational physics (colloids, soft materials, metamaterials), molecular simulations, high-performance computing
Professor	Takahiro Nitta	Biophysics, Polymer physics	Research and education on soft materials and biomaterials
Professor	Osamu Kubo	Solid state physics, Physics on surface and interface	Education on solid state physics, physics on surfaces/interfaces, and Reserch on creation of nanomaterials as well as evaluation of their physical properties
Associate Professor	Shintaro Kondo	Mathematical analysis	Education and research on mathematical analysis of nonlinear differential equations describing plasma phenomena and reaction diffusion equations
Associate Professor	Kouji Yamamuro	The theory of stochastic processes	Education and the study of mathematical theory of additive processes
Assistant Professor	Naoto Kajiwara	Partial Differential Equations	Education and research on mathematical theory of parabolic evolution equations
Assistant Professor	Hidetoshi Sano	Radio Astronomy, High-Energy Astrophysics	Observational studies of the interstellar medium and high-energy phenomena in supernova remnants
Assistant Professor	Hiroshi Sudou	Radio astronomy	Astrometry, blackhole astronomy

エネルギー工学専攻
Department of Energy Engineering

エネルギー変換領域

Energy Conversion Division

As of April 1, 2023

役職 Title	教員名 Name	教育・研究分野 Educational and Research Area	
		名称 Specialization	内容 Theme
Professor	Shinji Kambara	Energy and Environmental Engineering	R&D of energy and environmental engineering by plasma chemistry and photochemistry.
Professor	Tomonao Kobayashi	Natural Energy	Evaluation and prediction of electric power generation of photovoltaic systems based on weather forecasting, and prediction of waves and physical processes in the ocean
Professor	Nobumake Kobayashi	Energy conversion process	Study and Education on High Efficiency Energy Conversion Process with Solid-Gas Reaction
Professor	Masaharu Komiya	Thermal Engineering	Education and research on development of measuring method of thermal fluid including reactivity and investigation of real phenomena and its application
Professor	Shuhei Takahashi	Reacting Thermo-fluid Engineering	Education and research on thermo-fluid phenomena with chemical reaction
Professor	Tuichi Matsumura	Vibration Engineering	Education and research on the elucidation and its application of the occurrence mechanism of acoustics and vibration
Professor	Jun Yoshino	Natural Energy	Estimation, prediction, and control on natural energy and environment based on high-resolution meteorological and oceanographic models
Associate Professor	Satoshi Kikuchi	Fluid Engineering	Education and research of investigations and control of fluid flow phenomena
Associate Professor	Yasushi Sobajima	Energy-Conversion Optoelectronic Engineering	Study on new process control technologies for high grade photovoltaic device preparation
Associate Professor	Satoshi Nishida	Light Energy Conversion Process Engineering	Analysis of chemical reactions and gas flow in plasma enhanced CVD process
Associate Professor	Ebel Fuyua	Acoustics and Vibration engineering	Education and research on development of numerical method to predict vibration and acoustic phenomenon and its application.
Associate Professor	Norimitsu Yoshida	Energy-Conversion Optoelectronic Engineering	Education and research on optical and electronic properties of semiconductors for thin film solar cells
Associate Professor	Yoshinari Kobayashi	Aerospace Engineering, Combustion Engineering	Education and research on combustion science and application to aerospace propulsion systems
Assistant Professor	Kazuhiko Kamabe	Integrated energy-recirculation system engineering	Education and research on developments of highly-efficient and environmentally-friendly energy system and reduction method of environmental pollutant
Assistant Professor	Takio Hayakawa	Energy and Environmental Engineering	R&D on environmental load reduction and ammonia fuel utilization technology by atmospheric pressure plasma

電気エネルギー領域

Electrical and Energy System Engineering Division

役職 Title	教員名 Name	教育・研究分野 Educational and Research Area	
		名称 Specialization	内容 Theme
Professor	Hiroki Ishikawa	Power Electronics	Research and education on power conversion and the related applications.
Professor	Takashi Itoh	Electronic Materials Engineering	Study and education on evaluation of fundamental properties of electronic materials mainly semiconductors and their application to devices such as solar cells
Professor	Baozhong Wang	Electric energy engineering	Lightning physics, Lightning protection, Photovoltaic power
Professor	Tetsuji Kume	Solid State Physics and Engineering in High Pressure	Education and Investigation on Optical Properties in Functional Materials of Condensed Matter under High Pressure
Professor	Shigeo Sasaki	High Pressure Materials Science	Education and study of the exploration of novel phenomena for molecular solids and gas hydrate compounds by using high pressure generation technique and the estimation of their physical and electronic properties
Professor	Makoto Nakamura	Integrated Circuit Engineering	Studies on optical-electrical interface circuits for optical communication systems
Professor	Hironuki Fujiwara	Semiconductor Device Engineering	Fabrication of solar cells based on new materials and construction of solar cell device simulators
Professor	Hiroki Yoshida	Energy Generation and System	Laser engineering, fusion related quantum optics, renewable energy generation and system
Professor	Shintaro Hisatake	Terahertz Photonics	Generation, manipulation, and detection of millimeter-wave and terahertz wave based on photonics technology
Associate Professor	Ting Wu	Atmospheric Electricity	Lightning physics, lightning observation technology, lightning protection technology
Associate Professor	Fumitaka Ohnishi	Semiconductor engineering	Education and research on characterizations of fundamental properties of novel materials and reliability of photovoltaic modules
Associate Professor	Hidehiro Otawa	Dielectric Engineering	Education and research on basic characteristics and applications of electronic materials centering on dielectrics
Associate Professor	Masafumi Sakata	Structural Materials Science under High Pressure	Education and research on structural change of material and novel electronic properties such as superconductivity under extremely high pressure
Associate Professor	Toshihiro Takahashi	VLSI design	Low-voltage and Low-power digital/analog design of cryptographic VLSI using adiabatic logic, and front-end ICs for optical communication
Associate Professor	Hirotsuka Takano	Power Engineering	Energy Management Technologies for Electric Power Suppliers and Consumers
Associate Professor	Koji Hayashi	Semiconductor Electronics	Study on novel opto-electronic functional materials: Amorphous semiconductor materials, Nano crystals
Associate Professor	Kiyomi Ito	Soft magnetic material science	Dissimilar metal bonding and soft magnetic material properties measurement & applications
Assistant Professor	Baisuke Ito	Electrical engineering	Circuit design and functional systems for high-speed optical communications
Assistant Professor	Yusuke Kimura	High Pressure Materials Science	Education and study on structures and ionic properties of superionic conductors under high pressure
Assistant Professor	Tatsuo Suzuki	System Theory	Mathematical System Theory which investigates common principles among various kinds of systems including signal/image processing or aerospace systems.
Assistant Professor	Shigeru Yamada	Semiconductor Engineering	Education and research on characterizations and device applications of semiconductor materials and quantum structures