

Gunma University Graduate School of Science and Technology (Master's Program)

Faculty Members and Fields of Specialization

※Please make sure to receive an approval for acceptance from the supervisor before applying.

※Please put "gunma-u.ac.jp" after the at sign (@).

◆Program of Applied Chemistry

| Faculty Members | E-mail | Fields of Specialization |
|-----------------------------|----------------|---|
| Professors | | |
| Motoko S. Asano | motoko@ | <ul style="list-style-type: none"> Photophysics and design of photofunctional composite molecular systems including coordination compounds |
| Hideki Amii | amii@ | <ul style="list-style-type: none"> Development of synthetic organic reactions and their applications |
| Md. Zakir Hossain | zakir@ | <ul style="list-style-type: none"> Chemical modification of epitaxial graphene on SiC substrate |
| Tetsuo Okutsu | okutsu@ | <ul style="list-style-type: none"> Physical chemistry, photochemistry and crystal growth |
| Hiroaki Ozaki | h-ozaki@ | <ul style="list-style-type: none"> Development of modified nucleic acids and its application |
| Kiichi Sato | kiichi.sato@ | <ul style="list-style-type: none"> Development of micro bioanalysis systems |
| Yoshihiro Sumiyoshi | y-sumiyoshi@ | <ul style="list-style-type: none"> Studies on molecular structures of transient species and complexes consisting of radicals |
| Masashi Sonoyama | sonoyama@ | <ul style="list-style-type: none"> Biomolecular science, Biophysical chemistry of proteins, Biospectroscopy, Bioinformatics |
| Hiroshi Takahashi | hirotakahashi@ | <ul style="list-style-type: none"> Structural analysis and thermal study of model biomembranes |
| Shigeki Takeda | stakeda@ | <ul style="list-style-type: none"> Functional analysis of receptors, characterization and application of protein self-assembly |
| Yosuke Nakamura | nakamura@ | <ul style="list-style-type: none"> Construction and properties of novel π-conjugated systems including fullerene chemistry and supramolecular chemistry |
| Jun-ichi Fujisawa | jfujisawa@ | <ul style="list-style-type: none"> Studies of organic-inorganic hybrid materials for light energy conversions |
| Ichiro Matsuo | matsuo@ | <ul style="list-style-type: none"> Glycoscience, Glycotechnology, Synthetic study of glycoconjugates |
| Takako Muraoka | takakomuraoka@ | <ul style="list-style-type: none"> Studies on unique ligands with heavier typical elements and their transition metal complexes |
| Associate Professors | | |
| Ken-ichiro Kanno | kkanno@ | <ul style="list-style-type: none"> Synthesis and properties of novel organosilicon compounds using transition-metal complexes |
| Takafumi Shimoaka | shimoaka@ | <ul style="list-style-type: none"> Physical chemistry and vibrational spectroscopy on molecular aggregation systems |
| Tsuyoshi Takahashi | ttakahas@ | <ul style="list-style-type: none"> Construction and application of functional molecules using peptide and protein engineering |
| Hiroyuki Takeda | takedah@ | <ul style="list-style-type: none"> Functionalization of First Transition Metal Complexes Intending Artificial Photosynthesis |
| Yuya Domoto | domoto@ | <ul style="list-style-type: none"> Development of self-assembled large molecules with higher molecular complexity |
| Nobukazu Nameki | nameki@ | <ul style="list-style-type: none"> Analyses of novel translation regulation mechanisms, and structural bioinformatics |
| Tomohisa Moriguchi | moriguchi@ | <ul style="list-style-type: none"> Development of functional oligonucleotides, chemistry of natural products |
| Minoru Yamaji | yamaji@ | <ul style="list-style-type: none"> Photophysics and photochemistry of organic and organometallic compounds |
| Keiichi Yamada | kyamada@ | <ul style="list-style-type: none"> Development of novel bioactive peptides utilizing molecular imaging technique |
| Toshitada Yoshihara | yoshihara@ | <ul style="list-style-type: none"> Photophysical and photochemical studies of aromatic compounds and its application for bioimaging |

◆Program of Materials Science

| Faculty Members | E-mail | Fields of Specialization |
|-----------------------------|------------------|---|
| Professors | | |
| Naoki Asakawa | asakawa@ | <ul style="list-style-type: none"> Bio-inspired devices using emergent property found in polymers |
| Hiroki Uehara | hirokiuehara@ | <ul style="list-style-type: none"> Development of property and functionality of polymeric materials by drawing techniques |
| * Masafumi Unno | unno@ | <ul style="list-style-type: none"> Organosilicon and organic heteroatom chemistry: molecular design, synthesis, and application |
| Toru Kyomen | tkyomen@ | <ul style="list-style-type: none"> Solid state chemistry and design of functional oxides |
| Ikuo Shohji | shohji@ | <ul style="list-style-type: none"> Heterophase interface science, micro joining, electronics packaging materials, brazing, surface treatment and corrosion of metals |
| Soshi Shiraishi | soshishiraishi3@ | <ul style="list-style-type: none"> Development of carbon-based nanoporous materials and electrochemical capacitors |
| Minoru Hanaya | mhanaya@ | <ul style="list-style-type: none"> Development and characterization of functional solid-state materials |
| Associate Professors | | |
| Masahiro Inoue | masa-inoue@ | <ul style="list-style-type: none"> Development and characterization of organic/metal/inorganic hybrid materials, and their application to novel electronic systems |
| Shinji Iwamoto | siwamoto@ | <ul style="list-style-type: none"> Solvothermal synthesis of inorganic materials and their performance as catalysts autoantigens, advanced functional foods for prevention of diseases |
| Hiroyuki Oku | oku@ | <ul style="list-style-type: none"> Synthetic vaccines and diagnosis material; biofunctional chemistry; biomedical and functional polymers |
| Masaki Kakiage | kakiage@ | <ul style="list-style-type: none"> Development of high-performance polymer fiber and film materials and ceramics by green processing |
| Ryohei Kakuchi | kakuchi@ | <ul style="list-style-type: none"> Synthesis of polymeric materials through a combination of computational and experimental chemistry |
| Shinji Koyama | koyama@ | <ul style="list-style-type: none"> Precision bonding, surface hardening, corrosion resistance, wear resistance |

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|--|-------------|---|
| Nobuhiro Takeda | ntakeda@ | <ul style="list-style-type: none"> Synthesis of metal complexes bearing new ligands for the purpose of activating small molecules |
| * Masaru Yoneyama | m.yoneyama@ | <ul style="list-style-type: none"> Transition metal-catalyzed polymerization, Synthesis of polymers from unutilized resources |
| Visiting Professors Takayuki Kawashima Noriaki Seko Mitumasa Taguchi Yasunari Maekawa Tetsuya Yamaki Hirohiko Watanabe | | <ul style="list-style-type: none"> Creation of new functional molecules utilizing main group elements R & D of the polymer modification technique by radiation processing Quantum beam reaction and environmental / medical applied research Synthesis and structure/property analysis for polymer functional materials Nanotechnology Research and Material Development for Application to Next-Generation Energy Devices Soldering, Evalution of microstructure, Bonding materials for high-temperature power electronics |
| Visiting Associate Professors Akihiro Hiroki Hiroki Yamamoto | | <ul style="list-style-type: none"> Radiation modification technologies for environment-friendly polymer materials Study on Ultra-finefabrication Materials Based on Reaction Induced by Quantum Beam |

* will retire in March, 2026

◆Program of Chemical Engineering

| Faculty Members | E-mail | Fields of Specialization |
|---|--|--|
| Professors Jun-ichi Ozaki Nobuyoshi Nakagawa Hideyuki Morimoto | jozaki@ nob.nakagawa@ hmorimoto@ | <ul style="list-style-type: none"> Design and preparation of catalytic carbon materials, particularly used in the applications of fuel cell and biomass conversion Development of an efficient liquid fuel cell by means of catalyst preparation and by optimizing the electrode structure. Development of all-solid-state batteries and novel battery materials |
| Associate Professors Takafumi Ishii Kazuyoshi Sato Reiji Noda | ishii@ kazuyoshi-sato@ noda_r@ | <ul style="list-style-type: none"> Development of surface analysis techniques for carbon materials, application of carbon materials to material conversion catalysts and energy devices Synthesis and processing of ceramic materials and application for enegy and environmental devices Development and evaluation of waste/biomass energy utilization processes, Evaluation and design of a local society based on energy/mass flow analysis |
| Visiting Professors Hiromi Shirai Naoki Noda | | <ul style="list-style-type: none"> Environmental combustion engineering, clean energy conversion engineering Environmental combustion engineering, aerosol engineering, energy conversion of coal and biomass |
| Visiting Associate Professor Kenji Tanno | | <ul style="list-style-type: none"> Numerical combustion simulation, Energy control |

◆Program of Civil and Environmental Engineering

| Faculty Members | E-mail | Fields of Specialization |
|---|--|--|
| Professors Mitsuo Ozawa Masanobu Kanai Akihiko Wakai Tomohide Watanabe | ozawa@ kanai@ wakai@ watanabe@ | <ul style="list-style-type: none"> Fire resistance of concrete, Control of cracking due to volume change in concrete at early age Local disaster prevention, evacuation, disaster information, disaster education Slope failure mechanisms, soil-structure interaction and their numerical simulation Biological wastewater treatment, microbial and physicochemical degradation of water pollutants, Advanced water / wastewater treatment , resource recovery |
| Associate Professors Tsukasa Ito Ken-ichi Uzaki Fei Cai Takahiro Saitoh | t.ito@ k-uzaki@ feicai@ t-saitoh@ | <ul style="list-style-type: none"> Water treatment, environmental microbiology and biodegradation of environmental pollutants A study of regional sediment transport from rivers to coastal regions. Development of the calculation model to estimate the sediment discharge of river by using the simple model and field data. Earthquake-resistant measures for ground and earth structures, safety evaluation of landslides, and shallow ground thermal energy utilization Applied mechanics, computational mechanics and non-destructive evaluation for civil engineering structures |

◆Program of Mechanical Engineering

| Faculty Members | E-mail | Fields of Specialization |
|---|---|--|
| Professors Kenji Amagai Mikiya Araki Tsuneaki Ishima Atsushi Iwasaki Yoshihiko Hangai Yusaku Fujii Tomohiko Furuhashi Weimin Lin | amagai@ mikiya.araki@ ishima@ aiwasaki@ hanhan@ fujii@ tfuruhashi@ wlin@ | <ul style="list-style-type: none"> Thermo-fluid engineering, Interfacial flow, Atomization, Environmental fluid engineering Jet engines, Jet noise, Combustion, Spray The experimental elucidation for flow, heat and mass transfer and laser application for flow including small particle Structural health monitoring and composite material Fabrication and mechanical evaluation of porous metals Precision measurement, Optical measurement, Electrical-mechanical measurement Combustion, spray flow, exhaust gas aftertreatment and gas turbines Developing a high efficiency ultra-precision polishing machine. Research for the application of ELID process. Creating a desktop processing machine and test. |
| Associate Professors Tomoyasu Aihara Hisanobu Kawashima Yoshio Zama Ryosuke Suzuki Akihiro Takita Masato Funatsu | t.aihara@ hkawa@ yzama@ r_suzuki@ takita@ mfunatsu@ | <ul style="list-style-type: none"> Microscopic evaluation of metal strength and destruction , and character of fluid bysimulation Bubble dynamics, heat and fluid flow measurement, and multiphase flow Spray flow, Quantitative visualization measurement, Automotive engineering Smart manufacturing, IoT utilization, Digital communications, Material testing technology Optical measurement, Image processing, Social safety, IoT devices Hypersonic and high-temperature gas dynamics, Thermal protection system for space vehicle, Plasma diagnoses by spectroscopy |
| Visiting Professors Satoshi Okajima Takashi Wakai Tomoyoshi Watakabe | | <ul style="list-style-type: none"> Design evaluation method for fast reactors, Coupling of probabilistic risk assessment and structural reliability evaluation Structural design and material strength evaluation techniques for Fast Breeder Reactors Seismic design evaluation techniques for Fast Reactors |

◆Program of Intelligence and Control

| Faculty Members | E-mail | Fields of Specialization |
|--|---|---|
| Professors Takaaki Suzuki Hayato Sone Nobuaki Nakazawa Seiji Hashimoto Shinichi Maruyama Takashi Miwa Takao Yamaguchi Ko Yamada | suzuki.taka@ hayatosone@ n.nakazawa@ hashimotos@ maruyama@ miwa@ yamagme3@ yamada@ | <ul style="list-style-type: none"> Micromachines and MEMS for bio, optical and IoT applications Nanometer measurement and fabrication, nanoelectronic devices, high-sensitive biosensor for medical use, crystal growth Human interface, biomedical motion control, and motion planning for a robot Motion control, system identification, vibration control, precision control, renewable energy Vibration analysis and measurements of machines and structures, Nonlinear phenomenon Applied measurement for electromagnetic and ultrasonic wave Numerical analysis for dynamics of cars, machines and living bodies, Vibration damping, Sound-proof structure, Acoustic black hole System control theory and its application, control of machine and robot, and intelligent control of the machine |
| Associate Professors Nobuyuki Kurita Kosuke Suzuki Yuya Tanaka Akito Chiba Iwanori Murakami Md Abdus Samad Kamal | nkurita@ kosuzuki@ yuya.tanaka@ chiba@ murakami@ maskamal@ | <ul style="list-style-type: none"> Magnetic bearing, maglev motor, automatic control engineering, power electronics X-ray characterization, Backscatter imaging, Electronic structure, Functional oxide, Lithium rechargeable battery Characterization of organic materials and their application to semiconductor and mechatronic devices Photonics, Optoelectronics Applied electromagnetics, Actuator, Applied of superconducting levitation, Jumping robot Control of next generation vehicular traffic system, model predictive control and intelligent control and their applications |
| Visiting Professors Tomio Iwasaki Teruo Kohashi Kazuo Saito Ken Harada | | <ul style="list-style-type: none"> Sustainable and bio-compatible materials design with molecular simulations and materials informatics Magnetic metrology, Spin polarized scanning electron microscopy Advanced electronic engineering Electron microscopy, electron interferometry, electron holography, and their physical applications |

◆Program of Electronics, Information and Communication Engineering

| Faculty Members | E-mail | Fields of Specialization |
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| Professors You Yin Syun-ji Ozaki Tamihiro Gotoh Hiroshi Sakurai Manabu Takahashi Kazumi Tanuma Tatsuya Nagao * Osamu Hanaizumi Kenta Miura Kuniyuki Motojima Yasushi Yuminaka | yinyou@ shunji@ tgotoh@ sakuraih@ mtakahas@ tanuma@ nagao@ hana@ mkenta@ motojima@ yuminaka@ | <ul style="list-style-type: none"> ▪ Materials and devices for brain-like chip and information storage, nanofabrication, nanometrology ▪ The optical properties and electronic energy-band structures of nanostructured semiconductors and ternary compound semiconductors ▪ Material science for optical devices ▪ Spintronics, Lithium ion battery, X-ray imaging, medical engineering ▪ Theoretical study on electronic properties and magnetism in transition metal compounds ▪ Elasticity equations, inverse problems ▪ Theory of strongly correlated electron system ▪ Devices for optical communication, Microphotonics ▪ Light-emitting materials and devices, Photoelectric devices ▪ Radio wave propagation, Wireless measurement, Electromagnetic wave simulation ▪ Multiple-valued logic and new-paradigm analog/digital integrated circuits |
| Associate Professors Tadashi Ito Masako Suzuki-Sakamaki Toshimitsu Takaesu Toshiki Takahashi * Yoshitaka Takahashi Yuki Tanaka Hirofumi Nagoshi Toshiya HikiHara Takafumi Miyazaki Yoshifumi Morita | tadashi_ito@ masakoss@ t-takaesu@ t-tak@ taka@ ytanaka@ nagoshi@ hikiHara@ tmiyazaki@ morita@ | <ul style="list-style-type: none"> ▪ Computed tomography and its applications, inverse problems in measurement ▪ Synchrotron Science, Surface/Interface Science, Multiferroics ▪ Hilbert Space Theory, Relativistic Quantum Field Theory, Spectral and Scattering Theory ▪ Physics of compact torus plasmas for thermonuclear fusion reactors ▪ Optoelectronics and quantum electronics ▪ High-speed arithmetic algorithm, IoT device and its management system, graph theory ▪ Analytic number theory, value-distribution of arithmetic functions ▪ Low-dimensional strongly correlated electron systems, quantum spin systems, numerical calculation ▪ Exponential Diophantine equation, Diophantine analysis ▪ Theoretical study on low dimensional quantum systems and superconductors |
| Visiting Professor Nobukazu Takai | | <ul style="list-style-type: none"> ▪ CMOS analog integrated circuit design and its automated design algorithm. |

* will retire in March, 2026

◆ Gunma University Initiative for Advanced Research (GIAR)

| Faculty Members | E-mail | Fields of Specialization |
|---|---------|---|
| Professor Keisuke Nimura | nimura@ | <ul style="list-style-type: none"> ▪ Gene expression, Gene Therapy, Oncotherapy, DNA barcode, Next Generation Sequencing |
| Associate Professor Takehiko Yokobori | bori45@ | <ul style="list-style-type: none"> ▪ Biomarker research using clinical cancer specimens, Development of cancer treatment tools |