

Osaka Metropolitan University

**Collaborative Creation  
Research Center**

COLLABORATIVE CREATION  
RESEARCH CENTER



# Forging a society of the future focused on well-being through creative collaboration among industry, academia, and government

With a full array of research fields and about 16,000 students, Osaka Metropolitan University, which was formed by the merger of Osaka City University and Osaka Prefecture University in April 2022, is Osaka's only public university and one of the largest such institutions in Japan. The New University Basic Concept (revised in July 2020) authored by Osaka Prefecture, Osaka City, and University Public Corporation Osaka identifies the University's mission as resolving urban issues through an urban thinktank function and strengthening industrial competitiveness through its technology incubation function. Osaka Metropolitan University is expected to become an intellectual hub that drives Osaka's development in close partnership with Osaka Prefecture and Osaka City. Furthermore, reflecting its goal of serving not only as a hub for the Osaka region, but also as an advanced research university with global reach, the University established a Co-creation Initiatives Steering Committee in April 2022 in order to accelerate research undertaken through partnerships among industry, academia, and government as well as the demonstration and implementation of findings in a socially meaningful manner. We're implementing a university-wide, network-based innovation ecosystem, and we've launched the Innovation Academy (ia) program (<https://www.omu.ac.jp/research/innovation-academy/>) to serve as a "living lab" for co-creation by industry, academia, and government. Through ia, the University will provide a co-creation venue for a diverse range of human resources from industry, academia, and government. Participants will discuss a vision for the society of the future from a variety of perspectives while drawing on a comprehensive range of knowledge. The endeavor will also support co-creation activities conceived to help visualize and implement a society focused on well-being through demonstration experiments using basic research that cuts across multiple research domains

and the "living lab" as well as the development of prototypes. Furthermore, we will pursue a new type of co-creative research involving industry, academia, and government that can reflect stakeholder intentions and needs using policy in real time while realizing robust partnerships with Osaka Prefecture and Osaka City.

Consequently, In addition to 16 affiliated research centers in the Organization for Research Promotion that reports directly to the president, the University is working to become a global hub that contributes to industry, the economy, culture and education by pursuing multidisciplinary field (departmental) research that transcends the boundaries of colleges and graduate schools. To this end, the Collaborative Creation Research Center has been established as a facility that marshals comprehensive knowledge both inside and outside the University while conducting a broad range of research, from cross-cutting, pioneering basic research to research into social implementation. More than 50 research institutes are participating. Among their researchers, these research institutes count numerous stakeholders, including not only faculty members at the University, but also faculty members from other universities, companies, national agencies, local government officials, and NPOs. The goal is to revitalize co-creation research activities, for example by discussing a vision for the society of the future and reestablishing research topics through a "backcasting" approach that draws on a diverse range of values. We're providing foundational support for the university-wide ia program through two types of research institutes: Category 1 institutes, which are operated by a responsible faculty member, and Category 2 institutes, which are established by the president of the University to carry out strategic studies and research.

In recognition of these and related initiatives, the University was chosen for inclusion in the following

three external funding programs under the Package for Comprehensive Promotion of Research Universities with a Regional Core and Distinctive Characteristics: the Project for Enhancing the Environment to Create Innovation in Regional Core Universities, the Subsidy for Strategic Facilities Improving Industry-Academia-Local Government Alliance and Joint Research, and Program for Forming Japan's Peak Research Universities (J-PEAKS). The University is also moving forward with reforms based on the "ia Program."

Developments in the fields of culture, education, science, technology, industry, and economics are proceeding at a dizzying pace as they deepen and combine in complex, interwoven ways. In addition, we're being called upon to harmonize people's lifestyles with the environment in which they live from a macroscopic, global-scale perspective. By playing the dual roles of an incubation research hub dedicated to fostering seed research and an urban thinktank based on worldwide trends, the Collaborative Creation Research Center will bring together industry, academia, and government in an effort to implement the University's slogan of becoming a "Beyond the norm" as a hub that will earn the trust of its community. We look forward to your warm support and guidance as we do so.



Vice President,  
Osaka Metropolitan  
University / Director,  
Collaborative Creation  
Research Center  
Norifumi Fujimura



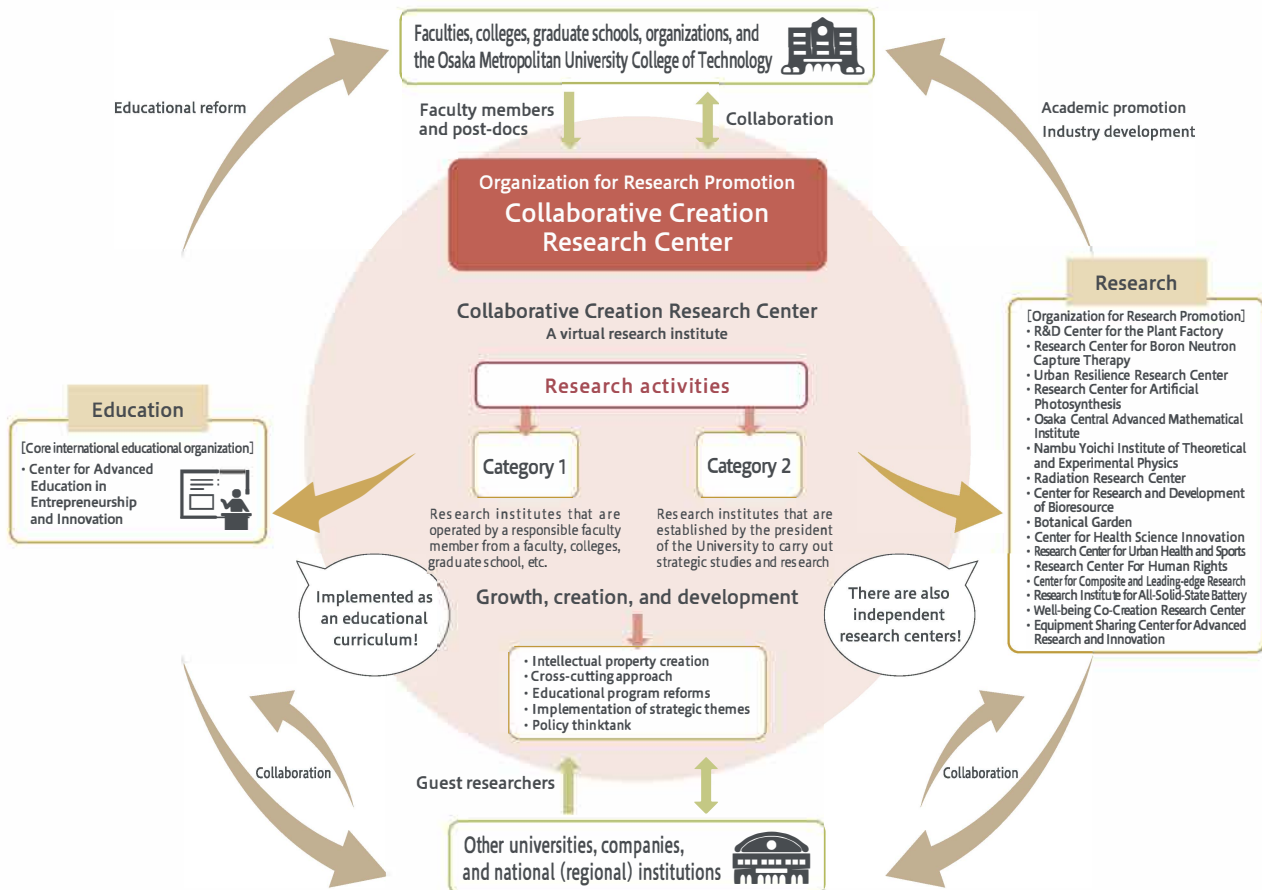
## Collaborative Creation Research Center



The Collaborative Creation Research Center, a research organization that comprises the Collaborative Creation Research Institute group, which pursues interdisciplinary, cross-cutting research that transcends the boundaries of faculties, colleges, and graduate schools, was established with the goal of realizing a sweeping revitalization of research activities at the University.

The Center, which consists of two types of institutes that combine flexibility with organization, is positioned to bring a breath of fresh air to education and research at the University as an organization that also will be responsible for helping the University play its role as a hub that contributes to its region and for fulfilling a policy thinktank function.

## OMU incubation model



## Research institute profile

The Collaborative Creation Research Center is dedicated to revitalizing the full sweep of research activities at Osaka Metropolitan University and returning the fruits of those efforts to society by pursuing cross-cutting research that transcends the frameworks of faculties, colleges, and graduate schools.

### Bio-life science

#### BioMedical Forum



**Prof. Takeshi Nagasaki**  
Graduate School of Engineering

The headquarter of five life science institutes involved in OMU Research Center: It proposes research strategies for life science and stimulates collaborations in OMU.



#### Research Institute for Chemical Biology



**Prof. Ikuhiko Nakase**  
Graduate School of Science

Elucidation of vital phenomenon using chemical probe by designing and integrating molecule target compound, and development of next-generation medicine.



#### Research Center for Food Safety (RCFS)



**Prof. Masami Miyake**  
Graduate School of Veterinary Science

The center actively takes various actions on assuring Food Safety, and promoting Food Quality and Functionality, through research and developmental activities and risk communication opportunities.



#### Research Center of Microorganism Control



**Associate Prof. Ryoko Asada**  
Graduate School of Engineering

Development of technologies for preventing microbial contamination in various environments, including healthcare and food, and for microbial control, for example in sterilization and antibacterial applications; explication of microbial stress response and damage/repair mechanisms.



#### Bio-Medical Facility Center



**Associate Prof. Satoshi Matsuyama**  
Graduate School of Veterinary Science

Promoting interdisciplinary collaboration in the biomedical sciences to benefit human and animal health and establishing a non-clinical research hub.



#### Research Institute for Light-induced Acceleration System (RILACS)



**Prof. Takuya Iida**  
Graduate School of Science

Promotion of research on light-induced acceleration system of biochemical reaction (LAC-SYS) based on interdisciplinary optical and quantum science.



#### Advanced Genomics Center



**Prof. Koji Otsuka**  
Graduate School of Sustainable System Sciences

This center aims to understand organisms inclusively, to promote study of genome medicine and pharmacy, and to solve agriculture and environmental problems.



#### Asian Health Science Research Institute



**Prof. Shinji Yamasaki**  
Graduate School of Veterinary Science

This institute conducts research in collaboration with Asian countries to address human, animal, and environmental health issues; fosters human resource development; and harnesses the fruits of that research to benefit society.



#### Research Institute for Drug Discovery Science



**Prof. Takashi Inui**  
Graduate School of Agriculture

Research and development with a view toward commercialization through cross-disciplinary drug discovery, searching for molecularly-targeted drugs, and optimization through drug delivery systems.




### SUSTAINABLE DEVELOPMENT GOALS



The Center's research activities contribute to the achievement of all 17 of the Sustainable Development Goals.

## Medical / Nursing / Health science


### Research Institute for Advanced Nursing Technology (RIANT)

 **Prof. Yukie Majima**  
Graduate School of Informatics

Research and development of medical/nursing/care support system using remote monitoring, nursing care equipment, and robot etc.




### Gerontology Research Center (GEREC)

 **Prof. Akira Iwata**  
Graduate School of Rehabilitation Science

Cross-cutting research and development with a focus on rehabilitation science to provide comprehensive support for health in old age.




### Smart Rehabilitation Research Center

 **Prof. Ryouhei Ishii**  
Graduate School of Rehabilitation Science

In the realm of rehabilitation therapy, We will develop new treatment methods adopting ICT technologies and propose more efficient preventive measures based on analysis with Artificial Intelligence.



### Sports Programs Development Center


 **Associate Prof. Haruka Kawabata**  
Faculty of Liberal Arts, Sciences and Global Education

The Organization is dedicated to promoting healthy lifestyles for residents through a research, development, and implementation program centering on use of digital technology, coexistence with nature, and programs to boost health on and off campus.



## Social system / Society cooperation

### Research Institute for Tourism Industry

 **Distinguished Prof. Shinya Hashizume**  
Organization for Research Promotion

Strategy Development of tourism industry promotion and tourism policy, and research on creation of local brand etc.




### Service Science Research Center

 **Prof. Hiroyuki Morita**  
Graduate School of Informatics

Research and education related to service science utilizing practical data mining.




### Research Center for Social Welfare and Education

 **Prof. Kayoko Ito**  
Graduate School of Sustainable System Sciences

Research center on education and welfare for a sustainable society and community well-being.




### Research Center for the Diversity Research Environment

 **Prof. Kazuko Morizawa**  
Graduate School of Engineering

Providing framework of facilitative research environment and leadership training to support women researchers and their promotion.




### Research Center for Innovation Education

 **Prof. Toshiyuki Matsui**  
Faculty of Liberal Arts, Sciences and Global Education

Working with businesses, start-up incubators, and other facilities, the Organization develops and puts into practice new techniques in entrepreneurship education and innovation education.



### Super City Research Center


 **Prof. Shingo Ata**  
Graduate School of Informatics

The center aims to lead industry-government-academia-industry collaboration and to be an "active" experimental field for the realization of a super-city society, utilizing the university's knowledge and research seeds.



## Region / Community / Life support


### Institute for Development of Social Work Theory and Practice

 **Prof. Akiko Kojima**  
Graduate School of Sustainable System Sciences

Construction of new theory for social work in complicated modern society and development of its practical method.




### Research Institute for Evaluation Support of School Social Work

 **Prof. Noriko Yamano**  
Graduate School of Sustainable System Sciences

Promoting the evidence-based School Social Work Program which uses the program evaluation, and creating a facilitator training model.




### Research Center for Regional Disaster Damage Prevention (RD2P)

 **Prof. Yasuto Itoh**  
Graduate School of Sustainable System Sciences

RD2P establishes relations with local communities for constructing risk-tolerant circumstance based on open geologic information.




### Laboratory for Fostering PhDs in the Future

 **Prof. Shuichi Kawamata**  
Graduate School of Engineering

Develop and execute various programs by which junior high school students, who are highly interested in science, enhance their abilities as scientists in the future.




### Laboratory for cultivation of young women's STEAM

 **Prof. Yuko Hosokoshi**  
Graduate School of Science

Encouragement of young women to study scientific field by providing opportunities to appreciate the depth and intellectual appeal of scientific fields and to communicate with role models. Aimed primarily at female middle/high school students, but also at teachers and parents.



### Center for the Promotion of Radiation Education

 **Associate Prof. Masafumi Akiyoshi**  
Graduate School of Engineering

The center works to spread knowledge about radiation among the general public, for example by administering an event known as the "Living and Radiation Exhibition for Everyone" on a contract basis.



## Idea / Culture

### Osaka Prefecture University Archives



**Prof. Isao Santo**

Graduate School of Sustainable System Sciences

Collection, arrangement and research of university archives and investigation on its practical usage in view of importance of archive compilation.



### The Research Institute for Environmental Philosophy and Philosophical Anthropology



**Associate Prof. Takahide Uegaki**

Graduate School of Sustainable System Sciences

Philosophical research on contemporary social problems associated with humans and the environment.



### Research Integrity Institute



**Associate Prof. Hideki Ichida**

Faculty of Liberal Arts, Sciences and Global Education

Analyzing across education, research, and the ethical theories to build a fairer education and research.



## Information / Communication / Nano

### Institute of Document Analysis and Knowledge Science (IDAKS)



**Prof. Koichi Kise**

Graduate School of Informatics

Research on document analysis and knowledge science in addition to their integration and application research reflecting the results.



### Research Center for Mathematical Science and Data Science Education



**Vice president Tetsuya Takahashi**

Faculty of Liberal Arts and Sciences

Develop and provide mathematic/data-science education mainly for higher education in Kansai area through Kansai Consortium for Data-related Human Resource Development.



### Computational Science Research Institute



**Associate Prof. Masakazu Shibahara**

Graduate School of Engineering

The Institute is working to realize Society 5.1, in which people will play a central role, by building a "next-generation digital twin" system in which simulators and AI work together to search for optimal solutions and applying the system in new fields to solve various problems.



## Manufacturing technology

### The Research Institute for Molecular Electronic Devices



**Prof. Hiroshi Ikeda**

Graduate School of Engineering

Research on high-performance molecular electronics based on theoretical design, efficient synthesis, and fabrication of opto-electronic devices with new concepts.



### Research Institute for Microreactor Systems



**Prof. Takahide Fukuyama**

Graduate School of Science

Research on energy-saving and swift-and high-efficient synthetic reaction using micro reactor, and applied research on engineering and analysis for micro-analysis chip construction.



### R&D Center on Organic Functional Materials



**Prof. Shigeyuki Yagi**

Graduate School of Engineering

Development of functional organic materials in the fields of information appliance, motor vehicle, printing record and solar battery, and support for SMEs to upgrade technologies in Kansai region.



### Research Institute for Industrial Engineering Innovations



**Prof. Yasuyuki Kaneno**

Graduate School of Engineering

Research on advanced fundamental technologies essential for manufacturing, and development of innovative manufacturing industry by the technologies.



### Center for Aquaculture Initiatives (CAINES)



**Associate Prof. Yasunori Nihei**

Graduate School of Engineering

The Center is conducting research and development to realize higher performance for the Robosen automated ship. It conducts research into case studies and shares knowledge with a consortium of research centers.



### Semiconductor Ultra-fine Fabrication and Chip Integration Technology Laboratory



**Prof. Takeyasu Saito**

Graduate School of Engineering

The Laboratory develops super-fabrication technologies that can accommodate volume production and uses them to create new integrated circuit devices. In the area of assembly processes for integrated circuit chips, it is developing 3D mounting materials and process technologies for realizing higher-performance, higher-integration integrated circuit systems.



## SUSTAINABLE DEVELOPMENT GOALS



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## Environment / Energy / Material

### Research Institute on Material Cycling Engineering



**Prof. Takeyasu Saito**  
Graduate School of Engineering

A facility dedicated to building a recycling-based society by realizing effective use of resources through initiatives such as building technologies for highly efficient reuse and transitioning to high-added-value materials in line with a view of various waste products as useful resources.



### Smart Energy Research Institute



**Prof. Atsushi Ishigame**  
Graduate School of Engineering

The Institute conducts research and development to resolve societal issues with an orientation towards smart energy.



### Centre for Research & Innovation in Electronic Functional Materials



**Prof. Yoshiki Kubota**  
Graduate School of Science

In addition to strengthening and pursuing leading-edge research in electronic functional materials and related international partnerships, the Centre strives to train scientists, communicate information about material science, and raise awareness of the field among the general public.



### Innovative Quantum Material Center



**Associate Prof. Hironori Yamaguchi**  
Graduate School of Science

The center develops next-generation scientific technologies in an effort to create functional materials based on quantum properties using a materials platform of unprecedented scale that offers hundreds of thousands of patterns for material design.



## Frontier

### Research Institute for Structural Dynamics



**Prof. Atsuhiko Shintani**  
Graduate School of Engineering

Research and technical support for dynamics of mechanical structures in the fields of land, sea and aerospace.



### Research Institute for Quantum Beam Science



**Prof. Hiroto Matsuura**  
Graduate School of Engineering

Research for process of the reactions induced by quantum beams (ionizing radiation, accelerated particle beams, photon beams etc.) and those applications.



### Research Center for Utilization of High Magnetic Field



**Prof. Yuko Hosokoshi**  
Graduate School of Science

The Center promotes use of magnetic characteristic measurement systems, conducts development research in the extension of strong-magnetic-field environments, and pursues joint research at the Western Japan Pulsed High Magnetic Field COE.



### Fusion Oriented Research Center for disruptive science and technology



**Prof. Norifumi Fujimura**  
Graduate School of Engineering

Through supporting the research projects funded by JST FOREST Program, the center provides support for young scientists with innovative research activities.



### OMU Research Center for Space Science and Technology



**Prof. Nozomu Kogiso**  
Graduate School of Engineering

Cross-sectoral research on space, science and technology in the fields of aerospace, physical astronomy and life environment etc. in collaboration with JAXA and NICT, etc.



### Bioeconomy Research Institute



**Prof. Shuji Yokoi**  
Graduate School of Agriculture

This bioeconomy research and education hub is promoting a vision of urban family farming powered by renewable energy through joint research with internal and external partners.



### Center for Marine Science and Technology



**Prof. Hirotada Hashimoto**  
Graduate School of Engineering

An institution with expertise in marine science and technology, the Center is playing a leading role in the development and social implementation of marine science and technology as a think tank by promoting partnerships with the national government, municipal governments, and related industries.



### Research Institute for Interdisciplinary Science of Drones



**Prof. Daisuke Segawa**  
Graduate School of Engineering

The institute contributes to society by sharing information while conducting a range of research to popularize and foster the development of land, air, and sea drones; deepening mutual understanding from a multidisciplinary scientific perspective; and generating synergistic effects.



**Organization for Research Promotion  
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Osaka Metropolitan University  
Collaborative Creation Research Center URL  
<https://www.omu.ac.jp/orp/org/crc/>

