TOHOKU
UNIVERSITY

Annual Report 2024

Tohoku Forum for Creativity

Message from the President:

In Issuing the Annual Report

Since its establishment in 1907, Tohoku University has followed its tradition of 'Research First', its philosophy of 'Open Doors', and its ethos of 'Practice-Oriented Research and Education', all of which have enabled it to produce leading figures and numerous research achievements.

In 2024, Tohoku University was the first to be selected for a new government project called 'Universities for International Research Excellence'. Tohoku University humbly accepts the great honor and responsibility of being a leading research university in Japan. I believe that what is required of us is to create world-class knowledge and drive transformative change that will lead us to the future. Through our activities, we will support students and young researchers, helping them achieve their goals and cultivating their talents so that they may be active on the world stage.

Thanks to the efforts of many people, the university's Tohoku Forum for Creativity (TFC) was established in 2013 as the first international visitor research institute in Japan. The TFC facilitates interdisciplinary research with international collaborators, fosters young global leaders, and creates new research fields. In order to identify important issues across the sciences and humanities, the TFC runs programs that bring together junior and senior researchers in a stimulating environment and promote creative approaches to new, interdisciplinary research areas. Through these programs, the TFC provides a place for young researchers and students to interact directly with world-class researchers, including Nobel Prize winners, and engage in exchanges about research results. In this way, the TFC helps play a major role in strengthening the university's research capabilities, in building international networks, and in nurturing talented, globally oriented individuals who can contribute to solving the common issues our society faces. The TFC also strives to disseminate knowledge widely and expand the scope of its audience by holding academic events for the general public where they too can interact with leading researchers. Through the TFC, we are working to solve common issues and implement research results for the good of society through collaborative programs with various actors such as companies, local governments, individual citizens, as well as other international industry-academia actors.

On behalf of the university, I would like to express my deepest gratitude for the tremendous support the TFC has received so far and ask for your continued support for the TFC and its activities.

Tohoku University President
Teiji Tominaga

Message from the Director:

Toward the Promotion of the Tohoku Forum for Creativity

The Tohoku Forum for Creativity (TFC) aims to foster research exchanges among diverse researchers to generate new knowledge. Since its inception in 2013, the TFC has acted as the coordinating center for various projects focused on internationalization. The Thematic Programs (TP) under this framework invite leading researchers to Tohoku University for one to three months. These programs strive to involve researchers of all levels and backgrounds to form a diverse intellectual network, exploring specific themes from innovative and multi–angle perspectives. Through the Junior Research Programs (JRP), we offer emerging researchers the chance to spearhead future research fields. Additionally, since FY2022, we have initiated the Future Society Design Programs (FSDP), which provide platforms for discussing societal and industrial challenges.

Following the COVID-19 pandemic, from 2022 onwards, the programs have resumed as in-person events. In FY2022, we conducted five TPs, two JRPs, and two FSDPs, followed by one TP, one JRP, and five FSDPs in FY2023. , and two TPs, one JRP, and five FSDPs in FY2024. This year, we plan to hold two TPs, two JRPs, and two FSDPs.
Numerous success stories have emerged from the TFC programs. A standout example is the Thematic Program “Integrated Understanding of Marine Environment and Marine Ecosystems” in FY2023. Its accomplishments led to the establishment of a new WPI (World Premier International Research Center Initiative), the Advanced Institute for Marine Ecosystem Change (WPI-AIMEC) in 2023, achieved through a partnership between Tohoku University and JAMSTEC.

In 2023, we launched the Design Lab for our Future Co-existence, a restructured version of the Design Hub for our Future Society, which operated from 2020 to 2022. The Design Lab, TFC facilitates the creation of social value through collaborations with various stakeholders, including companies, local governments, and citizens. It promotes the development of young talent through cooperative activities.

In 2024, Tohoku University became Japan’s first University for International Research Excellence. This prestigious recognition highlights the university's dedication to advancing global research and its leadership in fostering international academic collaborations. We appreciate your support for our activities and kindly request your continued cooperation and assistance.

Tohoku Forum for Creativity Director
Tohoku University Executive Vice President (for Research)
Asako Sugimoto

Overview of the Tohoku Forum for Creativity

Since its foundation, Tohoku University has produced numerous academic achievements and leaders under the spirit of Research First, the philosophy of Open Doors, and the policy of Practice-Oriented Research and Education. To further develop this unique tradition, the university strives to contribute to global society and nurture creative talent under the slogans "Creation on the Leading Edge" and "Challenge for Great Changes." In this vein, the Tohoku Forum for Creativity (TFC) was established in 2013.

Mission

The TFC supports the creation of new knowledge that can improve the future of our societies. To produce new knowledge, it is necessary to prepare opportunities for collaboration in which various researchers can interact, as well as to cultivate emerging talent who can demonstrate their creativity in cooperation with others. Furthermore, to produce knowledge that benefits society, it is indispensable to collaborate and communicate with different stakeholders such as companies, local governments, and citizens. Moreover, we cannot ignore the importance of an environment that fosters creative research activities, because academic research is now becoming more and more inseparable from data utilization. Thus the TFC pursues the following missions:

- **Encourage international collaboration**
- **Facilitate interdisciplinary research**
- **Raise global leaders**

These missions are mutually related. The TFC supports the creation of new research fields and the solution of social issues by providing opportunities for researchers to collaborate internationally in tackling the increasingly advanced and complex issues facing society. These issues are only tackled by various interdisciplinary approaches, and these approaches are expected to bring new fields of research activities. In the course of these research the TFC cultivates global and creative talent by promoting the participation of young researchers and students in our programs, and fostering an environment in which they can interact closely with world-class researchers. The TFC also promotes the sharing of knowledge by providing opportunities for intellectual exchange between researchers and the general public, including the children who will lead society in the future, through the planning and hosting of public events.

TFC's Projects and Organizations

The "Forum for Creativity" Project

The TFC was established in 2013 as Japan's first organization with a research center for international visitors. Since then, it has run the Forum for Creativity project as its primary task. Its objective is to contribute to solving the major issues faced by humanity and support the creation of new research fields by providing opportunities for researchers to tackle issues collaboratively. For this purpose, our organization calls for thematic programs from throughout the world, covering all academic domains, from humanities and social sciences to natural sciences and engineering. The TFC then selects themes for concentrated discussions over a three-month period, for which it invites leading international researchers and hosts international symposia or workshops. It is also actively engaged in the cultivation of global and creative talent by promoting the participation of young researchers and students in its programs. Junior Research Programs, in which young researchers exercise their initiative for creating new research fields, are hosted every year. Additionally, since FY2022 the TFC has been operating Future Society Design Programs which focuses on discussing issues faced by society and industries.

Design Lab for our Future Co-existence

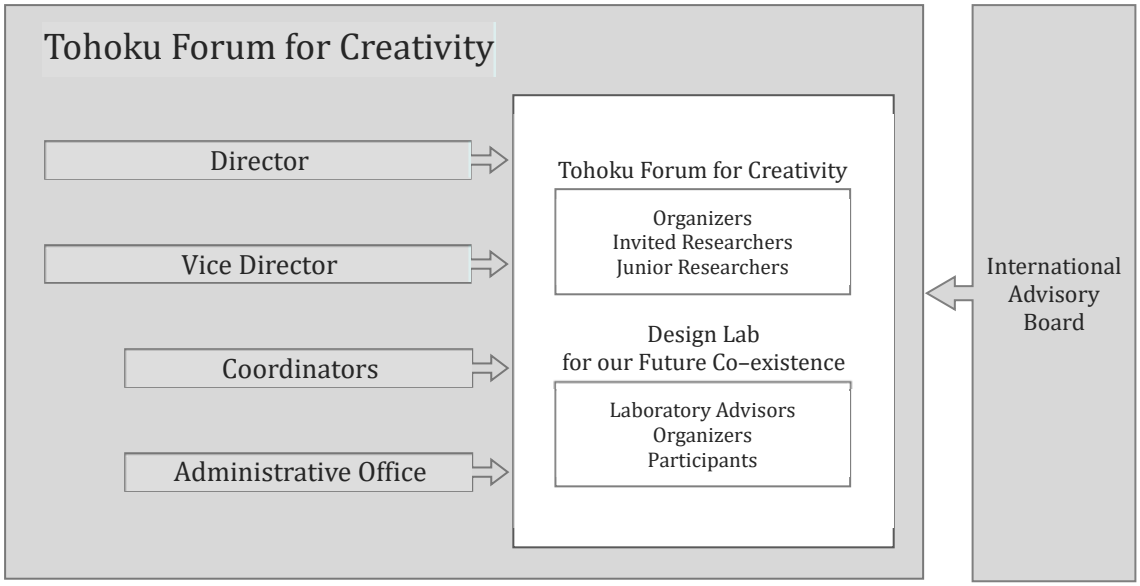
The TFC supports social value creation in collaboration with various stakeholders such as companies, local governments, and citizens, and the cultivation of young talent through collaborative activities. To assume this role, the Design Hub for our Future Society was established within the TFC in November 2020. Some collaborative programs involving business partners are already underway.

In April 2023, the Design Lab for our Future Co-existence was established as the Design Hub's successor, working to discover specific issues that need to be resolved in contemporary society from the perspectives of "co-existence with humans," "co-existence with nature," and "co-existence with technology," utilizing both cyber and physical space. In particular, the School of Designing our Future Society, which has been operated from 2019, grew up as a platform for the collaborative work to find the issues and their solution.

Research DX Support Center

The TFC supports the promotion of digital transformation (DX) to organize an information environment that facilitates creative research, as research activities become more and more inseparable from data utilization. To perform this role, the Research DX Support Center was established within the TFC in November 2020. The Center supports the promotion of DX through surveying the situation in Japan and the world, as well as through information-sharing activities such as seminars. In April 2024, the Open Science Promotion Division of the Research Management Center was established. The activities of the Research DX Support Center were gradually transferred to the Open Science Promotion Division and this center was closed in March 2025.

Here is the organizational structure of TFC in 2025 designed to achieve these missions.



Tohoku Forum for Creativity, Organization for Research Promotion, Tohoku University

Tohoku Forum for Creativity Programs

- Thematic Programs
- Junior Research Programs
- Future Society Design Programs
- Emerging Perspectives Programs
- Outreach Events

Design Lab for our Future Co-existence

co-existence with humans : co-existence with nature : co-existence with technology

- Global Academy-Industry Collaboration and Fostering of Young Generation
- School of Designing our Future Society from the Viewpoint of ELSI
- Academy-Industry Collaboration Program
- Forum for Innovative Social Design considering Society 5.0
- Academy-Industry-Government Collaboration for Open Innovation

Advisors

Special Advisors

The TFC has invited two world leaders in business and academia to provide comprehensive advice about the activities of the TFC.

Tetsuro Higashi	Former CEO Tokyo Electron Limited
Makoto Kobayashi	Honorary Professor Emeritus High Energy Accelerator Research Organization

International Advisory Board

The International Advisory Board was established as an organization to evaluate the proposed thematic programs gathered from throughout the world, and to provide advice on the activities of the TFC.

Sayaka Dake	Professor Graduate School of Law, Tohoku University
Arjen Doelman	Professor Mathematical Institute, Leiden University
Yuko Harayama	Emeritus Professor Tohoku University
Mathias Kläui	Professor Institute of Physics, Johannes Gutenberg-University Mainz
Hirosi Ooguri	Fred Kavli Professor and Director of the Walter Burke Institute for Theoretical Physics California Institute of Technology
Huey-Jen Jenny Su	President Emeritus Distinguished Professor, Department of Environmental and Occupational Health National Cheng Kung University
Fiona M. Watt	Director European Molecular Biology Organization
Katsuya Yamori	Professor Research Center for Disaster Reduction Systems, Disaster Prevention Research Institute, Kyoto University

Message from our Sponsor:

For the Development of a Dream-filled Society

In recent years, digital devices such as PCs and smartphones as well as networks, have made remarkable advancements in society, enabling us to utilize various internet and platform services. Through these services, data accumulation is progressing, and it is predicted that applications requiring large-scale calculations, such as AI, autonomous driving, and virtual reality, will become technology drivers in the future. At the core of the evolution of these digital technologies lies semiconductors. The expectations for technological innovation in semiconductors are endless, including further advancements in capacity, speed, reliability, and low power consumption. The semiconductor manufacturing equipment market in which Tokyo Electron (TEL) participates is expected to continue expanding along with the development of the semiconductor market.

TEL set a new vision of being "a company filled with dreams and vitality that contributes to technological innovation in semiconductors" on the occasion of celebrating our 60th anniversary .in2023 Leveraging our expertise, we aim to expand long-term profits and continuously improve corporate value by continuously creating high value-added cutting-edge equipment and technical services.

As a collaborative project with Tohoku University, we have long been promoting exchanges in the field of semiconductors in terms of personnel and technology. We also deeply appreciate the significance of Tohoku University's full-fledged visitor research program, "Tohoku Forum for Creativity (TFC)," which was the first of its kind introduced by a Japanese university. TEL has been providing support for this program since its establishment in 2013.

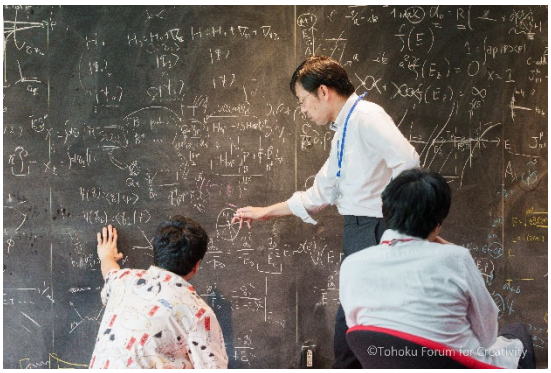
TFC brings together world-class researchers, including Nobel Prize and Fields Medal winners, and advances various research fields with the aim of achieving a sustainable society. By leveraging the partnership with TFC and combining the diversity of perspectives and high-level academic expertise with the resources that our company possesses as a corporation, we aim to create new value and contribute to the realization of our vision. Furthermore, through this program, we also hope to contribute to the development of individuals who can think from a global perspective by creating opportunities for young researchers who will lead future research.

We hope that TFC will continue to serve as a gathering place for highly influential world-class intellects and make a significant contribution to the development of a society full of dreams.

Tokyo Electron Limited,
Representative Director, President & CEO
Toshiki Kawai

TOKYO ELECTRON House of Creativity

Construction was completed on the TOKYO ELECTRON House of Creativity in March 2015 at the Tohoku University Katahira Campus, to serve as the center for the TFC. The TFC aims to use this center as the principle location for the realization of "building a community of wisdom where people gather together, learn, and create, with an open doors to the world."
*Tokyo Electron Limited provided immeasurable support for the construction of this facility.



Thematic Program | August 2024 – October 2024

Designing Foods for the Future

Thematic Program | August 2024 – October 2024

Designing Foods for the Future

Tohoku University Graduate School of Agricultural Science was proud to host a visionary international event, Designing Foods for the Future, as part of the Tohoku Forum for Creativity 2024. This initiative aimed to explore and shape the future of food systems toward the year 2050, addressing pressing global challenges such as climate change, food insecurity, population aging, and health disparities. In collaboration with Taipei Medical University, Taiwan and CERELA–CONICET, Argentina, this event featured major symposiums and workshops held in Argentina (August), Japan (September) and Taiwan (October), focusing on critical topics including: human health, animal health, biotechnology-molecular biology-genomics, microbiome and health, food production, food safety and security, plant and microorganism, marine material, functional foods, medical foods and food psychology.

(1) Pre-event 1: International Symposium on Functional Foods at Taipei Medical University (Sep, 2022)
(2) Pre-event 2: 75 years Memorial Event on Food Science at Tohoku University (Oct, 2022)
(3) Pre-event 3: Designing Foods for the Future at Tohoku University (Sep, 2023)
(4) Main symposium 1: Argentinean–Japanese Lactic Acid Bacteria at CERELA–CONICET (Aug, 2024)
(5) Main symposium 2: International Symposium on Designing Foods for the Future at Tohoku University (Sep, 2024)
(6) Workshop 1: Synchrotron Light for Future Foods at Tohoku University (Sep, 2024)
(7) Workshop 2: Health and Well–Being at Tohoku University (Sep, 2024)
(8) Main symposium 3: Functional Foods, Medicinal Foods & Food Psychology at Taipei Medical University (Oct, 2024)

Important Goals and Degree of Achievement

Dr. Martha Belury, former President of the American Society for Nutrition and Professor at The Ohio State University, joined the Tohoku Forum for Creativity as a distinguished participant. One of the key challenges addressed there was to design an interdisciplinary framework that embodies a “fusion of the humanities and sciences,” achieved through collaboration with the Graduate School of Arts and Letters. In parallel, in cooperation with the International Synchrotron Radiation Science Institute (SRIS), cutting-edge synchrotron radiation technologies were introduced to analyze the structural and physical properties of food materials, contributing to the scientific foundation for designing foods of the future. Another significant undertaking within the Tohoku Forum for Creativity was organizing international events in partnership with Taipei Medical University in Taiwan and CERELA–CONICET in Argentina, institutions that share the same commitment to shaping the future of food. As a result, the main symposia were held across three countries—Japan, Taiwan, and Argentina—strengthening global collaboration in this interdisciplinary endeavor.

Program Organizers

Haruki Kitazawa (Dean and Professor, Graduate School of Agricultural Science, Tohoku University)
Prof. Kitazawa earned his Ph.D. in Agriculture from Tohoku University in 1993. He has been

affiliated with the Graduate School of Agricultural Science at Tohoku University as an Assistant Professor (1988–2001), Associate Professor (2002–2018), and Professor since 2019. From 1994 to 1996, he conducted postdoctoral research at the National Cancer Institute, National Institutes of Health (NCI/NIH) in the US. His research focuses on immunobiotics in the field of food and feed immunology. He is also affiliated with the International Education and Research Center for Agricultural Immunology (CFAI). Since 2022, he has served as the Dean of the Graduate School of Agricultural Science at Tohoku University. He received the Academic Awards from the Japanese Society of Animal Science in 2006 and the Japanese Association for Food Immunology in 2012. In 2025, he was also awarded the Japan Prize of Agricultural Science and the Yomiuri Prize of Agricultural Science from the Association of Japanese Agricultural Scientific Societies and The Yomiuri Shimbun.

Hitoshi Shirakawa (Professor, Graduate School of Agricultural Science, Tohoku University)
Prof. Shirakawa earned his Ph.D. in Agriculture from Tohoku University. From 1997 to 1999, he conducted postdoctoral research at the National Cancer Institute of the National Institutes of Health in the US. He has been affiliated with the Graduate School of Agricultural Science at Tohoku University, serving as an Assistant Professor from 1999 to 2003, Associate Professor from 2003 to 2019, and a Professor since 2019. His research focuses on functional food ingredients, particularly vitamins and amino acids, and their role in promoting health. Prof. Shirakawa received the Academic Award from the Vitamin Society of Japan in 2024 and from the Japan Society of Nutrition and Food Science in 2025.

Masahiko Harata (Professor, Graduate School of Agricultural Science, Tohoku University)
Prof. Harata is a Professor at the Graduate School of Agricultural Science and is also affiliated with the International Center for Synchrotron Radiation Innovation Smart of Tohoku University, Japan. His original research field has been molecular and cellular biology, and he now aims to apply synchrotron light to the fields of life science and agriculture. He established the Center for Agricultural and Life Sciences using synchrotron light (A-Sync) to facilitate the usage of the next-generation synchrotron facility "NanoTerasu," located on the Aobayama New campus of Tohoku University.

Tomonori Nochi (Professor, Graduate School of Agricultural Science, Tohoku University)
Prof. Nochi earned his Ph.D. in Agriculture from the Graduate School of Agricultural Science at Tohoku University. He conducted postdoctoral research at the Institute of Medical Science, the University of Tokyo, and at the University of North Carolina. He has been affiliated with Tohoku University as an Associate Professor (2013–2020), and Professor since 2021. His research focuses on mucosal immunology and functional morphology in animals. In 2010, he received the Research Encouragement Award from the Japanese Society for Immunology.

Nobuyuki Sakai (Professor, Graduate School of Arts and Letters, Tohoku University)
Prof. Sakai is a professor of the Department of Psychology, Tohoku University. He graduated from Graduate School of Human Sciences, Osaka University in 1998 and received his Ph.D. degree for the study about behavioral neuroscience on learning and eating behavior in rats. Then he worked at Hiroshima Shudo University and National Institute of Advanced and Industrial Science and Technology (AIST) as a postdoctoral researcher. He was an Associate Professor in Kobe Shoin Women's University and taught eating psychology for registered dietitians and for students in home economics. He moved to Sendai in October 2011, and keeps studying sensory science, multimodal flavor perception, and consumer psychology. He is serving as an Academic Editor of the Plos One, the Foods, the Nutrition, the Frontiers in Nutrition, the Japanese Journal of Health Psychology, and the Tohoku Psychologica Folia. He is

also a board member of the Japanese Association for Studying Taste and Smell, and the councilor of the Japanese Psychological Association. He is also acting as a director of Society for Research on Umami Taste, vice president of Umami Information Center and organizing some events for appealing the function of the Japanese cuisine (Washoku) and umami taste.

Yuki Takayama (Associate Professor, International Center for Synchrotron Radiation Innovation Smart, Tohoku University)
Dr. Takayama earned his Ph.D. in Science from the Graduate School of Science and Technology at Keio University. He conducted postdoctoral research as a Special Postdoctoral Researcher at the RIKEN SPring-8 Center. He was an Assistant Professor at the University of Hyogo (2016-2022). Since October 2022, he has been affiliated with Tohoku University as an Associate Professor at the International Center for Synchrotron Radiation Innovation Smart (SRIS), concurrently serving as an Associate Professor at the Graduate School of Agricultural Science. His research focuses on the development of X-ray imaging techniques and their application to life, agricultural, and food sciences. He received the Young Scientist Award from the SPring-8 Users Community (2021) and the Japanese Society of Crystallography (2023).

Rong–Hong Hsieh (Professor, College of Nutrition, Taipei Medical University)
Professor Rong-Hong Hsieh received his Ph.D. in Biochemistry from National Yang-Ming Chiao Tung University, Taiwan. He completed his postdoctoral fellowship at the Center for Reproductive Medicine Research, College of Medicine, Taipei Medical University (1999–2002). Since 2008, he has served as a Professor at the School of Nutrition and Health Sciences, College of Nutrition, and has been the Dean of the College of Nutrition since 2022. His primary research interests focus on the role of mitochondrial quality control in metabolic disorders and the therapeutic potential of nutrients and phytochemicals. He is also engaged in applying artificial intelligence in the analysis of nutritional physiological data and developing devices and predictive modeling platforms.

Suh–Ching Yang (Professor, College of Nutrition, Taipei Medical University)
Prof. Yang earned her Ph.D. in Agriculture from the Graduate School of Agricultural Science at Tohoku University. She conducted postdoctoral research at the School of Nutrition and Health Sciences, Taipei Medical University. She has been affiliated with Taipei Medical University, as an Associate Professor (1999–2006), and as a Professor since 2007. Her research focuses on alcoholic liver diseases and nutrition support as well as life cycle nutrition. In 2024, she received the Nutrition Academic Outstanding Research Award from the Nutrition Society of Taiwan.

Julio Villena (Principal Researcher, CERELA–CONICET)
Dr. Villena earned his degree of Biochemist in the Tucuman University (Tucuman, Argentina) and his Ph.D. in Immunology-Microbiology from the Reference Center for Lactobacilli (CERELA-CONICET, Tucuman, Argentina). He conducted postdoctoral research at the Graduate School of Agricultural Science, Tohoku University. He is a Researcher of the National Council of Scientific and Technological Research (CONICET-Argentina) working in the Laboratory of Immunobiotechnology of the CERELA-CONICET from 2010-2025. Recently, he was selected as an International Excellence Professor in the International Center for Food and Agricultural Immunology (CFAI) of Tohoku University. His research activities are focused on the study of the cellular and molecular interactions of immunobiotics (lactic acid bacteria and respiratory commensal bacteria) with the host and the effects of those interactions on the resistance against infections in humans and animals.

Highlights of Program and Events

The “International Symposium on Designing Foods for the Future,” held from September 19 to 21, 2024, at Tohoku University, brought together leading researchers from multiple countries to explore strategies for building sustainable and health-oriented food systems by 2050. Martha Belury, former President of the American Society for Nutrition and Professor at the Ohio State University, delivered the keynote lecture titled "Feeding the Planet and Beyond: How Lessons Learned on Earth Will Inform Food Science and Technology for the Future." Organized in collaboration with Taipei Medical University and CERELA–CONICET, the symposium featured keynote speeches and thematic sessions addressing global challenges such as climate change, food insecurity, public health, and population aging. Discussions focused on emerging topics including the role of microbiota in human and animal health, probiotic development, edible insects as alternative protein sources, environmental contaminants in food, photosynthetic efficiency in plants, functional and medical foods, and psychological factors influencing dietary behavior. The event promoted interdisciplinary dialogue and international collaboration by integrating advanced research with traditional knowledge, contributing to innovative food solutions for global well-being and sustainability. Preceding the main symposium, a satellite workshop titled “Synchrotron Light for Future Foods” was held on September 17–18, 2024, at Tohoku University and organized by Professor Masahiko Harata. This workshop explored the application of synchrotron radiation in food science and agriculture, featuring keynote speakers from world-leading synchrotron facilities, including Chun-Jung Chen (NSRRC, Taiwan), Chithra Karunakaran (Canadian Light Source), and Tommy Nylander (Lund University). Topics included the use of NanoTerasu for agricultural and life science research, advanced imaging techniques for agri-food applications, and synchrotron-based analysis of food structures and textures. The event facilitated interdisciplinary exchanges on harnessing synchrotron technologies to improve food production, safety, and quality.

Simultaneously, the “Health and Well-Being” workshop was held on September 17–19, 2024, also at Tohoku University. Organized by Professor Nobuyuki Sakai, this event brought together researchers from Japan and across Asia to examine the intersection of food, psychology, and well-being. The program included workshops on nutrition education and taste perception, sessions on psychological health and Eastern concepts of well-being, and presentations on AI applications in cognitive and emotional wellness. The workshop emphasized integrative approaches to future health challenges through interdisciplinary collaboration. Another key event, the “Argentinean–Japanese Lactic Acid Bacteria” symposium, was held on August 8–9, 2024, at the Centro Cultural Eugenio Flavio Virla in San Miguel de Tucumán, Argentina. This international symposium convened researchers from Argentina, Japan, and other countries to discuss the roles of lactic acid bacteria in health and biotechnology. Topics included the impact of fermented rice bran on lifestyle diseases, genetically modified lactic acid bacteria as therapeutics, the microbiota–gut–brain axis, and the use of lactic acid bacteria in goat farming. The program also covered metagenomic analysis of food microbiomes, the role of extracellular vesicles in interkingdom communication, and genomic characterization of probiotic strains. Poster and oral presentations concluded the event along with an award ceremony honoring outstanding research contributions. Finally, the “Functional Foods, Medicinal Foods & Food Psychology” symposium was held on October 25–26, 2024, at Taipei Medical University. This symposium highlighted advancements in functional food science, traditional medicine, and food-related behavioral research. Key topics included the roles of probiotics, the health effects

of anthocyanins, novel functions of vitamins, mammary gland–gut immune interactions, and the therapeutic potential of herbal diets. The program also addressed behavioral strategies to reduce salt intake, the impact of food marketing on adolescent sugar consumption, and the relationship between nutrition, sleep, and the brain–gut–microbiota axis. The event fostered interdisciplinary collaboration among food science, medicine, and psychology to advance public health and well-being.

Principal Invited Researchers

Martha Belury (Former President of the American Society for Nutrition and Professor at The Ohio State University)

Her research primarily focuses on the interplay between dietary components and metabolic health, with an emphasis on how bioactive lipids influence insulin sensitivity in the liver, adipose, and muscle tissues. Additionally, she investigates the role of energy balance in cancer prevention. Dr. Belury employs a range of research methodologies, including murine models, cell culture systems, randomized controlled trials, and observational clinical studies, to explore these areas. Her expertise encompasses adult development and aging, dietetics and nutrition, metabolism, and the psychological aspects of cognitive health.

Chun-Jung Chen (PI of National Synchrotron Radiation Research Center)

His research primarily focuses on protein crystallography and biophysics, utilizing synchrotron radiation techniques to elucidate the structures and functions of biologically important macromolecules.

Chithra Karunakaran (Director of Canadian Light Source)

Her research focuses on utilizing advanced imaging methods, such as X-ray micro-computed tomography (μCT) and scanning transmission X-ray microscopy (STXM), to non-destructively analyze the internal structures of agricultural products. This includes studying seeds, plants, soils, and food items to enhance understanding of their microstructures and improve quality and safety.

Tommy Nylander (Professor of Lund University)

His research has significantly contributed to understanding the behavior of surfactants, polymers, proteins, and lipids at interfaces, which is crucial for advancements in drug delivery, food technology, and nanomaterials.

Specific Strategies for International Research Exchange

Since 2015, the Graduate School of Agricultural Science at Tohoku University has operated the International Education and Research Center for Food and Agricultural Immunology (CFAI) as a pioneering initiative to advance research in agricultural immunology. CFAI has been dedicated to designing future foods through the lens of agricultural immunology, while also strengthening a global research network to promote international collaboration. The Graduate School of Agricultural Science was selected to organize the Tohoku Forum for Creativity in both 2017 and 2024, leveraging insights and experiences accumulated over the past decade to further accelerate international research exchange aimed at designing the future of food.

International Training for Young Personnel

Since 2024, the Graduate School of Agricultural Science at Tohoku University has launched the Graduate Program on Food Science (GP-Food). This interdisciplinary program is jointly operated by the Graduate Schools of Agricultural Science, Medicine, Dentistry, Pharmacy, and Arts and Letters, in collaboration with the International Synchrotron Radiation Science Institute (SRIS). Building upon insights gained through the Tohoku Forum for Creativity, GP-Food offers specialized courses for selected graduate students to explore the design of foods for the future. As part of the program, students are required to spend six months at a partner university or research institution to deepen their understanding of food science. The Tohoku Forum for Creativity has played a key role in establishing and strengthening international networks that support GP-Food programs.

Strategies Following the Completion of the Program

To sustain and expand the international research network established through the Tohoku Forum for Creativity, the Graduate School of Agricultural Science has been actively seeking funding to accelerate collaborative research and student exchange programs. To achieve this goal, a series of follow-up events in partnership with Taipei Medical University and CERELA–CONICET will continue to be organized, further advancing the activities in the network and deepening international collaboration.

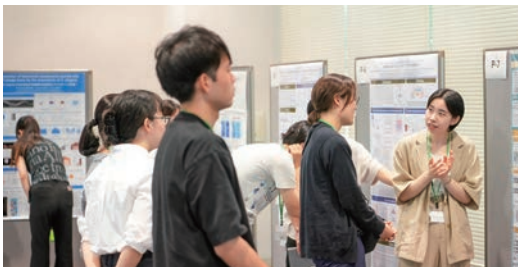




Thematic Program | September 2024 – March 2025

Spinning the Future of Communication









Thematic Program | September 2024 – March 2025

Spinning the Future of Communication

The theme of this program was to elucidate the mechanisms of the human mind and to build a society that connects people and embraces diversity by creating new forms of communication utilizing cutting-edge technologies based on neuroscience, molecular life sciences, informatics, and robotics. The overall program was titled Spinning the Future of Communication, and three major symposia were held between September 2024 and March 2025. The first two symposia—Part 1: Social Memory – Neural Basis of Communication and Part 2: Reward, Motivation, and Beyond – Neural Basis of Communication—focused on cognitive and brain sciences related to the foundations of communication such as "memory" and "reward/motivation." The third symposium, Part 3: Towards the Future of Communication – Creating an Inclusive World with Neuro/Bioscience and Engineering Technologies, was structured as a broader program integrating neuroscience, life sciences, and engineering technologies, building upon the insights gained from the previous two.

Important Goals and Degree of Achievement

Outstanding researchers from Japan and abroad were invited, including Wolfram Schultz (University of Cambridge), Shinsuke Shimojo (Caltech), Sven Bestmann (University College London), Naoshige Uchida (Harvard University), Kaoru Inokuchi (University of Toyama), Masahiko Inami (University of Tokyo), and Ayuko Hoshino (University of Tokyo). They engaged in active exchange with researchers and students from Tohoku University, including Ken-Ichiro Tsutsui, Noriko Osumi, Takuya Sasaki, and Masanori Hariyama, as well as with participants of the Tsutsui Moonshot Project. Through these activities, the program successfully achieved its key objective of forming a new field of communication science that transcends existing disciplines, while also establishing a global research network centered around Tohoku University.

Program Organizers

Noriko Osumi, Ph.D., DDS. (Professor, Graduate School of Medicine, Tohoku University, Vice President, Tohoku University)

She conducts research on the molecular mechanisms of brain development and neurodevelopmental disorders. She is also highly recognized in the field of science communication and received the MEXT "Commendation for Science and Technology" in 2022.

Ken-Ichiro Tsutsui, Ph.D. (Professor, Graduate School of Life Sciences, Tohoku University)

His specialty is systems neuroscience of higher brain functions such as cognition and emotion. Since 2022, he has been serving as the PM(Program Manager) for Moonshot Research and Development Program Goal 9: ‘Development of "At-will Translator", connecting various minds based on brain and body functions.’

Highlights of Program and Events

Wolfram Schultz and Naoshige Uchida presented the latest findings in neuroeconomics, particularly on how dopamine is involved in value learning and motivation. Kaoru Inokuchi introduced the concept of the “idling brain,” which organizes memories and generates creative

ideas unconsciously during sleep and rest. Shinsuke Shimojo defined “flow” as a holistic and immersive experience and discussed associated brain activity. Sven Bestmann presented the potential of optically pumped magnetometers (OPM) as next-generation magnetoencephalography (MEG) devices. Ken-Ichiro Tsutsui introduced the "Jizai Honyaku-ki" (At-will translator) project—a collaborative effort with Osumi, Sasaki, Hariyama, Inami, and Hoshino—which integrates brain and molecular science-based mind sensing with engineering-based mind intervention, all controlled by AI to support human communication across various domains.

Principal Invited Researchers

Menno P. Witter (Professor, Norwegian University of Science and Technology, Norway)
He specializes in neuroanatomy. His research explores the functional architecture and connectivity of the hippocampal formation and parahippocampal region, particularly concerning spatial memory, navigation, and changes associated with Alzheimer's disease.

Kaoru Inokuchi (Distinguished Professor, University of Toyama, Japan)
He specializes in the molecular and cellular mechanisms of memory. His research focuses on the activity dynamics of memory trace (engram) cells, synaptic plasticity, gene regulation, and the link between resting-state brain activity (the "idling brain") and creativity.

Wolfram Schultz (Professor, University of Cambridge, UK)
He specializes in the neuroeconomics of reward and decision-making. His discovery that dopamine neurons encode reward prediction errors has impacted psychology and economics. A distinguished scholar, he has received numerous honors, including the Clarivate Citation Laureates award in 2024.

Naoshige Uchida (Professor, Harvard University, USA)
He studies the neurobiology of decision-making and reinforcement learning, with a focus on neural computation in the midbrain dopamine system, the functions of the cortico-basal ganglia circuit, foraging decisions, and motor learning. He also has a research background in olfactory coding.

Shinsuke Shimojo (Professor, California Institute of Technology, USA)
He specializes in perceptual psychology, visual science, and cognitive neuroscience. He is known for his research on crossmodal interactions between vision and audition, the neural mechanisms of preference-based decision-making, and the implicit processes underlying brain function.

Sven Bestmann (Professor, University College London, UK)
He specializes in cognitive and computational psychology, neuroscience, and motor control. Using noninvasive brain stimulation, MEG, and computational approaches, he investigates the neural mechanisms underlying planning and execution in both typical motor behavior and movements affected by disorders.

Specific Strategies for International Research Exchange

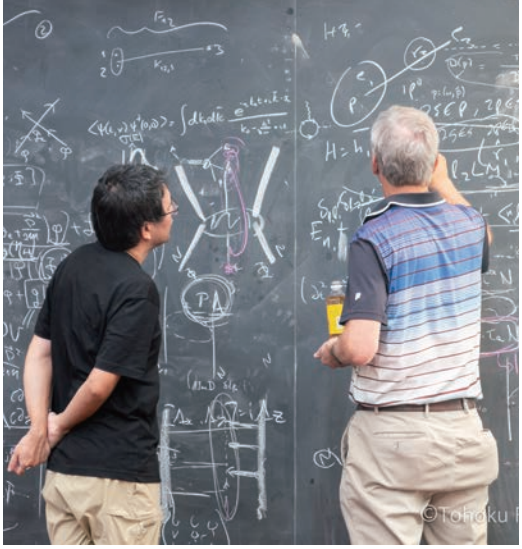
By organically linking this program with the Tsutsui Moonshot Project and the Tohoku University International Joint Graduate Program Neuro Global, we have facilitated research collaborations and the development of early-career researchers. Several participating researchers are currently discussing joint appointments with Tohoku University and engagement with the Tsutsui Moonshot Project. These developments have laid a strong foundation for building a research framework and expanding the network centered at Tohoku University.

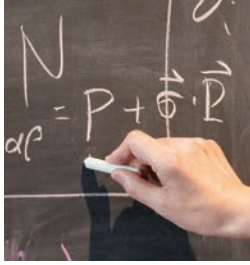
International Training for Young Personnel

Many students participated in this program, including those from the Neuro Global program and the Tsutsui Moonshot Project. Professors Wolfram Schultz and Menno Witter delivered intensive lectures, which were recorded and archived in the Neuro Global video library. Visiting researchers also gave separate talks and lectures tailored to students and early-career researchers, providing them with valuable opportunities for direct interaction with world-class scientists.

Strategies Following the Completion of the Program

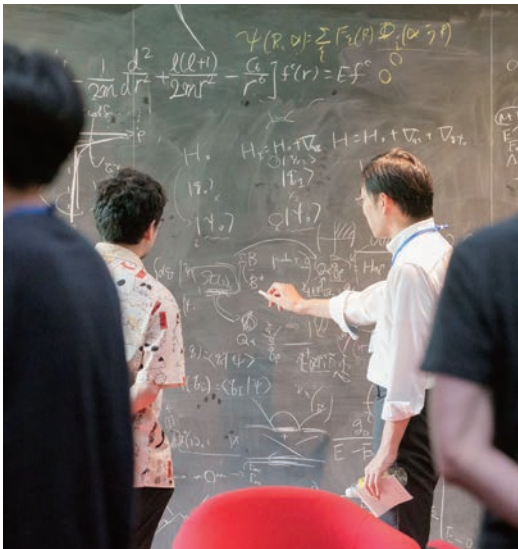
We aim to further develop a research implementation structure and expand the research network centered around Tohoku University by promoting joint appointments and project participation by researchers involved in this program. To maintain and strengthen the research community, we plan to actively organize follow-up and related events.





Junior Research Program | August 2024 – September 2024

Universality of Strongly Correlated Few-body and Many-body Quantum Systems



Junior Research Program | August 2024 – September 2024

Universality of Strongly Correlated Few-body and Many-body Quantum Systems

The purpose of this program was to bring together theoretical physicists from both Japan and abroad who are conducting research on quantum few-body and many-body problems, to facilitate discussions and collaborative research among the participants, and to explore new research seeds in this field. The program had a total of 35 participants, including 5 graduate students and 9 international participants. Every day, participants have given either informal talks (1 hour × 2) or informal lectures (1 hour × 3), where they presented their research outputs, delivered lectures, and engaged in informal Q&A sessions and discussions. During other times, lively discussions continued in the hall (1F), where participants freely and openly discussed potential new research directions for collaborative projects or made progress on ongoing collaborations.
Additionally, the following two major events were held:
September 4-5: A conference-style meeting: "Universality of Quantum Systems: From Cold Atoms, Nuclei, to Hadron Physics"
September 27: A Public Lecture on quantum field theory by Dam Thanh Son

Important Goals and Degree of Achievement

The main goal of this program was to obtain a unified understanding of quantum few-body and many-body problems across different fields of physics, such as cold atoms and molecules, hadrons, and nuclear physics. Typically, these quantum phenomena have been studied in distinct fields (under different grant categories), and researchers in each field have advanced their work using different methods suited to their expertise. This program brought together primarily theoretical physicists and created an environment conducive to free discussions and informal exchanges. Through this approach, the program aimed to foster mutual understanding and find novel seeds for collaborative research.
In addition to several lectures given by the invited speakers, daily informal talks have facilitated understanding between researchers working at different hierarchies and using different methods. Discussions have continued during free time and lunch breaks, further deepening mutual understanding among researchers from diverse fields. In some cases, participants have met in person for the first time after only knowing each other by name through papers, enabling direct discussions. There were some notable cases in which participants came up with novel ideas for collaborative research during the program and made promises to start and continue their research collaborations. We are thus confident that the primary goal of the program has been fully achieved.

Program Organizers

Shimpei Endo (Associate Professor, University of Electro-Communications)
Received his Ph.D. in Science from the University of Tokyo in 2014. His research focuses on quantum few- and many-body physics, cold atomic systems, and nuclear theory. He explores universal behavior in strongly correlated systems using both analytical and numerical methods. He was awarded the Japanese Physical Society Young Researcher Award (2020), the Tohoku University Senshu Prize (2022), and was recognized as an Outstanding Reviewer for *Journal of Physics B* (2020).

Keisuke Fujii (Assistant Professor, Institute of Science Tokyo)
Earned his Ph.D. in Science from Tokyo Institute of Technology in 2021. His research interests include cold atoms, quantum dynamics, and impurity problems. He investigates quantum systems far from equilibrium, using theoretical approaches to uncover fundamental behaviors

in strongly interacting regimes. His work connects quantum statistical mechanics with many-body physics. He received the Tokyo Tech Outstanding Student Award in 2016 for his academic achievements.

Masaru Hongo (Assistant Professor, Niigata University)
Completed his Ph.D. in Science at the University of Tokyo in 2016. His work focuses on quantum field theory, quantum physics, hadron physics, and nuclear theory. He is known for formulating hydrodynamics from microscopic principles and studying non-equilibrium quantum phenomena. His interdisciplinary approach bridges high-energy, condensed matter, and nuclear physics. He was awarded the Young Researcher Award by the Physical Society of Japan in 2019.

Daisuke Yoshida (Lecturer, Tohoku University)
Received his Ph.D. in Science from Yokohama National University in 2018. His research centers on quantum few-body physics, atomic and molecular physics, quantum chemistry, and high-precision computational methods. He explores fundamental interactions in few-body systems, contributing to the theoretical framework that supports modern experiments in cold atom and molecular systems. His work combines theoretical rigor with computational innovation to advance understanding across quantum disciplines.

Highlights of Program and Events

A two-day conference-style meeting event was held from September 4th to 5th with 27 participants. In addition to the three invited speakers mentioned later, 14 participants have given oral presentations on quantum few-body and many-body problems across fields such as cold atoms, nuclear physics, and hadrons, which were followed by lively Q&A sessions and discussions.
On the final day of the program, September 27th, a public lecture titled "Quantum Field Theory: a Universal Language" by Dam Thanh Son was held at Aobayama Campus. Around 40 people attended, exceeding the number of pre-registered participants. Notably, many undergraduate and graduate students, as well as faculty and staff from the Department of Physics, attended the lecture. The public lecture was recorded and made available to the public.
Additionally, the following Informal Talks and Tutorial Lectures by the invited speakers were held:

[Informal Talks]

29 talks, each 1 hour long, given by participants.

[Tutorial Lectures]

Chris H. Greene (8/29) “Few-Body Physics”
Dam T. Son (9/2) “Nonrelativistic CFT and its application to few-body systems and nuclear reactions”
Hans W. Hammer (9/9) “EFT for Halo Nuclei”
Dam T. Son (9/24) “Fermi liquid: effective field theory and the method of coadjoint orbit”

To encourage active and informal questions, discussions, and exchange of ideas among the participants, most of the events and lectures were held in person.

Principal Invited Researchers

Chris H. Greene (Purdue University, United States of America)
Prof. Greene is a pioneer of few-body physics in atomic, molecular, optical, and chemical physics. He is the first to show that the Efimov state can be observed in cold atoms, which subsequently opened the entire field of few-body studies in cold atoms. He is the Albert Overhauser distinguished Professor of Physics and Astronomy.

Hans W. Hammer (Technical University of Darmstadt, Germany)
Prof. Hammer is a leading scientist of few-body physics. His research interests cover vast fields of physics, from hadrons, nuclei, to cold atoms. He is the founder of the effective field theory method on few-body problems, which is established now as an elegant theoretical tool to obtain universal descriptions for few-body phenomena in different physical systems.

Dam Thanh Son (Chicago University, United States of America)
Prof. Son is a renowned theoretical physicist working in various fields, ranging from string theory, condensed matters, hadron/nuclear physics, and cold atoms. Using quantum field theory, he has found various rigorous results analytically for strongly correlated quantum systems. He is one of the 10 University Professors at the Univ. Chicago.

Specific Strategies for International Research Exchange

The most significant feature of this program has been the allocation of ample Free Discussion times to encourage participants to engage in open discussions about their research and new ideas. The lobby was designated as a social space, always stocked with plenty of coffee and snacks. As a result, most participants frequently gathered, engaging in a wide range of conversations, from casual chats to research questions and introductions to each other's research topics. Much of the Free Discussion time has been spent in genuine, open discussions, with lively exchanges between the Key Invited Participants from abroad and domestic researchers.
Thanks to this way of organization respecting “Freedom of Research”, the following new seeds for collaborative research have been discovered during the program:
[Greene, Endo, Naidon]
Novel way to visualize the Efimov states
[Hongo, Son, Endo, Fujii]
Energies of the dilute Bose liquid droplet
[Hammer, Son, Miki]
Universality of few neutron scattering
These are completely new research topics that did not exist at the start of this program. The collaborative research is expected to continue even after the program, serving as remarkable examples of the program's objective to discover new research seeds. The program has thus served as an excellent kickoff event to initiate collaborative research between the Key Invited Participants from abroad and the domestic participants.
Many students majoring in physics attended the lecture given by Professor Son on September 27th, one of the world's leading theoretical physicists. This event was inspiring for the audiences, in terms of international education.

International Training for Young Personnel

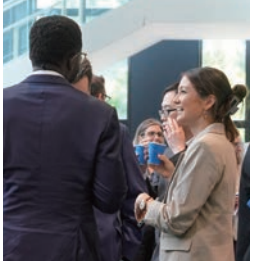
More than half of the participants of this program were young researchers in their 20s and 30s, including five graduate students. The organizers are confident that the opportunity for these young researchers to engage in extensive discussions over several weeks with renowned theoretical physicists such as Professors Green, Hammer, and Son should be a valuable asset for them in their future scientific careers. Additionally, the program has helped to revive research exchanges between Japan and other countries, which had been temporarily disrupted by the COVID-19 pandemic. As a notable example, one graduate student has already started planning a visit to one of the key participants next year. We are very glad to see that this event has provided strong support for the next generation of young researchers to broaden their horizons of viewpoints and science career internationally.

Strategies Following the Completion of the Program

Regarding the new and ongoing research collaboration projects, each participant aims to continue their research and publish the results as original papers in international journals. The

organizers sent a request after the program that participants acknowledge Tohoku Forum for Creativity when publishing papers or other works started or conducted during the program. Additionally, the organizers and the key invited participants have discussed the possibility of organizing a similar research workshop at either Kyoto University or Kavli Institute for Theoretical Physics in the next 2 to 5 years. While a specific plan has yet to be made in the future, it is highly expected that the research exchanges and collaborations initiated by this workshop should continue in the next 5-10 years.





Future Society Design Program | August 2023 – May 2024

Positioning of Nuclear Energy in Sustainable Energy Strategies – Redefining from a Risk Management Perspective








Future Design Research Program | August 2023 - May 2024

Positioning of Nuclear Energy in Sustainable Energy Strategies – Redefining from a Risk Management Perspective

The most distinctive feature of nuclear energy is that the inherent "hazard sources" are uniquely massive in scale. This characteristic is present throughout the entire lifecycle of nuclear power plants, from plant operation to decommissioning and disposal of radioactive waste. It is also a fact that nuclear energy has the appeal of being based on a principle, fundamentally different from all other energy sources, in that it converts mass into energy, and that technologies to prevent the materialization of risks have been almost fully developed (except for the final disposal of high-level waste). With the goal of reexamining nuclear energy technology from a risk perspective and contributing to the redefinition of its role in achieving sustainable energy strategies of Japan and United States by 2050, the Center for Fundamental Research on Nuclear Decommissioning (currently the Center for Fundamental Research on Nuclear Safety and Decommissioning) at Tohoku University and the Department of Nuclear Engineering and Radiological Sciences at the University of Michigan have collaborated. We held ① online workshops on the theme of "Risk Management in the Decommissioning of General Reactors: Extracting Hints for Safe Progress from a Japan-U.S. Comparative Discussion," and ② face-to-face workshop on "Contributions of Innovative Reactors to Carbon Neutrality and Economic Development" at Tohoku University.

Important Goals and Degree of Achievement

① Online Workshop "Risk Management in the Decommissioning of General Reactors: A Discussion Based on a Comparison Between Japan and the United States" aimed to identify insights for safe advancement of decommissioning in Japan by discussing compared commonalities and differences. It underlined risk perspectives regarding general reactors, identification of hazard sources, risk management, and the economic balance. The participation of regulatory authorities (the Nuclear Regulation Authority of Japan and the U.S. Nuclear Regulatory Commission) and industry representatives (Federation of Electric Power Companies, Japan, and Electric Power Research Institute, USA) in a forum co-hosted by universities from both countries to engage in academic discussions on safety based on risk represents an unprecedented challenge, and the realization of this initiative constitutes a significant achievement.

② Face-to-face Japan-U.S. workshop "Contribution of Innovative Reactors to Carbon Neutrality and Economic Development" used innovative reactors that achieve safety exceeding that of existing light water reactors as a case study. Sessions were held on topics of current and future international energy situation, innovative reactor design, challenges in the deployment process of innovative reactors, human resource development, and gender balance. Participants from industry, government, and academia engaged in intensive discussions over two days. All participants expressed great satisfaction with the conference and many hoped that it would continue in the coming years. The U.S. Consulate General in Sapporo, which co-sponsored the conference, also expressed its willingness to continue its support.
Both allowed the establishment of a significant dialogue forum to discuss the direction of technological development that will make the public feel confident about safety and progress through collaboration between Japanese and U.S. entities.

Program Organizers

Yutaka Watanabe (Professor, Tohoku University)
Specializes in maintenance engineering and risk-based facility management, with a strong focus on corrosion protection and structural reliability. He has received several major awards, including the Okamoto Go Memorial Lecture Award from the Japan Society of Corrosion Engineering (2022), the Technical Award from the same society (2016), and the Paper Award from the Japan Society of Maintenology (2019). His research plays a crucial role in the safe operation and decommissioning of nuclear facilities.

Makoto Takahashi (Professor, Tohoku University)
Conducts research in human factors, cognitive engineering, safety engineering, and system resilience, with particular attention to risk perception and organizational safety in nuclear contexts. He received the Excellent Activity Award from the Social Environment Division of the Atomic Energy Society of Japan (2005) and the society's 40th Paper Award (2008). His interdisciplinary approach supports safer design and operation of complex socio-technical systems by integrating engineering with behavioral and cognitive sciences.

Todd Allen (Professor, University of Michigan)
Holds a PhD in nuclear engineering with expertise in nuclear materials and energy policy. He is known for bridging advanced materials science with policy and innovation in the nuclear field. His work spans academic research, technology leadership, and governmental advisory roles. In 2012, he received the Outstanding Achievement Award from the American Nuclear Society's Materials Science and Technology Division for his contributions to nuclear materials development and innovation in energy systems.

Yugo Ashida (President, JOINLU International Inc.)
Active at the intersection of industry-academia collaboration and research intelligence, Yugo Ashida integrates expert knowledge with AI to support innovation and decision-making. His work also focuses on intercultural communication at personal, organizational, and technical levels. He has served as a member of ISO TC156 (WG02, WG09, WG11) since 2016 and as a reviewer for U.S. DOE NEUP and SBIR/STTR proposals (2015–2022). In 2022, he joined the National Science Foundation's I-Corps program to support science-driven entrepreneurship.

Highlights of Program and Events

① Online Workshop "Risk Management in the Decommissioning of General Reactors: A Discussion Based on a Comparison between Japan and the United States" was held in August 2023 and February 2024 (Document 1).
This was the first time that universities in Japan and the United States co-hosted an event where representatives from industry, government agencies, and regulatory bodies from both countries gathered to discuss this topic. It was covered by media outlets in Japan and US (Nuclear Industry News and Nuclear Newswire). Despite the time difference, the number of participants was high: 102 in the first workshop and 69 in the second. Importantly, the feedback gathered underlined that area and population density differences are to be considered as not all developed solutions may apply uniformly.

② Face-to-face workshop "Contribution of Innovative Reactors to Carbon Neutrality and Economic Development" was held in May 2024 (Document 2). Due to the support of TFC and U.S. Consulate General, as many as 32 participants from the U.S. could attend (a total of 79 participants). Key persons in the field, including heads of the Innovative Reactor Line at the U.S. Department of Energy's Office of Nuclear Energy, the Nuclear Technology and Economics Division at the OECD/NEA, and the Cabinet Office's Nuclear Energy Commission were present. Societal significance was expressed by the participation of a representative consul from the U.S. Consulate General in Sapporo. Sessions were held on current and future international

energy situation, innovative reactor design, challenges in the deployment process of innovative reactors, human resource development and gender balance. Breakout sessions effectively deepened the discussions. Many participants requested the holding of a second meeting. Workshop was featured in a NuclearNewswire article.

Specific Strategies for International and Domestic Research Exchange with Research Institutes, Industries, Local Governments, etc.

The theme of this project was to reexamine the role of nuclear energy in Japan's sustainable energy strategy. While the project did not yield new findings in the form of research results, the fact that representatives from industry, academia, and government (including both nuclear policy promotion agencies and nuclear regulatory agencies) from both Japan and the United States gathered to exchange opinions was itself a novel endeavor. The project also provided an opportunity to recognize differences in perspectives based on differing positions and between Japan and the United States, and to examine the background behind these differences. This initiative aims to strengthen collaboration between the two universities in human resource development, while also considering research outcomes such as academic papers. Specifically, regarding student exchanges, 13 students will visit the University of Michigan for two weeks in July 2025 to participate in discussions with faculty members and students, attend seminars, and visit industrial sites. Regarding the development of young faculty members, an assistant professor from our university is scheduled to be dispatched to the OECD/NEA Global Forum on Nuclear Education, Science, Technology, and Policy, to be held at the University of Michigan Ann Arbor in October 2025. Professor Makoto Takahashi has been invited to give a lecture at the same conference. The two universities plan to maintain and to utilize the industry-government network established through this project in their collaborative human resource development activities.

Principal Invited Researchers

Brian Smith (Department of Energy, United States of America)
Oversees nuclear energy policy planning and implementation at the U.S. Department of Energy. His work focuses on the strategic analysis, formulation, and execution of policies that advance nuclear energy technologies and ensure their role in a sustainable and secure energy future.

Diane Cameron (Nuclear Energy Agency, OECD)
Leads the Nuclear Technology and Economics Division at the OECD/NEA, focusing on energy economics and international cooperation. She supports strategic planning and promotes collaboration among member countries to advance nuclear innovation, sustainability, and policy development in the global energy sector.

Kristine Svinicki (University of Michigan, United States of America)
Former Chairman of the U.S. Nuclear Regulatory Commission and current board member at TerraPower. She brings extensive leadership experience in nuclear regulation and safety, and now contributes to education and industry innovation as Adjunct Professor at the University of Michigan.

Mitsuru Uesaka (Atomic Energy Commission, Japan)
Chairs Japan’s Atomic Energy Commission, contributing to national nuclear energy policy. With extensive experience in science and government advisory roles, he plays a key role in shaping Japan’s direction in the peaceful and responsible use of nuclear technologies.

International Training for Young Personnel

① Online workshop “Risk Management in the Decommissioning of General Reactors: A Discussion Based on a Comparison between Japan and the United States” was attended by 15

students from Japan and 9 from the United States. Due to the online format, there were few comments from participants, so communication with student participants was conducted through a questionnaire.
② Face-to-face workshop “Contributions of Innovative Reactors to Carbon Neutrality and Economic Development” provided a platform for close discussions between Japanese and U.S. leaders in nuclear energy policy, graduate students, researchers and engineers in their 30s. In addition to the plenary sessions, breakout groups were formed to discuss the themes of “Innovative Reactor Design,” “Innovative Reactor Deployment Process,” and “Economic Benefits and Job Creation”. By adopting this format, young people were able to engage in direct exchanges of opinions with world-leading experts and well-known specialists in their respective fields, gaining invaluable experience. This format was highly praised by all participants.

Strategies Following the Completion of the Program

Recently reorganized to expand its scope to include nuclear safety research, Center for Fundamental Research on Nuclear Safety and Decommissioning (Tohoku University) and the Department of Nuclear Engineering and Radiological Sciences (University of Michigan has built a cooperative relationship and mutual trust. Electricity demand is expected to surge, and both countries face the urgent need to improve the safety of nuclear energy and redefine its place in society. Both universities share the intention to collaborate with Japanese and US industries to respond to social demands. Program organizers hold web conferences at least once a month to exchange opinions on future joint projects.
The third Decommissioning Workshop and second Innovative Reactor Workshop are being planned for 2025. Initially, we had been discussing the details of the plan with the U.S. Embassy, expecting its continued support. However, due to the Trump administration’s directives, we are currently seeking new sources of support.

Future Society Design Program | November 2024

Urban Transition with Wood for Enhanced Resilience of Cities and Forests

Urban Transition with Wood for Enhanced Resilience of Cities and Forests

The objective of the program was to present the ideal vision of a future society coexisting with wood and the pathways to achieve it, based on discussions conducted during international workshop series.

The program consisted of three main components:

1. Site visits to advanced cases and tsunami legacy: Participants observed timber utilization examples in Maniwa City, Okayama Prefecture, including local construction projects. Participants visited earthquake and tsunami legacy sites in Sendai.

2. Public seminars: At Okayama University and Tohoku University, international efforts in timber engineering and architecture were introduced to university students and professionals interested in timber construction.

3. Workshops among members: Multiple workshops were held to discuss specific themes, reassess prepared discussions from various countries, and consolidate all dialogues.

The outcome was the extraction and sharing of visions and pathways for the future.

The international workshop program was performed as the series of following events during November 17-22, 2024:

November 17 (Sunday): Visit to advanced regions utilizing timber locally (e.g., Maniwa City, Meiken Lamwood Corp., etc.).

November 18 (Monday): Tours focusing on forest therapy and timber recycling (e.g., sawmilling, biomass power generation) and a workshop on locality (in Maniwa City, Meiken Lamwood Corp.).

November 19 (Tuesday): Future vision workshop and a global seminar (at Okayama University)

November 20 (Wednesday): Visits to earthquake and tsunami memorial sites in Arahama area and Resilience Workshop 1 (in Sendai City).

November 21 (Thursday): Resilience Workshop 2 (at Ryokusai-kan) and a public seminar (at Tokyo Electron House of Creativity).

November 22 (Friday): Research Agenda Workshop (at Tokyo Electron House of Creativity) and Global Workshop.

Important Goals and Degree of Achievement

We had the following four key objectives; i). Integrate discussions from each country and present an internationally-oriented vision and pathways for a future society coexisting with wood. ii). Identify possibilities for future collaborative research projects. iii). Foster exchange among early-career researchers. iv). Promote and disseminate the state-of-the-art information on timber through public seminars.

The level of achievement for each objective is as follows: i). Based on visions and pathways discussed by stakeholders in timber and timber architecture from various countries, we engaged in an exchange of opinions that highlighted differences and commonalities among nations. From this, we extracted six critical keywords. For each keyword, we summarized visions and pathways as a “Resolution.” The resulting outcomes are highly detailed and reflect the site visits and in-person discussions conducted during the program period. ii). Through initiatives such as the Research Agenda Workshop, we introduced frameworks for joint research and shared the potential for future collaboration. We agreed to continue the ongoing projects in education and to continually consider the launch of new projects. iii). Early-career

researchers and graduate students were able to interact both inside and outside the program events with leading international researchers and practitioners. This enabled them to share their respective interests and research agendas. We will ensure opportunities for ongoing discussions and collaboration remain uninterrupted in the future. iv). We held public seminars in Okayama and Sendai, collectively reaching approximately 100 participants. These seminars facilitated the sharing of international information on timber and the development of related discussions.

Program Organizers

Masaki Maeda (Professor at Tohoku University)
Doctor of Engineering, specializing in architectural structures and earthquake engineering. Actively engaged in the development and promotion of wooden architecture, establishing collaborative frameworks on both local and global scales, and leading this project. Recipient of the Architectural Institute of Japan's Education Award and the Japan Concrete Institute's Paper Award.

Yutaka Goto (Researcher at Chalmers University of Technology, Visiting Assistant Professor at Tohoku University)
Professor at Tohoku University) Ph.D. Specializes in wood engineering, building environmental engineering. Based in both Sweden and Japan. Conducting multidisciplinary research on the efficient utilization of wood resources in architecture. Responsible for coordinating collaborations across Japan, Europe, and Oceania.

Robert Jockwer (Professor at Technische Universität Dresden, Germany)
Doctor of Science. Specializes in timber structures. Organizes CA20139 - Holistic Design of Taller Timber Buildings (HELEN), with the goal of establishing appropriate design methods for large-scale timber architecture in Europe from a pan-European perspective. Responsible for consolidating knowledge and the latest design guidelines in Europe.

Lisa Ottenhaus (Senior Lecturer at The University of Queensland, Australia)
Ph.D. in Timber Structures. Engaged in the research and development of appropriate design methodologies for timber structures in Australia. Responsible for consolidating knowledge and the latest design guidelines related to timber structures in Oceania.

Karube Yasuteru (Representative Director at Synegic)
Actively engaged in research and development, promoting the standardization of joints, the establishment of JIS (Japanese Industrial Standards) for wood screws, and their expansion into international standards. Participated as a representative of a private company in organizing the workshops and overseeing overall program coordination.

Naoyuki Matsumoto (Assistant Professor at Tohoku University)
Doctor of Engineering. Specializes in timber structure studies, traditional architectural construction methods, and production history. Responsible for organizing and facilitating discussions among Japanese local members; timber producers, designers, and researchers.

Highlights of Program and Events

In the workshops, the highlights were the Future Vision Workshop and the Global Workshop, conducted after site visits and individual thematic workshops. In multinational groups, participants engaged in focused discussions, successfully articulating and sharing visions and pathways for the future. The site visits left strong impressions as well. In Okayama, participants observed advanced timber industry facilities deeply rooted in the local community. In Sendai, they visited disaster remains. These experiences allowed them to tangibly grasp the concepts of “locality” and “resilience.” The activities and findings were promoted on LinkedIn.

By conducting site visits to gain new insights followed by workshop discussions, we were able to consider multiple perspectives. Consequently, we summarized visions and pathways for a future society coexisting with wood into a final "Resolution." Holding numerous in-person workshops and seminars enabled participants to learn about each other's interests and discover new opportunities for future collaboration. Introducing globally rare examples — such as the timber industry in Okayama and the disaster remains in Sendai — to overseas stakeholders in timber and timber architecture raised awareness of Japan's challenges and possibilities in timber construction.

Given the large number of participants and the broad range of topics, more time dedicated to discussions and collaborative deliberations would have led to even more in-depth dialogue. For socio-economic topics such as carbon trading and legal frameworks in each country, providing foundational information beforehand could have better supported effective discussions.

Specific Strategies for International and Domestic Research Exchange with Research Institutes, Industries, Local Governments, etc.

To share the current research and operations of universities, timber-related institutions, and companies in Japan, Oceania, and Europe, as well as the envisioned future society and pathways that form the basis for their work, participants from various institutions shared their key issues and concerns during the WS and seminars. In particular, through the Global WS, they shared their visions for a future society and identified issues that should be tackled collaboratively.

As a new insight, we clarified the similarities and differences in each country's challenges and efforts concerning locally sourced timber resources. While the need to address certain shared issues, such as the fragmentation of timber production and distribution, emerged, the discussions also highlighted the presence of unique conditions — such as varied responses to different types of disasters — that must be resolved individually.

It was confirmed that we would move forward with collaborative efforts on developing timber structural systems and educational programs. (Regarding education, an application was submitted to the Australia Japan Foundation Grant Application 2024 for "Advancing interdisciplinary education on sustainable construction in Australia and Japan." As for structural system development, an example is submission of application to The Japan Society for the Promotion of Science (JSPS) for the "Development of high-performance reversible timber joints for adaptable timber structures.")

Beyond inter-university collaboration, the exchange expanded to include architectural design firms and timber industry companies from various countries. This led to the creation of an international industry-academia network for continuous exchange and research collaboration.

A further education collaboration between Tohoku University, Okayama University, the University of Tokyo, the University of Queensland, the University of Tasmania, Timber Queensland and TimberEd was funded by the Australia-Japan-Foundation for 2025.

Principal Invited Researchers

Santiago Pujol (Professor, University of Canterbury, New Zealand)
Ph.D. in Structural Engineering (Seismic Engineering). An expert in seismic structural engineering, leading discussions on resilience, drawing from the experience of earthquake damage and recovery in Christchurch.

Mick Stephens (CEO, Timber Queensland, Australia)
Master of Forestry. An expert in regional economies and timber use as well as resource economics and forest economics, who promotes timber utilization. Plays a key role in providing insights and leading discussions on the future of the timber industry in Australia.

Kevin Peachey (Head of Built Environment Programs, Forest & Wood Products, Australia)

Specializes in research and development in the Australian forest and wood product sectors. Provides comprehensive insights into Australia's timber industry, timber construction, and housing development. Leads the Wood Solutions education program.

Robert Schmitz (Architect, White Arkitekter, Sweden)
A partner at one of Sweden's leading architectural firms with experience in pioneering timber architecture projects such as the Sara Cultural Centre. Provides insights and leads discussions on the future potential of timber architecture from a designer's perspective.

Koichiro Nakashima (President, Meiken Lamwood Corporation; Chairman, Japan Cross-Laminated Timber Association; President, Maniwa Biomass Power Corporation)

Serves as the leader of one of Japan's premier glulam manufacturers, driving advancements in wood processing, biomass power generation, and the promotion of cross laminated timber (CLT) architecture. Shares the latest developments in wood utilization in Japan's rural areas and leads discussions on locality-related topics.

Hamood Alwashali (Associate Professor, Okayama University, Doctor of Engineering)
Specializes in seismic structural engineering and works on the development of hybrid structures combining reinforced concrete (RC) and timber. Responsible for coordinating the program's site visits and seminars in Okayama Prefecture.

International Training for Young Personnel

Young researchers played a central role in this project, serving as organizers (Goto, Matsumoto, Ottenhaus, Jockwer) and workshop presenters (Oberg, Hamood). Through active discussions and exchanges, participants shared their concerns, laid the groundwork for future collaboration, and made significant progress in conceptualizing concrete joint research plans.

Since 2022, one or two graduate students have been sent annually from Tohoku University to Chalmers University of Technology for short-term study abroad programs. Motivated graduate students have thus been able to receive international guidance and gain experience in advanced timber-based urban environments. For researchers, the team considers submitting proposals for research projects with international collaborators.

Among the outcomes achieved so far, Ahmad Ghazi Aljuhmani has submitted in 2024 research results guided by advisors from two countries to an international academic journal. Additionally, Yohei Suzuki from Maeda Laboratory at Tohoku University is currently working on his master's thesis after a short-term study stay at Chalmers University of Technology. Vera Oberg of Chalmers University of Technology has collaborated with and visited the University of Queensland. This work was presented at the first workshop at Tohoku University. The young researchers are advancing applications for specific research projects, such as a Grants-in-Aid for Scientific Research (Kakenhi, JSPS) application led by Professor Maeda of Tohoku University. Organizers Goto, Matsumoto, and Jockwer are among the key members, contributing to projects like "Development of high-performance reversible timber joints for adaptable timber structures."

Strategies Following the Completion of the Program

We plan research and educational programs in collaboration with the participating universities, research institutions, and companies from various countries. We also organize joint research groups and apply for research funding. One such proposal has been successfully

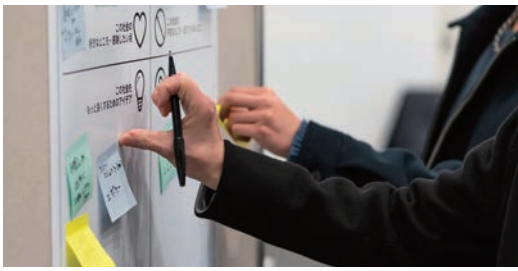
funded by the Australia-Japan-Foundation (“Advancing higher education in sustainable construction in Australia and Japan”).

We continue student exchanges and faculty visits to share research interests and strengthen and expand the exchange of personnel and research initiatives with Tohoku University, Chalmers University of Technology, the University of Queensland, the University of Canterbury, and the Technical University of Dresden. If eligible international research grants become available, we will share the information and consider forming a research group (e.g., JST+MBIE (Japan Science and Technology Agency, Japan/Ministry of Business, Innovation, and Employment, New Zealand), JSPS (Japan Society for the Promotion of Science)).

We will hold a follow-up session at the World Conference on Timber Engineering 2025 in Brisbane to deepen, disseminate, and further concretize the discussions from this program.

Future Society Design Program | April 2024 – March 2025

Tohoku Transition to Future



Future Design Research Program | April 2024 – March 2025

Tohoku Transition to Future

21st-century society faces complex challenges, such as climate change and inequality, that technology alone cannot resolve due to their interconnected and context-specific nature. Instead of solving known problems, this program emphasizes envisioning "the kind of society we should aim for. In 2024, the program implemented "Transition Design" as a practical research framework, engaging four companies and Tohoku University faculties and students across multiple disciplines to co-create visions of a desirable future around 2050. Drawing on Masaki Iwabuchi's framework, the participants defined themes and future actions based on intrinsic motivations. Worldview Design, combining concepts like speculative and transition design, aims to unleash individual imagination and encourage proactive future visioning within organizations. Six workshops were held to implement and explore this design process.

Important Goals and Degree of Achievement

This program distinguishes itself by being problem-discovery-oriented rather than problem-solving-oriented. Instead of starting with predefined societal challenges, it encourages participants—particularly corporate members—to uncover issues they genuinely care about or should explore. The creative process of designing a desirable future society is guided by intrinsic motivation rather than external directives. A key conceptual foundation is the focus on what remains unchanged over time. While future society discussions often prioritize technological changes, this program emphasizes identifying slow-changing or unchanging elements that reflect universal values worth preserving.

Unlike conventional future design initiatives that rely on expert-driven, top-down vision proposals, this program adopts a bottom-up approach. Participants actively shaped themes and visions by engaging directly with Tohoku University's interdisciplinary academic community, including faculty and students from various fields. The setting fostered deep, collaborative exploration of complex societal issues.

Eight regular participants from four partner companies, along with two student leaders from Tohoku University, took part in six workshops. These sessions involved structured activities and discussions aligned with the initial program goals.

The theoretical foundation—transition design—though socially relevant, has seen limited industrial application. This initiative bridged that gap by involving business professionals across different sectors, including first-time practitioners of transition design. Through hands-on experience, participants gained practical knowledge and skills in vision design.

Moreover, the program showcased the power of industry-academia collaboration in fostering innovation in societal design. It highlighted how interdisciplinary and participatory approaches can drive meaningful, future-oriented outcomes in uncertain and complex societal contexts.

Program Organizers

Makoto Takahashi (Professor, School of Engineering, Tohoku University)
Ph.D. Safety Engineering, Nuclear Engineering, Risk Communication. Role: Overall program coordination

Masaki Iwabuchi (JP Morgan Chase Bank, Design Futurist).
Ph.D, Transition Design. Author: 岩渕正樹 (2024)『世界観のデザイン 未来社会を思索する技術』クロスメディア・パブリッシング (Masaki Iwabuchi. (2024). *Worldview Design: A Method for Speculating about the Future Society*. Cross Media Publishing). Role: Design and facilitation of the entire workshop

Shuichi Ishida (Professor, School of Engineering, Tohoku University)

Yasuhiro Fukushima (Professor, Graduate School of Environmental Studies, Tohoku University)

*** Kiyotaka Naoe (Professor, Graduate School/Faculty of Arts and Letters, Tohoku University)**
*also participated in this program as a key contributor

Highlights of Program and Events

The program centered around six workshops that served as its core activities, following the worldview design methodology introduction, facilitated by Masaki Iwabuchi. Participants engaged in meaningful discussions at each workshop, culminating in a final session where companies considered practical applications of the approach in their business contexts.

Participant feedback emphasized the significance of the experience, though some expressed uncertainty about how to internalize and disseminate the outcomes within their organizations. There were multiple requests for materials to support internal awareness and sharing of the approach's benefits. Comments highlighted that the methodology is valuable for defining visions in early stages of research or technology development, providing a clear direction for navigating organizational challenges. The process was also recognized for its usefulness in brainstorming and strategic reflection, particularly in helping to flag complex issues that may not have immediate solutions. Additionally, it was seen as a timely framework for integrating existing ideas and technologies with societal needs, especially in a design-driven environment. One participant noted the relevance of transition design in updating long-term corporate visions beyond the 2030s.

Regarding media exposure, the program initially considered collaboration with major outlets like NHK and newspapers via Tohoku University's Public Relations Office, but these efforts did not result in coverage. However, the fifth workshop was covered by Tohoku University's student PR staff, and an article is scheduled to be published on their website, contributing to internal and academic dissemination of the initiative's outcomes.

Specific Strategies for International and Domestic Research Exchange with Research Institutes, Industries, Local Governments, etc.

In terms of exchange between companies and universities, four companies participated in six face-to-face workshops, which we consider to be a high level of success. No researchers were invited, but Mr. Iwabuchi, who participated as a facilitator, is a leading researcher in this field, and we consider it a major achievement to have been able to put into practice the process of designing a vision of the future that he proposes. Given the nature of the Future Society Design Program, there were no direct connections to joint research or papers. However, from the perspective of practicing such design, this program was attracting attention both internally and externally.

Principal Invited Researchers

This program did not invite renowned researchers, but instead involved members from the following four companies with experience in transition design as key participants.

- Kao Corporation (Shinji Kakuo, Tomoko Fukunaga, Keishi Saruwatari)
- Tohoku Electric Power Co., Inc. (Shinji Sato, Kentaro Osawa)
- NTT DATA Corporation (Atsushi Hanawa)
- nawe inc. (Shikibu Yanagida, Satoshi Shimizu)

International Training for Young Personnel

Although the program did not initially include a plan for nurturing young researchers, two members of Tohoku University's student group TIDE actively participated in the workshops and engaged in meaningful exchanges with corporate members—a major achievement. Additionally, over 20 students joined through TIDE, gaining hands-on experience in designing future societies using cutting-edge methodologies.

Student feedback highlighted the value of collaborating with industry practitioners and learning how to apply different design methods depending on the context—whether in business or future visioning. The involvement of professors from diverse faculties, including Engineering and Arts and Letters, was also praised for enriching the interdisciplinary dialogue and exposing students to unfamiliar but valuable academic resources.

Strategies Following the Completion of the Program

We plan to utilize the knowledge gained through this program in projects with industries and companies that urgently need vision design in the coming fiscal year and beyond. Upon the program's conclusion, members will continue to meet online for follow-up discussions on multiple occasions. As the next step, we plan to continue our activities with a view to applying for large-scale financial support such as scientific research grants.

Design Lab for our Future Co-existence | April 2024 – February 2025

TFC × TEL Collaboration Program: Designing a Digital and Sustainable Society

Design Lab for our Future Co-existence ｜ April 2024 – February 2025

TFC×TEL Collaboration Program: Designing a Digital and Sustainable Society

While digital technologies have introduced further challenges such as digital inequality and poverty, they also have the potential to mitigate environmental and societal impacts, and contribute to the sustainable and resilient society. The pressing need is to explore how we can effectively design a future Digital and Sustainable Society to steer our course in a better direction. As part of the Tohoku Forum for Creativity's 2024 TEL Collaboration Program, the events listed below were held to deal with this task. These initiatives addressed critical issues such as the integration of AI in daily life, the independence of disabled population, and human well-being in the new era, leading to further insights into the topics discussed.

Events

School for the Design of a Future Society Workshop: Designing Digital × Sustainable Future Societies: Sustainability in Cities
(June 7, 2024 – October 30, 2024)

TEL Corporation Program Seminar
(April 19, 2024 – December 25, 2024)

School for the Design of a Future Society: A Workshop for New Students at Tohoku University: Collaborating on a Short Story about the Future with ChatGPT
(June 24, 2024 / July 1, 2024)

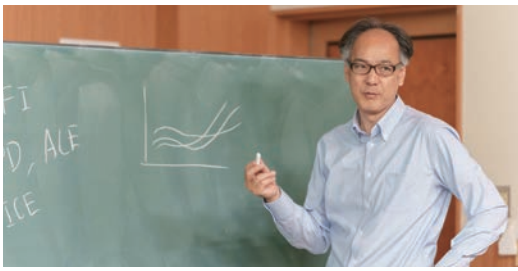
Social Implementation Workshop 2024 “The Harmony between the Invigoration/Normalization of Remote Areas and Digital Technologies”
(September 17, 2024 – December 21, 2024)

TFC×TEL Collaboration Symposium on Designing a Digital and Sustainable Society
(January 22, 2025)

Tohoku Forum for Creativity and Tokyo Electron Cooperation
「School of Designing of Future Society」Special Lectures
—Towards the Realization of a Well–being Society—
(February 2, 2025)

Design Lab for our Future Co-existence | April 2024 – November 2024

TFC × AXA Collaboration Program on Social Innovations in Insurance in the Digital Society



Design Lab for our Future Co-existence | April 2024 – November 2024

TFC×AXA Collaboration Program on Social Innovations in Insurance in the Digital Society

This program, conducted in collaboration with AXA, aims to explore social issues that insurance can help address and to define the role of insurance in the future digital society. As part of the initiative, we hosted the events listed below to create opportunities for students, researchers, and industry professionals to engage with these issues collaboratively. Additionally, we offered lectures designed to help students enhance their skills in data science and machine learning, and to deepen their understanding of how insurance functions within society.

Events

Lecture Course on Introduction to Life Insurance Business Management 2024
(April 11, 2024 – July 18, 2024)

Intensive Course on Risk Data Science and Insurance 2024
(June 3, 2024 – June 6, 2024)

Actuarial Mathematics Seminar 2024
(June 6, 2024 – November 8, 2024)

Design Lab for our Future Co-existence | February 2025 – March 2025

The School of Designing our Future Society

Design Lab for our Future Co-existence | February 2025 – March 2025

The School of Designing our Future Society

As part of The School of Designing Our Future Society, three events held this year addressed three themes listed below, inviting participants to reimagine how we live in response to key societal challenges. The first used storytelling and dialogue—supported by generative AI—to creatively envision new ways of living in the future. The second addressed the urgent need for sustainable coexistence between people and the ocean amid climate change. It also introduced ocean investments. The third explored how to create a secure and inclusive society in an era of longevity and population decline from the perspective of gender. Through workshops and interdisciplinary discussions, these events have inspired fresh ideas for building a more resilient, inclusive, and harmonious society.

Events

[Theme 1] Designing a Digital and Sustainable Future Society

"Creating Fables for the Future" project, Open Workshop: The 2024 Theme: Future Ways of Life
(March 12, 2025)

[Theme 2] Designing a Future Society in Harmony with Marine Ecosystems

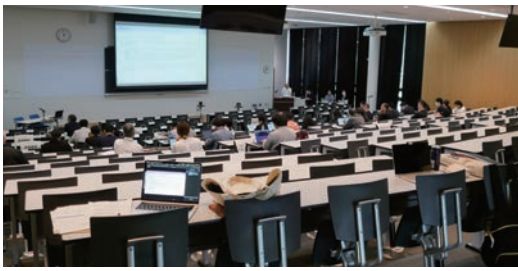
Workshop & Open Talk Event
The 2024 Theme: Creating a Future–Oriented Coastal Community—For the Coexistence of Humans and the Ocean
(February 22, 2025)

[Theme 3] Designing a Future Society for the Era of 100–year Life

Open Workshop: The Future of a Super–Aging Society Solved Through Gender Equality
(February 1, 2025 – February 2, 2025)

October 2024

Research DX Support Center



Research DX Support Center | October 2024

Research DX Support Center

The utilization and integration of data in scientific research is becoming more and more significant. In recognition of this trend, TFC established the Research DX Support Center in November 2020 to promote digital transformation (DX) in scientific research. From 2020 to 2024, the center held the Research DX Strategy Seminars eight times and the Practical Data-Driven Science Online Seminars nineteen times to share information on future research DX. In April 2024, the Open Science Promotion Division of the Research Management Center was established. The activities of the Research DX Support Center were gradually transferred to the Open Science Promotion Division and this center was closed in March 2025.

Events

Symposium on the Establishment of the Tohoku Consortium for Research Data Management
The 8th UDAC 8th Research DX Strategy Seminar
(October 3, 2024)

October 2024

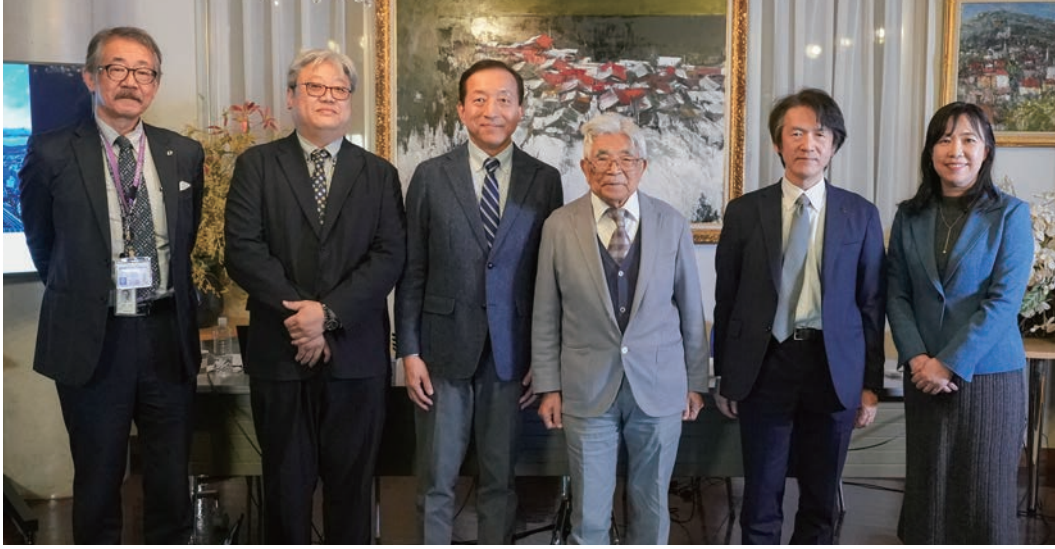
Emerging Perspectives Program

Emerging Perspectives Program

The TFC has carried out the Emerging Perspectives Program (EPP) since 2017 to provide the seeds for future Thematic and Junior Research Programs through workshops or lectures given by invited researchers in various research fields. The TFC held one such program in 2024: Japanese–Polish Emerging Perspective Workshop – Toward the Quantum Computing. The event was held as a formal beginning of collaboration between topic leading researchers from Polish institutions and Tohoku University as a seed of a larger strategic partnership. Program organizers are scheduled to follow the success of a program with application for Junior Research Program in 2027 and Strategic Partnership grant of Polish National Agency for Academic Exchange (NAWA).

Events

Japanese–Polish Emerging Perspective Workshop – Toward the Quantum Computing
(October 3, 2024 – October 4, 2024)



June 2024 – January 2025

Other Activities

Other Activities | June 18, 2024 – August 8, 2024

G-RIPS-Sendai 2024

The Research in Industrial Projects for Students (RIPS) program held at UCLA's Institute for Pure & Applied Mathematics expanded in 2018 to include the g-RIPS-Sendai program. This initiative was launched by Tohoku University's Advanced Institute for Materials Research in collaboration with IPAM, targeting graduate students in mathematical science and related fields. The program includes a cross-cultural collaboration between participants from the U.S. and Japan, who work on industrially-designed research projects. These projects, which provide intellectually stimulating challenges blending mathematical and computational work, hold significant interest for the industrial partners involved.

Other Activities | August 1, 2024

Falling Walls Lab Sendai 2024

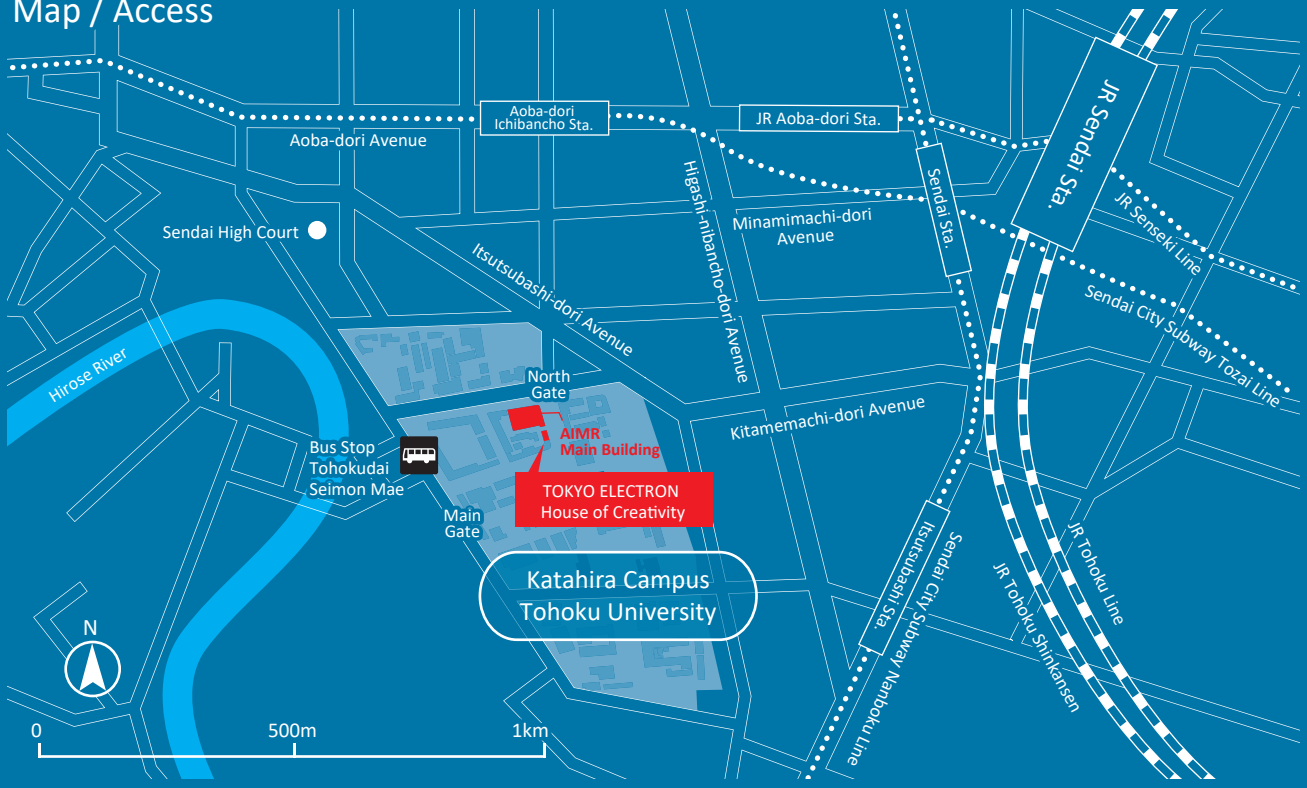
Since 2014, Tohoku University has hosted the Falling Walls Lab Sendai annually with the Falling Walls Foundation of Germany. The University has the honor of being Asia's pioneer venue for this esteemed competition for young researchers aged 18 and above. In 2024, 12 participants were selected for the presentation round. The passionate scholars responsible for the selected projects gave three-minute presentations on their research to break through global "walls." First prize went to Upasana Jhariya, a Ph.D. student from Tohoku University. Second place went to Kaho Matsumoto, a Master's student from Tohoku University. Both winners presented their research at the Falling Walls Finale held in Berlin on November 7.

Other Activities | January 28, 2025

[Sendai Foundation for Applied Information Sciences × Tohoku Forum for Creativity Collaborative Program] Sendai Round–table Talk "New Regional Development, Together with Universities– Industry–Academia Collaboration of the Future of Sendai"

For the future of Japan, it is essential to address the overconcentration of resources in the Tokyo Metropolitan Area and to promote the revitalization of regional economies. In particular, concrete proposals are expected for renewal/redevelopment/reinvention of the Tohoku region, including Sendai City. At this Sendai Roundtable Talk, we discussed the creation of new industries—such as in IT and semiconductors—through collaboration among industry, government, and academia.

Map / Access



From Narita Airport

Narita Airport Sta. — Airport Terminal 2 Sta.
- Narita Sky Access Line, Approx. 60 min. → Ueno Sta. → Tohoku Shinkansen, Approx. 95min. → Sendai Sta.
- Narita Express, Approx. 60 min. → Tokyo Sta. → Tohoku Shinkansen, Approx. 100 min. → Sendai Sta.

From Haneda Airport

Haneda Airport Sta. → Keikyu Line, Approx. 20 min. → Shinagawa Sta. → Yamanote Line, 11min. → Tokyo Sta. → Tohoku Shinkansen, Approx. 100 min. → Sendai Sta.

Haneda Airport Terminal 2 Sta. → Haneda Airport Terminal 1 Sta. → Tokyo Monorail, Approx. 20 min. → Hamamatsucho Sta. → Yamanote Line, 6min. → Tokyo Sta. → Tohoku Shinkansen, Approx. 100 min. → Sendai Sta.

From Sendai Airport

Sendai Airport Sta. → Sendai Airport Access Line, Approx. 25 min. → Sendai Sta.

From Sendai Sta.

By taxi : Approx. 10 min. by taxi from the West Exit on the first floor of Sendai Station
By foot : Approx. 15 min. walk from the West Exit of Sendai Station

From Aoba-dori Ichibancho Sta.

By foot : Approx. 10 min. walk from the South 1 Exit of Aoba-dori Ichibancho Station

Tohoku Forum for Creativity, Tohoku University

Address : 2-1-1 Katahira, Aoba-ku, Sendai 980-8577 JAPAN

E-mail：creativity@grp.tohoku.ac.jp

URL：https://www.tfc.tohoku.ac.jp/

Administrative Office	2nd Floor, AIMR Main Building	1st Floor, TOKYO ELECTRON House of Creativity
	TEL : +81-22-217-6091 FAX : +81-22-217-6097	TEL : +81-22-217-6292 FAX : +81-22-217-6293