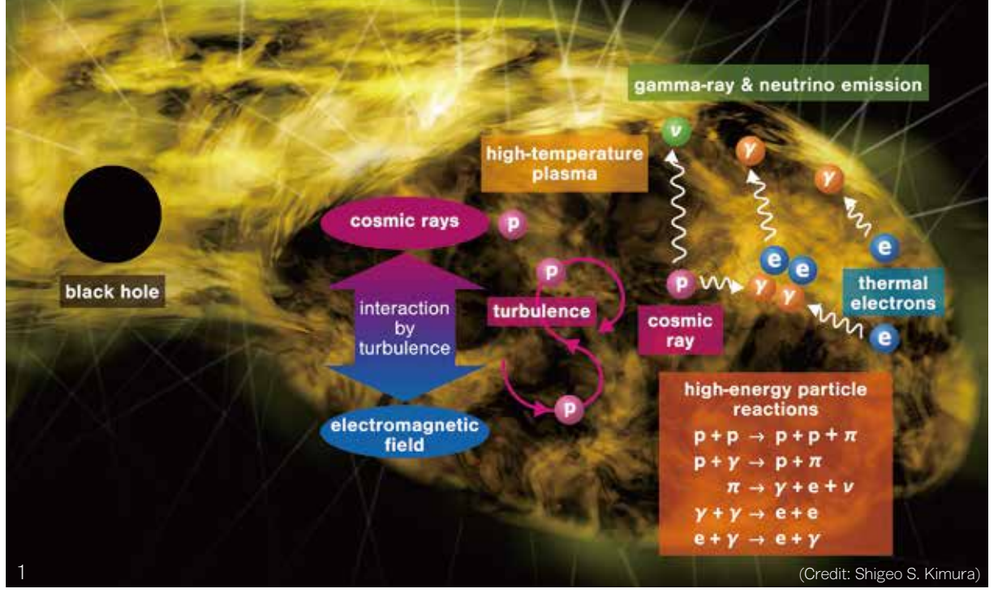
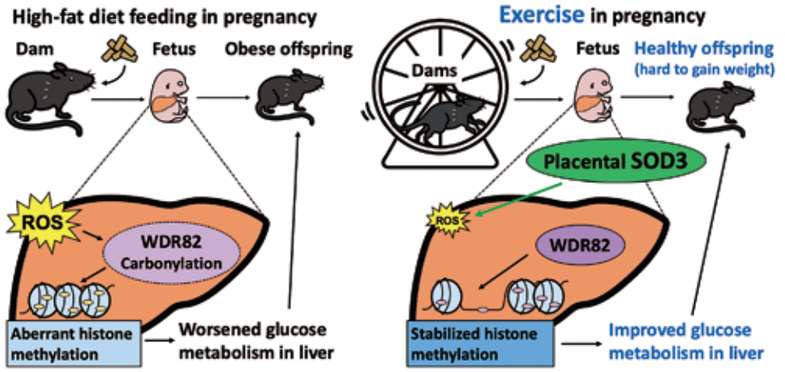
fris.tohoku.ac.jp



1 (Credit: Shigeo S. Kimura)



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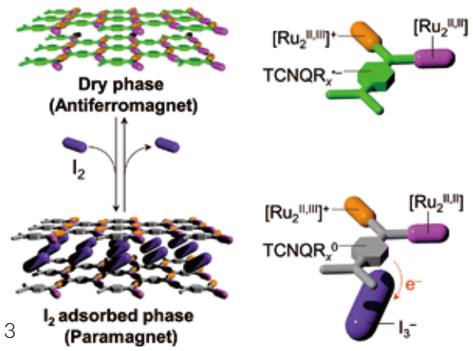

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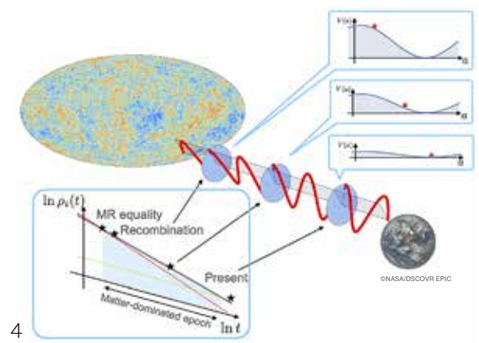

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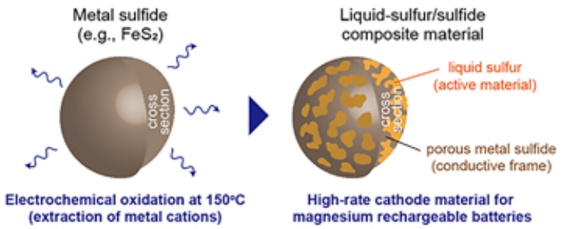


5

Images of FRIS achievements

1) Gamma-rays and Neutrinos from Mellow Supermassive Black Holes (Shigeo Kimura)

2) Exercise During Pregnancy Reduces the Risk of Type-2 Diabetes in Offspring (Joji Kusuyama)

3) A Host-Guest Electron Transfer Mechanism for Magnetic and Electronic Modifications in a Redox-Active Metal–Organic Framework (Jun Zhang)

4) Cosmic Birefringence Triggered by Dark Matter Domination (Masaki Yamada)

5) Electrochemically Synthesized Liquid-Sulfur/Sulfide Composite Materials for High-Rate Magnesium Battery Cathodes (Kohei Shimokawa)

2022.12

Frontier Research Institute for Interdisciplinary Sciences, Tohoku University

東北大学 学際科学フロンティア研究所 | Frontier Research Institute for Interdisciplinary Sciences

2022

FRONTIER RESEARCH INSTITUTE FOR INTERDISCIPLINARY SCIENCES

Materials and Energy

Life and Environments

Information and Systems

Devices and Technology

Humans and Society

Advanced Basic Science

Outline

The Frontier Research Institute for Interdisciplinary Sciences (FRIS) was established in April 2013. It consists of the Managing and Planning Division, the Advanced Interdisciplinary Research Division, and the Creative Interdisciplinary Research Division. The Managing and Planning Division and the Advanced Interdisciplinary Research Division are staffed with four professors, three associate professors, and two specially appointed associate professors (the University Research Administrators), while the Creative Interdisciplinary Research Division is staffed with young researchers holding tenure-track positions (45 assistant professors, three associate professors as of June 1, 2022). The faculty members belong to one of the following six areas, from the viewpoint of interdisciplinary research: “Materials and Energy,” “Life and Environments,” “Information and Systems,” “Devices and Technology,” “Humans and Society,” and “Advanced Basic Science.”

What We Do

Our objective is to contribute to the enrichment of human society by supporting the work of young researchers through collaboration with each graduate school and research institute, as well as the Division for Interdisciplinary Advanced Research and Education in Tohoku University. We aim to pioneer and promote interdisciplinary research by collaboration among different fields.

How We Do It

While working primarily in their core disciplines, researchers promote interdisciplinary research through exchange and collaboration with researchers from different fields. To support these efforts, FRIS has established the Managing and Planning Division to facilitate cooperation among the six research areas. Additionally, the Managing and Planning Division provides support for collaboration with other departments within Tohoku University, as well as other universities.

Performance of FRIS

247	4.12	1.64	15.2%
Number of publications in 2021	Number of publications per researcher in 2021	Field Weighted Citation Impact by publications in 2015-2020	Ratio of publications in 2015-2020 in the top 10% of FWCI

Message

FRIS is a unique research institute whose mission is to create new knowledge and value through interdisciplinary research that fuses different fields, and to contribute to the development of a prosperous human society. A key feature of FRIS is fostering young researchers who promote interdisciplinary research across academic fields through the cooperation of the entire university. Every year, we recruit young researchers of all disciplines from around the world. In our selection process, we emphasize the perspectives of diversity of research domain, gender, and nationality, as well as interdisciplinary aspects. FRIS provides opportunities for exchange between researchers from different fields, offers a mentor system through cooperation with other departments/institutes, and secures an independent research environment for developing principal investigators (PIs). Furthermore, Tohoku University provides budget support to allow young researchers to focus on their own research.

Our full-time professors from various fields have produced a variety of cutting-edge research results such as research and development of novel materials and devices based on these materials that have excellent functional properties. These results have led to many collaborative research projects with industry partners. FRIS has also produced outstanding results in life sciences and astrophysics. Furthermore, our young researchers are producing world-class research that has opened doors to new fields of study. Twelve researchers have won the Young Scientists’ Award of the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology, nine have been selected for the PRESTO program, and seven have been chosen in the FOREST program.

Recently, FRIS has been focusing on establishing a mechanism through our tenure track system to enable our young interdisciplinary researchers to be active around the world, strengthening the FRIS alumni network, and looking ahead to the post-COVID-19 future by promoting further exchange among researchers from different disciplines in the Tohoku Initiative for Fostering Global Researchers for Interdisciplinary Sciences (TI-FRIS) program.

As an international and interdisciplinary research institute, FRIS will continue to support young researchers to create new interdisciplinary science, promote world-class research, stimulate exchange among researchers from different disciplines, build networks, and disseminate research results. I hope that researchers who understand the importance of interdisciplinary exchange and pioneer new interdisciplinary research will illuminate the future of the world by joining FRIS.

The aspirations of
researchers pioneering
new interdisciplinary science
will open the gates to
the future of advanced research.

Professor **Toshiyuki Hayase**

Director,
Frontier Research Institute for Interdisciplinary Sciences,
Tohoku University

Professor Hayase has been the director of FRIS since 2018. His research interests are flow stability, flow control, flow in living organisms e.g., blood, its application to medical engineering, and the integration of flow simulation and measurement methods.

FRIS Triangle

FRIS has three missions at the heart of its activities.

1 Promoting Advanced Interdisciplinary Research

Faculty members of the Advanced Interdisciplinary Research Division promote advanced, highly interdisciplinary research internationally by integrating different fields of study, based on their own specialized research fields.

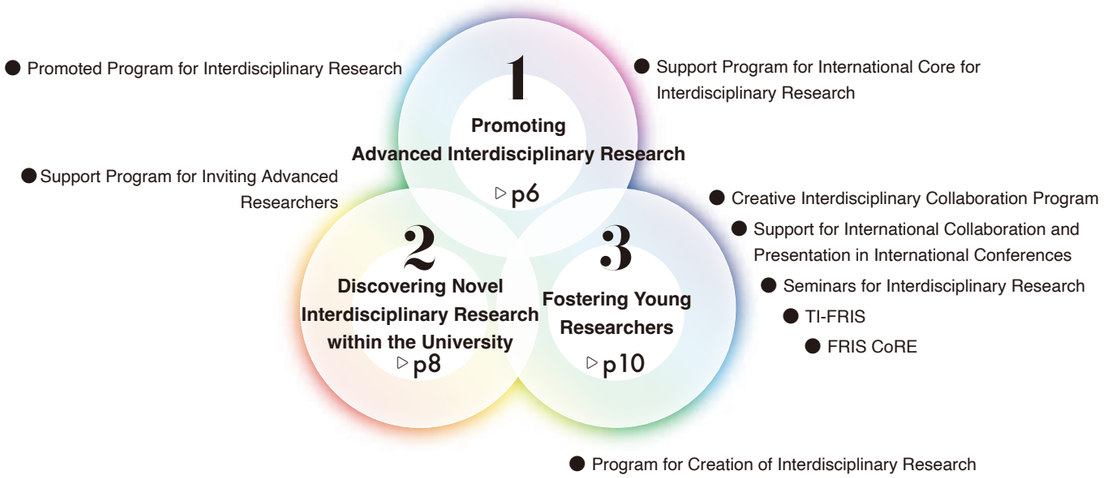
2 Discovering Novel Interdisciplinary Research within the University

FRIS aims to create new research fields by discovering and supporting next-generation interdisciplinary research projects, led by young researchers of FRIS and other departments at Tohoku University, that are emerging, innovative, pioneering, and rich in individuality.

3 Fostering Young Researchers

FRIS works to actively support young researchers in the Creative Interdisciplinary Research Division in planning, promoting, and developing new international interdisciplinary research as Principal Investigators (PIs) and aims to develop talent with advanced research skills for the next generation.

To realize these missions, FRIS has implemented a variety of research support programs that are easy for researchers to utilize as part of its unique efforts. The three missions—promoting interdisciplinary research, discovering and supporting new research and fostering young researchers—are also the identity of FRIS. When these are carried out in close coordination and collaboration with each other, they enhance the activities of the whole institute, while also leading to the creation of knowledge and value for the next generation.

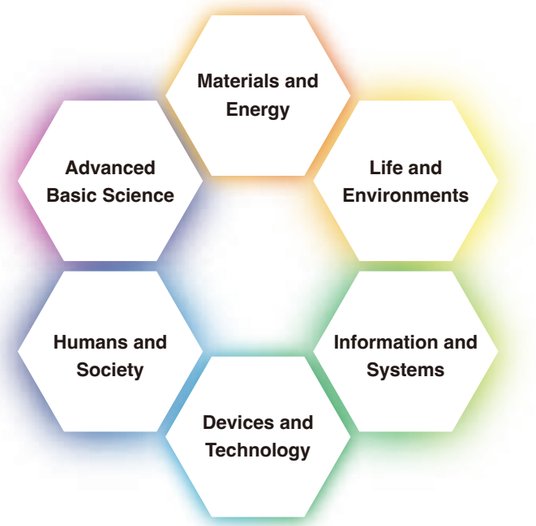


Six Research Areas

FRIS has established six research areas covering almost all academic disciplines.

- **Materials and Energy**
- **Life and Environments**
- **Information and Systems**
- **Devices and Technology**
- **Humans and Society**
- **Advanced Basic Science**

FRIS researchers focus on their own research fields, but they also aim to go beyond their core research fields to pursue cross-disciplinary fusion and actively engage in exchange and collaboration with researchers in other fields.



Divisions

Two Research Divisions and the Managing and Planning Division

FRIS consists of the Advanced Interdisciplinary Research Division, in which full-time faculty members are assigned to each field of study; the Creative Interdisciplinary Research Division, in which young researchers conduct advanced research across disciplines; and the Managing and Planning Division, which supports the research divisions' activities.

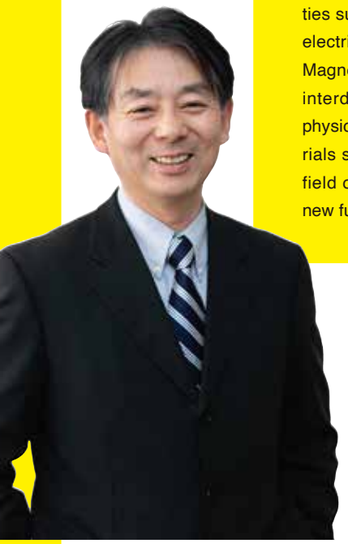
Mission 1

Promoting Advanced Interdisciplinary Research

Full-time faculty members in the Advanced Interdisciplinary Research Division have their own perspectives to promote high-level interdisciplinary research in six research areas. FRIS further supports the advancement of cross-sectional research by offering open-space environments to exchange ideas and information among different fields.

Performance of FRIS
[Senior Researchers]

40	5.71	2.69	15.1%
Number of publications in 2021	Number of publications per researcher in 2021	Field Weighted Citation Impact by publications in 2015-2020	Ratio of publications in 2015-2020 in the top 10% of FWCI



When metals and ceramics are composited at nanoscale, they exhibit unprecedented functional properties. We have discovered new multi-functional properties such as the Tunneling Magneto-Dielectric (TMD) effect and the Tunneling Magneto-Optical (TMO) effect. Through interdisciplinary research in magnetic physics, medical engineering, and materials science, we are pioneering a new field of nano-composite thin films with new functions.

Professor
Hiroshi Masumoto
Materials and Energy

RESEARCH TOPICS
- Tunneling Magneto-Dielectric (TMD) and Tunneling Magneto-Optical (TMO) effect materials by metals-ceramics nano composite structures
- Development of osteoconductive implant materials by plasma oxidation of metallic titanium

Analyzing the interfaces between the electrolyte solutions and the electrodes for lithium secondary batteries, fuel cells, next generation batteries and molecular electronic devices is important for developing electrochemical energy conversion devices. Our present study investigates the behavior of molecules at the interface with In situ Raman spectroscopy and focuses on the dynamical changes in the Raman spectra at different battery conditions.

Associate Professor
Takashi Itoh
Materials and Energy

RESEARCH TOPICS
- In situ Raman spectroscopy for battery active materials
- Development of Zinc-air batteries, Lithium secondary batteries and fuel cells

I am a member of the theory team in the Event Horizon Telescope consortium, which captured the first-ever image of a black hole. Every day at FRIS, I am stimulated by chats with colleagues in other research fields. I also have published omnibus books with young researchers from FRIS and DIARE.

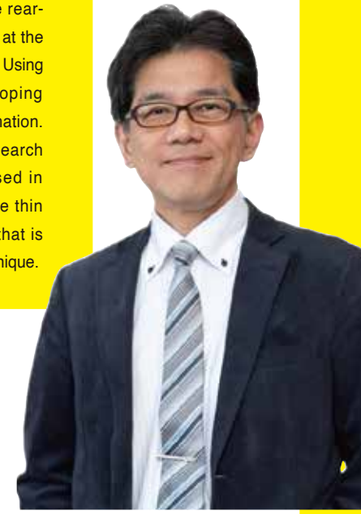
Associate Professor
Kenji Toma
Advanced Basic Science

RESEARCH TOPICS
- Astrophysics: theory, simulations & observations

We have proposed an atomic diffusion bonding method for bonding wafers of different materials at room temperature using the rearrangement of crystal lattices at the contact interface of thin films. Using this method, we are developing research on new device formation. We are also working on research on functional thin films used in electronic devices using the thin film deposition technology that is the basis of the bonding technique.

Professor
Takehito Shimatsu
Information and Systems

RESEARCH TOPICS
- Atomic diffusion bonding technique for electric/optical devices.
- High density MAMR/HAMR recording media.



Novel material properties induced by nanoscale local crystal structures are attracting attention. It is difficult to analyze such local structures with the use of conventional structure analysis methods. We have been developing a three-dimensional local structure analysis method by combining electron diffraction techniques with information science such as machine learning.

Professor
Kenji Tsuda
Advanced Basic Science

RESEARCH TOPICS
- Development of a method to analyze 3D nanoscale local crystal structure and electrostatic potential using convergent-beam electron diffraction (CBED)
- Application of machine learning to simulations of multiple scattering of electron diffraction

We are interested in the relationship between nanomechanics in the cell and cellular morphogenesis. We are analyzing how and why disruption of the cellular nanomachines in our body, such as molecular motor proteins and cytoskeletal proteins, leads to human diseases such as neurodegeneration, infertility, and blindness.

Associate Professor
Shinsuke Niwa
Life and Environments

RESEARCH TOPICS
- Molecular motors
- Axonal transport

Random atomic structured materials such as amorphous or metallic glass have significantly different properties with those of conventional crystalline alloys and are anticipated to have industrial uses in the next generation. We address an important challenge by controlling the relaxation behavior of glasses to improve their mechanical properties and to contribute to their applications.

Professor
Junji Saida
Advanced Basic Science

RESEARCH TOPICS
- Control of relaxation state in metallic glass
- Development of mechanical properties of metallic glass

Mission 2

Discovering Novel Interdisciplinary Research within the University

One of the important missions of FRIS is to discover and support the development of the seeds of interdisciplinary research that exist not only at FRIS but throughout Tohoku University. In order to provide not only funds, equipment, and spaces, but also opportunities for active exchange with researchers in other fields, FRIS offers three open research programs at different stages (“Creative Interdisciplinary Collaboration Program,” “Program for Creation of Interdisciplinary Research,” and “Promoted Program for Interdisciplinary Research”). In addition, since international collaboration is indispensable for fostering world-leading research, the Support Program for International Core for Interdisciplinary Research has been implemented to support international collaborative research.

Although some of the titles and details of the programs have changed, a review of the achievements of these programs over the past 20 years shows that FRIS has been a pioneer in the development of current major academic research fields. The results of supported programs are often awarded prizes or featured in the press due to their advanced nature and newsworthiness, highlighting their importance for discovering and supporting interdisciplinary research.

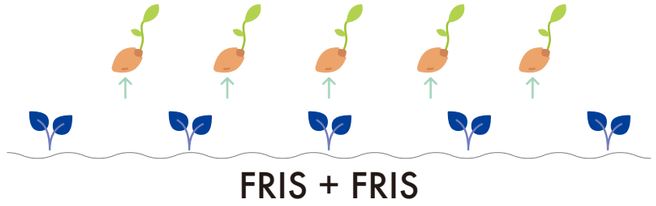
Process

〔Diverse research seeds〕

Programs

Creative Interdisciplinary Collaboration Program

Promoting Diverse Interdisciplinary Research by Young Researchers: A two-year grant to promote interdisciplinary research activities by young researchers affiliated with FRIS. This program is intended to meet the diverse needs of these researchers.

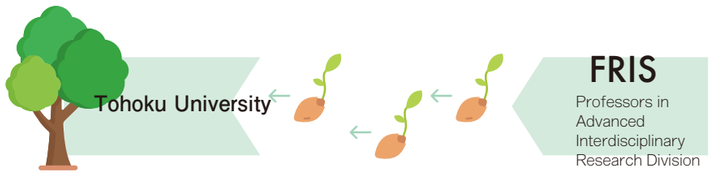


Program for Creation of Interdisciplinary Research

Exploring the Seeds of Next-generation Interdisciplinary Research: A two-year grant to support early-stage pioneering interdisciplinary research. It is open to young researchers in Tohoku University.

Promoted Program for Interdisciplinary Research

Developing Advanced Interdisciplinary Research: A three-year grant open to research groups led by faculty members of the Advanced Interdisci- plinary Research Division, which supports research projects aimed at pioneering a novel inter- disciplinary field with growth potential.



Support Program for International Core for Interdisciplinary Research

Forming International Hubs of Interdisciplinary Research: A program to support interdisciplinary research conducted with overseas partners that opens new frontiers of science.

Mission 3

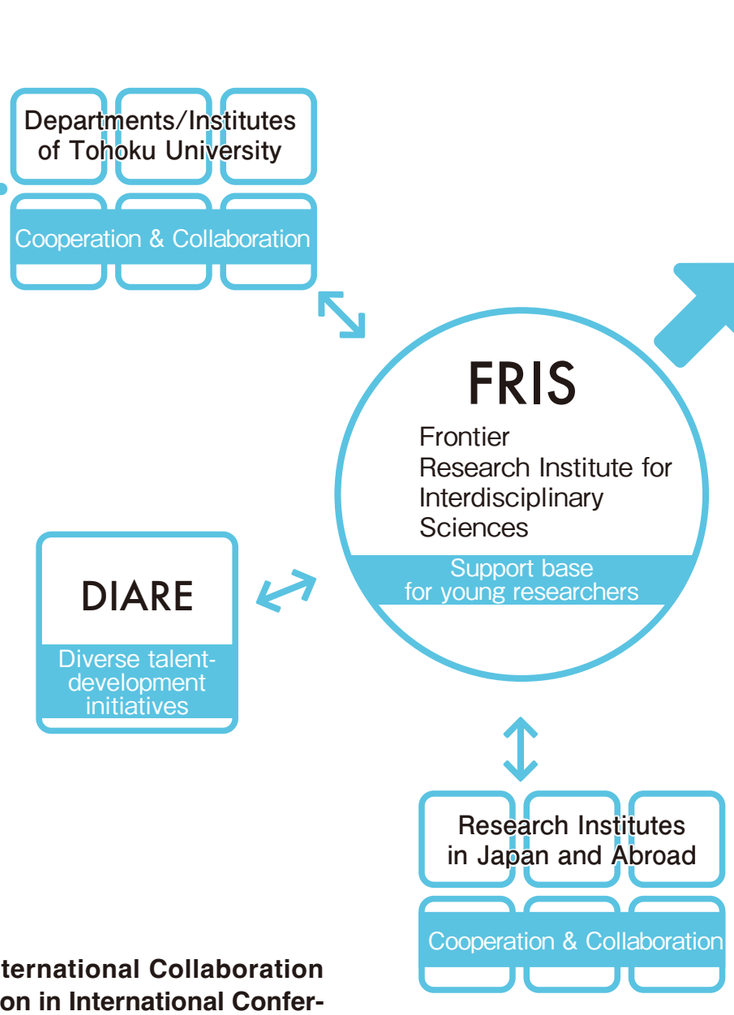
Fostering Young Researchers

FRIS selects and supports young researchers who conduct interdisciplinary exploratory research from new perspectives through international open recruitment. Selected candidates are assigned to FRIS as assistant professors (principal investigators) of the Creative Interdisciplinary Research Division, and collaborate with members in graduate schools, institutes, and the Division for Interdisciplinary Advanced Research and Education (DIARE) in an independent research environment. By supporting promising young researchers who will lead the next generation, FRIS aims to create new academic fields and foster top-level researchers who are active on the global stage.

Performance of FRIS
[Young Researchers]

213	4.02	1.39	14.9%
Number of publications in 2021	Number of publications per researcher in 2021	Field Weighted Citation Impact by publications in 2015-2020	Ratio of publications in 2015-2020 in the top 10% of FWCI

Diagram



● Cooperation with Departments and Research Institutes

Fostering young researchers at FRIS is conducted in close cooperation and collaboration with the university's graduate schools and research institutes. Young researchers in the Creative Interdisciplinary Research Division are assigned professors or associate professors from Tohoku University as mentors who provide support such as access to research space and facilities. Each young researcher is, however, guaranteed an independent research environment. Young researchers are expected to manage their own budgets and research projects in order to develop their PI skills and achieve excellent research results. In addition, the mentors, their department heads, and related department heads are kept informed of the research activities of each young researcher. Mentor departments are also queried about the possibility of employment to support young researchers in obtaining stable positions.

● Division for Interdisciplinary Advanced Research and Education (DIARE)

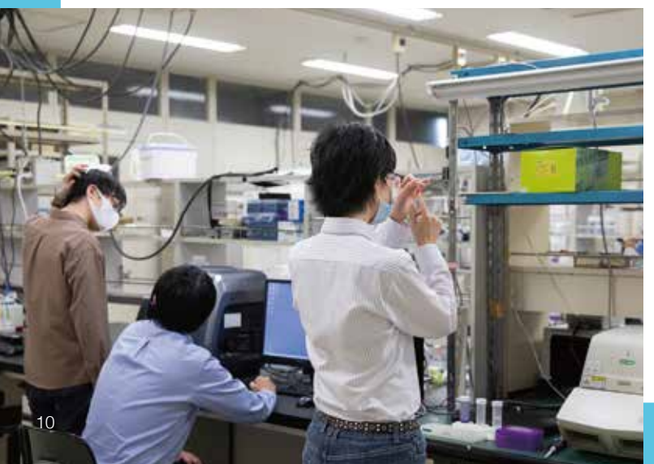
Assistant professors at FRIS collaborate with graduate students selected by DIARE in a variety of seminars, and for planning and executing symposiums. They maintain close cooperation through research and education.

● Shoshi Program

It is difficult for young researchers to develop their skills and careers in fields of interdisciplinary research where competitive funding is scarce and the potential for achievement is hard to forecast. Since society needs talented people possessing broad perspectives and multifaceted thinking, MEXT funds programs that encourage the development of such talent. FRIS recruits young researchers interested in interdisciplinary research from all over the world (for five-year terms) and covers their research expenses (up to 2.5 million yen).

● Open Access Journal Publication Support Program

The purpose of this program is to support publication costs when an assistant professor belonging to the Creative Interdisciplinary Research Division publishes excellent results in a high-impact open access journal.



● Support for International Collaboration and Presentation in International Conferences

The purpose of this program is to foster internationally active young researchers and form networks for international interdisciplinary research. FRIS provides for the expenses for despatching young researchers engaged in international collaborative research to overseas research institutes for two to four weeks, and the travel expenses to young researchers and graduate students giving presentations at academic conferences outside Japan.

Mission 3

Seminars, Workshops, Omnibus Lectures

Fostering Young Researchers

FRIS regularly organizes seminars and workshops to promote interdisciplinary research and plans, and it implements a wide range of in-depth discussions with members from all fields. FRIS also promotes collaborative activities with other universities in the Tohoku region (TI-FRIS) and the construction of common research equipment covering multiple fields (FRIS CoRE).

Hub Meeting

Once a month, all FRIS members get together for a research presentation seminar. TI-FRIS Fellows and researchers and students from departments and institutes within the university also participate in the meeting, and breakthroughs are shared through cross-disciplinary discussions.

FRIS Retreat

Once a year, all FRIS members meet off-campus to exchange ideas from different fields. The free discussions in a place apart from the usual university environment create opportunities for new discoveries.

Joint Interdisciplinary Research Seminar

About once a month, FRIS, in collaboration with the Division for Interdisciplinary Advanced Research and Education (DIARE), holds a joint interdisciplinary research seminar with doctoral and master's students selected by DIARE. In summer, about 150 people join a big poster session as the FRIS/DIARE Joint Workshop.

Various Research Exchange Activities

FRIS supports young researchers with independently planning seminars and workshops. FRIS also offers lectures by young researchers in an omnibus format, as part of Tohoku University's educational programs.

Posters for various research exchange seminars

TI-FRIS
| 学際融合東北拠点 |

TI-FRIS

The Tohoku Initiative for Fostering Global Researchers for Interdisciplinary Sciences (TI-FRIS), led by Tohoku University, is a consortium of universities in the Tohoku region, including Hirosaki University, Iwate University, Akita University, Yamagata University, Fukushima University, and Miyagi University of Education, as well as the Mitsubishi Research Institute. In partnership with cooperating research institutions and companies in Japan and abroad, the initiative is building a new researcher development program covering the whole Tohoku region that will foster world-class researchers with interdisciplinarity, internationality, and sociability.

FRIS CoRE

An environment where young independent researchers can take on the challenge of pioneering academic fields

To maintain a world-class research level, it is indispensable to provide young researchers with an unconfined environment where they can tackle high risk-high pay-off issues with their fresh ideas. As the research and education budget from the Japanese government continues to decline, the number of young researchers who can conduct interdisciplinary research as independent researchers is limited. To this end, FRIS proposes to support young researchers by establishing a Cooperative Research Environment (CoRE). CoRE refers to an environment in which daily experiments of various research fields can be freely performed under one roof, accelerating interdisciplinary interaction.

“Does it excite me?” That’s the criteria for deciding whether to work on something

● Please describe your current research.

I am working on multiple themes at the same time. My central interest is facial reconstruction, where I work with a skull to restore the facial features that the person used to have. This is used in biological anthropology to understand how the shape of our faces has changed and what people used to look like in the past. Until now, most of the data used in facial reconstruction research has been collected from corpses (donated bodies), but to be able to do this work more accurately, it is my job to bring together data that can be used for facial reconstruction. I do this by collecting CT information from contemporary people, taking 3D scanned images of facial morphology, and measuring the thickness of detailed soft tissue, while also taking into account information about the bite, which affects the facial morphology. In the future, I plan to automate facial reconstruction using AI.

● What are the unique features and appeal of working at FRIS?

The moments of strongest appeal for me are those when I can apply my skills to a completely different field. It's wonderful to be able to get ideas when I'm stuck with something, but it's also an exciting experience to be involved and collaborate in research in fields that are totally unfamiliar to me. To be more specific, last month, Dr. Yuji Saito, who is researching rocket fuel at FRIS, came to me with a request saying that he “wants to compare fuel morphology before and after combustion.” I responded by saying that “given the size, I would suggest using a medical CT.” In forensic autopsies, a CT scan is taken before the autopsy to ensure that the cause of death is not overlooked and to investigate the cause of death more efficiently. I wouldn’t think that rocket fuel researchers normally have access to CT equipment. While studying for my doctorate, I was working on 3D analysis. So I have the skills to take images obtained by CT to create stereoscopic images, to measure the volume and area, and to investigate where changes such as cracks have occurred.

Within a few weeks of Dr. Saito approaching me, I am at the stage where I have been able to photograph and analyze the materials. I think that a major factor in why I was able to carry these out so smoothly after receiving the request is that we were acquaintances, both working at FRIS. I can see that what we have here is a truly interdisciplinary process taking place as we speak.

The CT imaging of fuel is, in and of itself, not quite novel enough, and it may still be some time before my research yields any significant results, but I have a feeling that the results will be interesting.

I also feel that the connections I have with various academics right now will grow into something significant in the future. I currently take a deep interest in a range of different fields, and I'd like to form teams with academics with whom I've made connections within these areas and take on a major research theme.

Bringing together different skills and approaches is sure to give the research a dramatic boost, and it will make it fun, over and above anything else.

Yuka Hatano
Assistant Professor

Research Area／Humans and Society

Research Fields／Biological Anthropology, Forensic Medicine, Human Anatomy

Main Research Topics／Three-dimensional analysis of human face and its application to facial approximation, Tracing the populational history of the Japanese using morphological analysis of tooth crown of skeletal remains

Others

Outreach Activities, etc.

■ TI-FRIS/FRIS Symposium

The symposium is held jointly with TI-FRIS at the end of each fiscal year as an opportunity for interdisciplinary research exchange, and faculty members and principal investigators from research support programs of FRIS and TI-FRIS Fellows present their research results.

■ Katahira Matsuri Festival

FRIS participates in the Katahira Matsuri Festival, held every other year as a joint public event of Tohoku University's research institutes and centers. FRIS members will present their research activities and share the wonders of science.

■ Lectures, etc.

FRIS members have individually organized a number of public events related to their research. These have included lectures by researchers as well as writers, artists, astronauts, and other celebrities, and hands-on research events for high school students.

■ Book Publication

Two volumes of the omnibus book on the significance and appeal of interdisciplinary exchange were published by young researchers from FRIS and DIARE doctoral course students (Hyakkaryoran: Young Researchers' Interdisciplinary Frontiers, Tohoku University Press). Other FRIS members have also published books in various fields.

FRIS Annual Meeting

Katahira Matsuri Festival

Managing and Planning Division

Website

FRIS news

Support and Dissemination of Interdisciplinary Research Activities

Research Administorators (URAs) of FRIS conduct the following activities to inspire researchers who are involved in interdisciplinary research and to encourage them to broaden the scope of their work.

■Collecting results, preparing evaluation materials, managing websites, and producing PR materials.

■Managing and administering research admissions and faculty recruitment for the Creative Interdisciplinary Research Division.

■Providing support for planning and organizing seminars, workshops, and symposia.

For inquiries　Email: ura@fris.tohoku.ac.jp

◀Specially Appointed Associate Professor Kazuyuki Suzuki

◀Specially Appointed Associate Professor Hideaki Fujiwara

Profiles of young researchers

Materials and Energy

Assistant Professor
Hiroshi Ueno
Research Fields Physical organic chemistry, Nanomaterials science

Assistant Professor
Tuan Hung Nguyen
Research Fields Fundamental theory and simulation of materials intelligence for energy applications

Assistant Professor
Yuji Saito
Research Fields Micro-diffusion flame, Space propulsion, Metal/water combustion, Data-driven sparse sensing

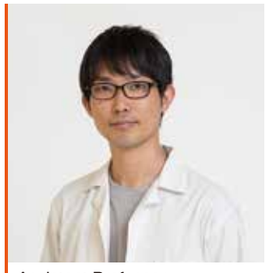
Assistant Professor
Tomomi Tsunematsu
Research Fields Sleep research using mice, Electrophysiology

Assistant Professor
Hideaki T. Matsubayashi
Research Fields Synthetic Biology, Cell Biology, Biophysics

Profiles of young researchers

Information and Systems

Assistant Professor
Sai Sun
Research Fields Cognitive and Social Neuroscience, Psychephysics, Neuroeconomics



Assistant Professor
Kohei Shimokawa
Research Fields Energy materials, Electrochemistry

Assistant Professor
Jun Zhang
Research Fields Coordination Chemistry, Porous Magnets, Gas Sorption

Assistant Professor
Takuya Mabuchi
Research Fields Quantum engineering, Molecular fluid engineering, Material science and engineering

Assistant Professor
Yang Cao
Research Fields Nano magnetism, Materials processing engineering

Assistant Professor
Le Bin Ho
Research Fields Quantum foundation, Quantum measurements, Quantum computing

Assistant Professor
Kotaro Yasui
Research Fields Bioinspired robotics

Profiles of young researchers

Devices and Technology

Assistant Professor
Hiroya Abe
Research Fields Biosensor, Energy catalysts, Polymer chemistry, Biomaterials, Bioinspired materials

Assistant Professor
Masanori Wakizaka
Research Fields Coordination Chemistry, Nanomaterial Science

Profiles of young researchers

Life and Environments

Assistant Professor
Toshiharu Ichinose
Research Fields Behavioral genetics, Memory consolidation, Dopamine modulation

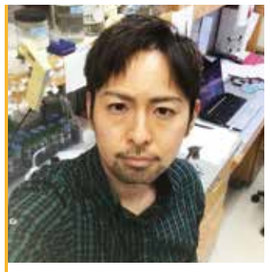
Assistant Professor
Yuta Kudo
Research Fields Natural product chemistry, Organic chemistry, Biochemistry

Assistant Professor
Takuro Ishii
Research Fields Medical ultrasound imaging, Biofluid dynamics, Computer-aided diagnostics, Urology

Assistant Professor
Yuanyuan Guo
Research Fields Bioelectronics, Multifunctional fibers and sensors, Neural engineering

Assistant Professor
Chaoliang Zhang
Research Fields Spintronics, Magnetism, Magnetic materials

Assistant Professor
Kaoru Hiramoto
Research Fields Analytical electrochemistry



Assistant Professor
Joji Kusuyama
Research Fields Endocrinological Metabology, Exercise Physiology, Oral Biology

Assistant Professor
Shinichi Sato
Research Fields Synthetic Organic Chemistry, Chemical Biology

Assistant Professor
Kozue Shiomi
Research Fields Behaviour, Movement Ecology, Cognitive Ecology

Assistant Professor
Kyoko Chiba
Research Fields Biochemistry

Assistant Professor
Chrystelle Bernard
Research Fields Dynamics behavior of polymers, cold-spray

Assistant Professor
Yuta Yamane
Research Fields Condensed Matter Physics and Spintronics

Profiles of young researchers

Humans and Society

Associate Professor
Kohei Tamura
Research Fields Anthropology, Cultural evolution, Archaeological informatics

Associate Professor
Kaoru Kakinuma

Research Fields Sustainability, Socio-ecological system, Climate change and migration

Assistant Professor
Yueh Hsuan Weng

Research Fields AI and Law, Legal informatics, Social robotics, Robot ethics

Assistant Professor
Tomokatsu Onaga

Research Fields Network science, Mathematical modelling

Assistant Professor
Kexin Xiong

Research Fields Psycholinguistics, Neurolinguistics, Second Language Acquisition

Assistant Professor
Shigeo S. Kimura

Research Fields Astrophysics, Astroparticle physics

Assistant Professor
Hakuto Suzuki

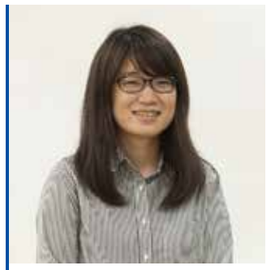
Research Fields Unconventional Superconductivity, Quantum Magnetism, Resonant Inelastic X-ray Scattering

Assistant Professor
Aseel Mahmoud Suleiman Marahleh

Research Fields Osteoimmunology, Molecular and cell biology

Assistant Professor
Atsushi Tahara

Research Fields Organometallic/Organic Chemistry, Computational study



Assistant Professor
Sakura Kiuchi

Research Fields Preventive dentistry, Public health

Assistant Professor
Alimu Tuoheti

Research Fields History of thought, Religious studies, Theory of comparative culture, Area studies

Assistant Professor
Yuta Nakayasu

Research Fields Materials processing engineering, Eco-friendly lifestyle creation

Assistant Professor
Yuka Hatano

Research Fields Anthropology, Dentistry, Forensic medicine, Three-dimensional analysis

Assistant Professor
Masaki Yamada

Research Fields Particle physics, Cosmology

Associate Professor
Masaki Okumura

Research Fields Structural biology, Protein Science, Biochemistry

Assistant Professor
Kohei Ichikawa

Research Fields Observational astronomy, Astrophysics

Assistant Professor
Satoshi Iihama

Research Fields Magnetism, Spintronics, Photo-spintronics

Assistant Professor
Yasunori Okamoto

Research Fields Bioinorganic chemistry, Protein engineering, Systems catalysis

Assistant Professor
Yohei Kawazura

Research Fields Plasma physics, Turbulence, Hamiltonian mechanics

Assistant Professor
Daniel Pastor-Galan

Research Fields Geology

Assistant Professor
Naoya Kitajima

Research Fields Physics of the early universe, Particle physics beyond the standard model

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