FY2021

FOREST PROGRAM

Call for Research Proposals

[Application Guidelines]

Application Call Period

Thursday, April 1st ~ 12:00 (noon, Japan time) on Wednesday, June 2nd, 2021

Note: This translation is provided as a reference material. If there is any discrepancy between this translated version and the original Japanese version, the original Japanese version prevails.

Office of Disruptive Research

Japan Science and Technology Agency

April 2021

A message for researchers interested in FOREST program

The unprecedented situation we have ever experienced in the form of the spread of the novel coronavirus infection is gradually moving into a new stage in which the spread of the infection is being controlled while the socio-economic activities are being resumed in earnest.

Looking at the world in the future, it is expected that the competition among countries for innovation supremacy will become even more intense.

Under these circumstances, in order for Japan to create outcomes that will lead to disruptive innovation on a par with the rest of the world, it will become increasingly important to create an environment where researchers can focus on ambitious, high-risk research initiatives.

The Ministry of Education, Culture, Sports, Science and Technology has established a new program to provide mainly young researchers with an unprecedented maximum of 10 years of research funding and also secure research environment in which they can devote themselves to their research.

This program emphasizes the qualities of researchers and supports FOREST (Fusion Oriented REsearch for disruptive Science and Technology) with considerations for diversity and fusion doing away with short-term performance-based approaches, and aims to produce outcomes that will lead to disruptive innovation. Furthermore, in order to enable the selected researchers to exercise their abilities to the fullest, it is expected that the affiliated institutions will make efforts to improve their research environment and that the related parties lead mainly by the Japan Science and Technology Agency will provide comprehensive support.

It is my hope that, making the most of these characteristics, this program will produce outcomes that will lead to Nobel Prizes in the future. I also strongly hope that the experiences and knowledge gained through the program will spread to the initiatives by other programs and universities, and improve the overall research environment in Japan.

We would like to invite many people with high aspirations to apply for this program which has attracted high expectations from various fields.

It is also my hope that, with high aspirations of becoming a leading researcher of our country in the future, you will continue to boldly take on challenges without fear of risks, actively interact with a wide variety of researchers, including those in other fields, inspire and learn from each other in a friendly rivalry, and make great strides.

June 1st, 2020

Koichi HAGIUDA

Minister of Education, Culture, Sports, Science and Technology

Introduction: Overview of the Call for Research Application

(1) Call for Research Applications and Selection Schedule

The schedule for the call for applications and selection of research applications for FY2021 is as follows. FOREST invites applications for challenging and original research that requires long term endeavor without fear of failures, targeting research fields related to science and technology with the potential to create seeds that will lead to disruptive innovation

The call for research applications will be conducted via the Cross-ministerial R&D Management System (e-Rad). Those applications which have not completed the application process by the specified deadline will not be accepted for any reason.

Please note that, for the FY2021 call, only one application will be accepted per applicant regardless of the affiliated institution at the time of the application. In addition, the program plans to hold three calls for research applications in FY2020, FY 2021 and 2022, and up to two applications can be made per applicant regardless of the affiliated institution at the time of the application.

For details, please read and understand the section "2.1.3 Limitations on the Number of Applications" before applying.

Call for research application start	**Thursday, April 1st, 2021**
Application deadline (Deadline date and time for the submission of applications via the Cross-ministerial R&D Management System [e-Rad])	**Wednesday, June 2, 2021** **12:00 pm (noon)** **<Strictly enforced>**
Document screening period	Early June to mid-September
Notification for interviewees	Late August to early October
Interview screening period	Late September to mid- November
Notification/Announcement of selected projects	Sequential notification and announcement in late November and later
Research start	Sequential start after January, 2022

* The double underlined dates have been confirmed, but all other dates are tentative. They are subject to change in the future.

* The selection schedule and contact details will be announced on the Call for Research Applications website as soon as they are determined.
https://www.jst.go.jp/souhatsu/call/index.html

Those selected for interview screening will be notified by email during the "Notification to Interviewees" period and asked to prepare interview materials (No written correspondence will be sent. The notification will be sent to

the email address registered on the e-Rad. Make sure to set it as ready to receive). Please note that those applicants who are likely to be selected as a result of the interview screening may be contacted by JST (by phone or e-mail) to confirm whether or not the Collaborative Research Agreement can be completed in late October or later.

(2) Submission of Research Proposal

Please download the documents needed for research application including application form from the "Call for Research Proposals" website. Some of the application forms are customized according to the Research Area so please make sure that you have downloaded the application form from the website of Research Area which you are going to apply.

Research proposal applications are processed by the e-Rad system (https://www.e-rad.go.jp/) (Chapter 5). Some items on the e-Rad registration system are unique to this program; therefore, make sure to read the instructions carefully. If you fail to follow the instructions correctly, your registration will not be processed during screening.

As the application deadline approaches, heavy demands on the e-Rad system could slow down the application processing speed and even cause the application deadline to be missed. Please give yourself enough time to complete submission of proposal. **Withdrawal of the application is strictly prohibited after the deadline. JST will not accept proposals, which the application process have not been completed in the e-Rad system by deadline for any reason.** Please note that JST may give direction **on the "Call for Research Proposals" website** in case such as cause of e-Rad system trouble which untenable to submit the application during the application call period.

The name and affiliation of applicant in the e-Rad system and those given in research proposal should be matched (In case it differs, the research proposal will be considered as official). The application of a research proposal is not received by the e-rad system if it contains serious defects, which make the review of proposal difficult, including the lack of application form 1 (cover sheet of research proposal), serious character corruptions, and omissions of important items of the application forms.

JST is not responsible for any defects in allocation forms of a research proposal, which may be caused by any reasons before submission deadline, regardless of its status of receival. JST askes, therefore, all research proposal applicants to understand that we will not require them to make any revisions of their research proposals, obtaining their consents on correction in advance, before research proposal submission deadline.

If the schedule for the call for applications may change, its details of the change will be announced on the Call for Research Applications website. Please refer to the following website and Chapter 2, 4 and 5 of this application guideline regarding submission of research proposal and items to be considered in application.

・Call for Research Applications Website:

https://www.jst.go.jp/souhatsu/en/call/index.html

- The way to apply the Research Proposal:

  “Chapter 2: Call for and Selection of Applications”, “Chapter 5: How to Apply Using the Cross-ministerial R&D Management System (e-Rad)”, appendix document “How to Apply Using the Common R & D Management System (e-Rad)” (in Japanese), “Chapter 6: FOREST PANEL” and e-rad user manual; https://www.e-rad.go.jp/en/manual/for_researcher.html

- The items to be considered in application:

  “Chapter 4: Key Points in Submitting Proposals”

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Chapter 1. Call for Research Applications

1.1 Overview

1.1.1 Outline of FOREST Program

In order to promote FOREST (Fusion Oriented REsearch for disruptive Science and Technology) program aiming to create seeds that lead to disruptive innovation through diversity and fusion without setting specific projects or short-term goals, this program provides long-term support for unrestricted, challenging and fusion-oriented diverse research not bound by the existing frameworks, for the period of seven years in principle (with an interim stage-gate review, up to 10 years in maximum) while securing an environment in which researchers can devote themselves to their researches.

Specifically, the program calls for challenging and diverse research plans from mainly young independent, or prospective independent, researchers at universities and other research institutions. Although the eligible institutions for FOREST are limited to domestic research institutions, Japanese researchers who are not affiliated with domestic institutions at the time of the selection will be granted an eligibility to withhold the commencement of research for a certain period until they are transferred to the domestic institutions where the research will be conducted. Therefore, active applications from researchers who belong to foreign institutions are also welcome.

Upon selection, it is aimed to ensure maximizing the researcher's (hereinafter referred to as "FOREST researcher") discretion and secure an appropriate research environment suitable for the execution of FOREST with the support of the university or other research institution with which the FOREST researcher is affiliated. In addition, in order to promote FOREST, a "Place of Fusion" to enable mashup of the abilities and ideas of FOREST researchers will be created under the guidance of a program officer (hereinafter referred to as "FOREST PO") who will mentor FOREST researchers to promote initiatives that lead to creative and integrated outcomes. Furthermore, it is separately planned to introduce new systems that will bring out the motivations and abilities of the researchers, such as a system that allows flexible research interruptions and subsequent extensions, and additional support for improving the research environment, aiming at creating the seeds for disruptive innovation by maximizing the motivation and the research time of the talented human resources.

1.1.2 FOREST Operations

The FOREST Program Director (PD) Committee (hereinafter referred to as the "FOREST PD Committee") is responsible for reviewing, planning, and selecting operational policies for the program as a whole. Based on the deliberation by the FOREST PD Committee, JST will determine a number of appropriate FOREST POs for the research fields targeted by this program. FOREST PO manages challenging researches from a long-term perspective, based on the unrestricted thinking of FOREST researchers not bound by existing frameworks with the aim of creating the seeds for disruptive innovation. During the process, FOREST Advisors (hereinafter referred to as "FOREST AD") will be assigned to assist the FOREST PO, and with their cooperation, guidance

and progress management will be carried out for each FOREST researcher contributing to the maximization of outcomes. The FOREST POs and FOREST ADs compose "panels" for their activities based on the unit of their specialized areas.

The FOREST PO plays a central role in the selection and evaluation (stage-gate evaluation, ex-post evaluation, etc.), close examination and approval of the selected research plan (including the research expenses plan), and securing an appropriate research environment suitable for the execution of the FOREST under the support of the university or other institution with which each researcher is affiliated, with the cooperation of the FOREST AD, external experts, and others. The results of the selection and evaluation compiled by the FOREST PO will be deliberated by the FOREST PD Committee and finalized by JST.

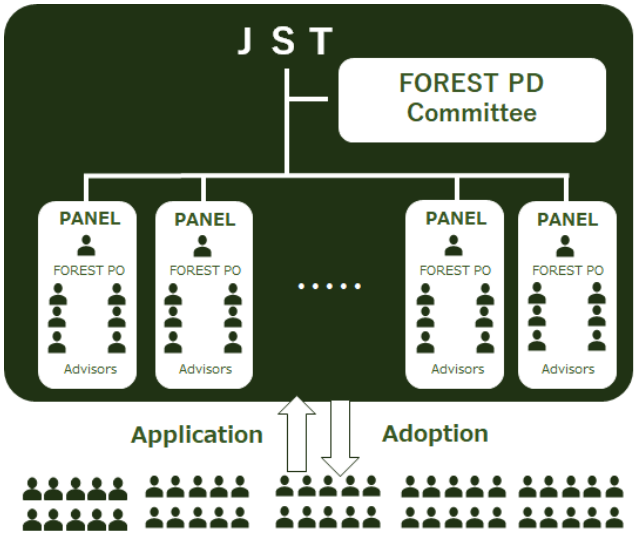

Figure: Governance structure of FOREST program

FOREST PD Committee

Nishio, Shojiro 【Chair】	Osaka University, President.
Arai, Midori	Faculty of Science and Technology, Keio University, Professor.
Hanayama, Rikinari	WPI Nano Life Science Institute, Kanazawa University, Professor.
Harada, Naomi	Earth Surface System Research Center, Japan Agency for Marine-Earth Science and Technology, Director.
Haseyama, Miki	Graduate School of Information Science and Technology, Hokkaido University, Dean.
Kajita, Takaaki	Institute for Cosmic Ray Research, The University of Tokyo, Director.
Shinohara, Hiromichi	Nippon Telegraph and Telephone Corporation, Chairman of the Board.
Tokura, Masakazu	Masakazu TOKURA, Sumitomo Chemical Company, Chairman of the Board.

FOREST PO

Abe, Keietsu	Dean, Professor, Graduate School of Agricultural Science, Tohoku University
Amagai, Masayuki	Dean, School of Medicine, Keio University
Goda, Yukiko	Deputy Director, Center for Brain Science, RIKEN
Hori, Muneo	Director General, Research Institute for Value-Added-Information Generation, Japan Agency for Marine-Earth Science and Technology
Imura, Jun-ichi	Professor, School of Engineering, Tokyo Institute of Technology
Ishizuka, Mayumi	Professor, Faculty of Veterinary Medicine, Hokkaido University
Itami, Kenichiro	Director, Professor, ITbM, Nagoya University
Kawamura, Hikaru	Professor Emeritus, Osaka University
Kitagawa, Hiroshi	Professor, Graduate School of Science, Kyoto University
Mizushima, Noboru	Professor, Graduate School and Faculty of Medicine, The University of Tokyo
Siomi, Mikiko	Professor, Graduate School of Science, The University of Tokyo
Tanaka, Junko	Professor, Graduate School of Biomedical and Health Sciences, Hiroshima University
Yagi, Yasushi	Professor, The Institute of Scientific and Industrial Research, Osaka University
Yoshida, Naohiro	Specially Appointed Professor, Earth-Life Science Institute, Tokyo Institute of Technology

1.2 For Researchers Considering Applying or Participating in the Programs

1.2.1 Contribution to the accomplishment of sustainable development goals (SDGs)

JST to contribute to the accomplishment of SDGs!

At the "United Nations Sustainable Development Summit" held in September 2015, "Transforming our world: the 2030 Agenda for Sustainable Development" was unanimously adopted; the document was an achievement with "SDGs" at the core as a further comprehensive and new action target common to the world for the human beings, the Earth, and the welfare. The seventeen goals in the SDGs do not only indicate various problems in relation to the sustainability that is facing the humankind but also demand that those problems be solved comprehensively and in an integrated way. It is expected that scientific and technological innovation solves such social problems and that scientific evidence is provided to contribute to the formulation of excellent policies. We can say that these roles conform to "the science in the society and the science for the society," a new task of the science that was declared in "World Declaration on Science and the Use of Scientific Knowledge" (Budapest Declaration*), adopted at International Council for Science in 1999. As a core organization to promote the science and technology policies in Japan, JST promotes advanced fundamental research and works on the research and development of a problem-solving type to meet the requests from the society. SDGs are one of the worldwide objectives that can itemize all JST missions. We, in the course of the JST programs, want to collaborate with industries, academia, government agencies, and private enterprises and cooperate with researchers to realize a sustainable society.

Michinari HAMAGUCHI

President, Japan Science and Technology Agency (JST)

*The Budapest Declaration states that "science for knowledge," "science for peace," " science for development," and "science in society and science for society" are the responsibilities, challenges, and obligations of the science in the 21st century.

○For SDGs, the endeavors of JST, etc., access the following website.
https://www.jst.go.jp/sdgs/en/actionplan/index.html

1.2.2 Promotion of Diversity

JST Promotes Diversity!

The diversity is essential requisite for promotion of scientific and technological innovations. It is possible to open a new perspective of science and technology by the collaboration and discussion with various stakeholders having different specialties and values, irrespective of gender and nationality. JST is, by promoting advances in diversity in its all activities in science and technology, undertaking possible problems of our future society, contributing to the strengthening of industrial competing power of Japan as well as to the enrichment of spiritual happiness of people. Our activities in this field accord with the "Sustainable Development Goals (SDGs)" agenda of the United Nations, in which goals relevant to diversity advancement are shown, including gender equality, contributing to efforts on our domestic problems but also to those on problems common to various countries.

Currently, the activity of woman is being positioned at the core of the Growth Strategy of the Japanese Government, being started as "the largest potential of Japan" in the strategy paper. Expending the participation of woman researchers in research projects is substantially important for advancing research and development, as they are a party of various researchers supporting science and technology innovations. JST is expecting that woman researchers would take this opportunity, positively and will apply to our research programs, actively. JST is undertaking the improvement of our "Childbirth, Child-raising, Nursing Care Support System", to constantly, based on the voice of the system users, creating environments enabling a researcher on leave to return his/her research, for example.

The call for and review of research proposals will be conducted also from a viewpoint of advancing diversity. Our dear researchers, we cordially invite you to the call for research proposals of the FOREST Program.

Michinari HAMAGUCHI

President, Japan Science and Technology Agency (JST)

We Are Waiting for Your Application!

JST is promoting diversity in research, based on our perspective that the diversity is for understanding of other researchers having ideas different from yours, and for creation of new values by combining your and their ideas. The diversity thus has potentials to give solutions not only to the domestic problems but also to problems common in all nations across the world. Therefore, JST is undertaking the societal problem of the globe such as the Sustainable Development Goals (SDGs), through the promotion of diversity in research, collaborating with foreign institutions.

JST is promoting the diversity by ensuring the activities of women researchers, of course young researchers, and foreign researchers having foreign citizenship. To ensure that each researcher is fully able to exercise his/her skills, JST is providing continual supports for childbirth, childcare, and homecare of elderly relatives, and also endeavoring to maintaining a balanced membership composition in committees and alike. JST especially welcomes the application of women researches to our program, from whom we cannot have so many research proposals in previous years, to realize environments where various kinds of researcher can work, cooperating and competing with each other. Through these activities, JST is pursuing the creation of new values.

We are sincerely waiting for your active applications, especially those form woman researchers.

Miyoko WATANABE
Deputy Executive Director and Director of the Office for Diversity and Inclusion
Department of Strategic Planning and Management
Japan Science and Technology Agency (JST)

1.2.3 Toward the Promotion of Fair Research

Toward the Promotion of Fair Research

Recent incidents involving misconduct and dishonesty in research activities have resulted in an alarming situation that threatens the relationship of trust between science and society, and hinders the healthy development of scientific technologies. To prevent misconduct in research activities, there must be a function of autonomous self-purification in the scientific community. Each researcher must strictly adhere to strict discipline and work to create new knowledge and inventions that are useful for society, based on high moral standards that meet the expectations of society.

As a funding agency for research, the Japan Science and Technology Agency (JST) considers research misconduct to be a grave issue and makes every effort to prevent it in cooperation with relevant organizations, with the goal of regaining public trust.

1. JST believes that honesty in research activities is extremely important for Japan, which seeks to develop itself through science and technology.
2. JST supports honest and responsible research activities.
3. JST strictly condemns any misconduct in research activities.
4. JST will promote education in research ethics and reform its research funding programs in cooperation with relevant organizations, in order to prevent misconduct.

We must develop a healthy scientific culture based on social trust, so as to build a society filled with hopes and dreams for a bright future. We therefore request the continued understanding and cooperation of the research community and related institutions.

Michinari HAMAGUCHI

President, Japan Science and Technology Agency (JST)

1.2.4 Open Access and Data Management Plan

JST announced its policy on Open Access to research publications and research data management in April 2017. The policy cover the basic concepts of allowing access to papers on research achievements, as well as the archiving, management, and disclosure of research data.

In principle, researchers participating in FOREST program are mandated to produce documents on research achievements available to the public via repository organizations or publications for open access.

Researchers are also requested to prepare a data management plan (DMP). This DMP should contain details on policies and plans for archiving, managing, and publishing (or non-disclosure) of research data in development as achievements. Researchers must submit the DMP, along with the research plan document, to JST. It is also mandatory for researchers to undertake the archiving, management, and publication of research data based on this plan.

The data management plan you submit will be used by JST for analysis to improve our support to the researchers in the future and to examine and/or promote our endeavors for the retention, management, and disclosure of the research data, including the review of this principle. Moreover, the statistic data acquired through our analysis may be disclosed as necessary. We, however, will not disclose any information on specific research activities or an information that may help identify an FOREST researcher.

Please see the following for details:

* JST Policy on Open Access to Research Publications and Research Data Management
  https://www.jst.go.jp/EN/about/strategy.html#strategy03
* JST implementation guideline on promotion of Open Access to Research Publications
  https://www.jst.go.jp/pr/intro/openscience/guideline_openscience.pdf (in Japanese)

Please note that JST analyzes statistical data such as the number of data modules, the type of data, the type of disclosure, and the location of storage for the purpose of understanding the contents of the description, supporting researchers, and reflecting (revising) the basic policies. The statistical data analyzed will be made public, however no individual personal data or other information which allows identification of the names will be disclosed.

* As for life science data, please also refer to "4.19 Data Disclosure from the National Bioscience Database Center".

Chapter 2 Call for and Selection of Applications

2.1 Call for Research Applications

2.1.1 Eligible Research Applications

The program calls for a variety of challenging and original research projects[1], which require a long-term commitment without fear of failure, with the potential to create the seeds[2] for disruptive innovation in any of the following categories (a) through (e).

(a) Research with the potential for "discovery and/or creation of new knowledge" and/or "elucidation of the principles"

(b) Research in a field that should be continuously addressed from the perspective of diversity of research

(c) Research with the potential for generating new technological knowledge and/or developing of innovative technology

(d) Subject matter for which breakthrough and new research areas are expected to be created through the "fusion" of scientific and technical knowledge

(e) Subject matter that is expected to transform society and systems for the actual or wide-spread use of research outcomes

2.1.2 Submission Period and Selection Schedule

Please refer to "Introduction: (1) Call for Research Applications and Selection Schedule" for the submission period and selection schedule.

2.1.3 Limitations on the Number of Applications

This program plans to hold three calls in FY 2020, FY 2021 and 2022. Applications for this program may be made up to twice out of three times per applicant regardless of the affiliated institution at the time of the application. Researchers who had applied for FY2020 are eligible to apply again in either FY 2021 or FY 2022. If your research application was not accepted, it will not be counted towards the number of applications you will be considered to have made.

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[1] The scope of this program includes science and technology that will contribute to the creation of new technology. If you apply for a research project in science and technology related to cultural science or social science or both, you will be given specific instructions on how to register the desired area for the screening of your research in the e-Rad system; make sure to see the separate paper describing how to use the Cross-Ministerial Research and Development Management System (e-Rad) for call-for applications before registering.

[2] The scope of this program also includes theoretical and/or fundamental research whose economic value is currently unclear.

In addition, for the FY2021 call, only one application can be submitted per applicant regardless of the affiliated institution at the time of the application.

Please note that the call for research applications for FY2022 may not be held in certain cases. Please note that the application details (application requirements, etc.) are subject to change.

2.1.4 Research Organization

a. A FOREST researcher will conduct the research on his or her own (alone) or together with postdoctoral fellows, research assistants, students, and others who are under the management and supervision of the FOREST researcher. If it is necessary to hire a new postdoctoral researcher or research assistant, or seek assistance of a doctoral (second semester) student as an RA, etc., it is possible to pay appropriate compensations for such assistance within the scope of the research budget.

* For details, please refer to "4.13 Improvement of Treatment of Doctoral (second semester) Students."

b. JST conducts research promotion activities such as supporting the development of research environment, publicity and outreach for research, and patent application support.

c. Every FOREST researcher must be a member of a Japanese research institution (we make collaborative research agreements only with the research institutions in Japan). Research conducted outside of Japan, as well as its costs, must adhere to the rules and regulations of the research institution in Japan.

2.1.5 Flow from Research Application to Selection

(1) Call and Selection of Applications

JST calls for research applications from researchers who meet the application requirements. The selection will be made by the FOREST PO with the cooperation of the FOREST AD and external experts, etc., and after deliberation by the FOREST PD Committee, JST will make the final decision on the selected applications.

(2) Preparation of Research Plan

Upon selection, the researcher will create a Phase 1 Research Plan (including research costs and research organization) and a budget plan for each fiscal year throughout the entire Phase 1 period, as described below.

* For details, please refer to "3.1.1 Creation of Research Plan."

(3) Agreement

To proceed with the research project, JST will enter into a Collaborative Research Agreement with the research institution with which the researcher is affiliated.

*For details, please refer to "3.1.2 Research Agreement."

2.1.6 Research Period

This program has a research period of 7 years divided into two phases, namely Phase 1 (3 years, until the end of FY2024) and Phase 2 (4 years, until the end of FY2028[3]). All those selected will begin their research in Phase 1 and continue with Phase 2 research on the projects that have passed the stage-gate review. If you are unable to pass the stage-gate review, your FOREST will be terminated as of the end of Phase 1. Additionally, the research may be extended for up to 3 years from the end of Phase 2, subject to annual review in principle.

*As for the stage-gate review, please refer to “3.2.1 Operation Scheme.”

2.1.7 Research Costs (Maximum Amount)

The amount of research costs (direct costs) per project is set, in principle, at a total of 50 million yen (maximum) for 7 years, of which 20 million yen (maximum) for Phase 1 (3 years).

Research applications must be limited to the aforementioned maximum amount. However, once an application is selected, some changes may be made, including some allocations exceeding the maximum amount at the discretion of the FOREST Program Director (PD) Committee and FOREST POs depending on the situation, etc., of a specific research project to secure the research environment appropriate for the execution of fusion-oriented research. JST pays the cost of collaborative research, which includes the research cost (direct cost) and the indirect cost (30% of the direct cost at the maximum), to the research institute on the basis of the contract of the collaborative research agreement.

*The research cost (direct cost) stated above is the absolute maximum; you must strictly select indispensably essential items to include in your application.

2.1.8 Number of Projects to be Selected

The number of projects to be selected in the call for research applications in FY2021 is approximately 250 (depending on the status of research applications).

2.1.9 Application Requirements

Please be aware of the following (1) through (4) when applying.

In addition to the following, please be sure to read and understand the information provided in “Chapter 4: Notes on Application.”

[3] In the event of an interruption of the research during the research period, the estimated time of completion of each phase will be extended by the duration of such interruption. For details, please refer to "3.2.4 Programs for Interruption and Extension of Research, and Postponement of the Start of Research.”

(1) Requirements for Research Applications

The research application must be based on the applicant's own research plan.

(2) Requirements for Applicants

If the following requirements a. through f. are not met by the time of selection, in principle, the research application will not be accepted nor selected.

Once selected, the following requirements must be maintained throughout the entire research period of the research project. If any of the requirements become non-compliant during the research period, in principle, the whole, or a part of, the research project will be terminated (early termination).

a. The applicant must be the researcher himself or herself. No restriction on nationality.

b. The applicant must be capable of conducting research independently to execute his or her own research plan.

c. The applicant must be affiliated with a research institution in Japan and capable of conducting FOREST.

FOREST can only be conducted while the researcher is affiliated with a research institution in Japan; however there is no restriction on the location of the affiliated institution at the time of application. Those researchers affiliated with foreign institutions can apply on the condition that the research shall commence at a research institution in Japan from April 1, 2022 at the latest (However, the aforementioned condition does not apply to researchers who are Japanese nationals and current members of an institute outside Japan, for a maximum grace period of two years at the maximum after the starting time of the research). For details, please refer to “3.2.4 Programs for Interruption and Extension of Research, and Postponement of the Start of Research.”

* Researchers affiliated with companies are also eligible as long as they are sufficiently capable of conducting research in accordance with the objectives of FOREST.

* Foreign researchers should pay particular attention to the following:

  - It is required to be able to handle paperwork in Japanese (or be in an environment where it is possible to do so with assistance);
  - Each individual is responsible for obtaining a visa, renewing the period of stay, and changing the status of residence, etc. If the researcher is unable to meet the requirements for residency, the research application will be rejected, the research project will be terminated, or other appropriate action will be taken; and
  - Based on the status of the researcher, if the FOREST is subject to regulation under the Foreign Exchange and Foreign Trade Act, the research application will be rejected, the research project will be terminated, or other appropriate action will be taken.

d. The applicant must be a researcher who is capable of conducting his or her own FOREST in a responsible manner throughout the entire research period.

* For details, please refer to "3.2.6 Responsibilities and Other Obligations of the Selected Researchers."

e. The applicant must meet one of the following experience requirements.

(a) 15 years or less since obtaining a doctorate as of April 1st, 2021.(obtaining a doctorate after April 2nd ,2006)

(b) 17 years or less since obtaining a doctorate as of April 1st, 2021 in the case of medical, dental or veterinary medicine courses, for those who have completed the clinical trainings stipulated by law (Medical Practitioner Act, Dentist Act or Veterinarian Act) after completion of the doctoral program.

(c) 20 years or less (22 years or less for those falling under (b) above) since obtaining a doctorate as of April 1st, 2021, for those who have been unable to devote themselves to research due to childbirth or childcare within 15 years (17 years for those falling under (2)) since obtaining a doctorate.

(d) For those who have been unable to devote themselves to research due to care giving or the like within 15 years (17 years for those falling under (b)) since obtaining a doctorate, the condition in (a) will be increased by the length of such period (up to two years).

* Please indicate the date and university where you obtained your doctorate, and if you obtained your doctorate before April 1st, 2006,1, please describe the reason for it. If you fall under (c) or (d), please submit a copy of Mother and Child Handbook or a copy of certificate of Certification of Needed Long-Term Care, etc. on the e-Rad. JST will check any if necessary.

f. The applicant must have received, or be currently receiving (FY2021), public research funding[4] that can be used under his or her own responsibility and authority (research funding as the Research Director) within the past two years[5]. In addition, if there are special circumstances in which the applicant has not received any research funding during the past two years, the reason[6] should be clearly stated in the application.

g. The applicant must have completed a program on research ethics education at the affiliated research institution in advance, or an educational program offered by JST by the submission deadline.

* For details, please refer to "4.1 Attendance and Completion of the Program on Research Ethics Education."

h. The applicant must be able to pledge the following four points:

[4] The aforementioned applies to research funding obtained through a public call for research applications. However, the public calls only for the researchers from the same research institutions are excluded.

[5] The research funding must have been accepted in FY 2019, FY 2020.

[6] A major life event (childbirth, childcare, elderly care), clinical training, being unable to participate in the research project due to an engagement in some other large-scale research project, not being in an environment where applying for a competitive funding is impossible due to a research at a company etc., or any other clear reason must be stated.

- Understand and comply with the “Guidelines for Responding to Misconduct in Research” (Decreed by the Minister of Education, Culture, Sports, Science and Technology on August 26, 2014);
- Understand and comply with the “Guidelines for the Management and Audit of Public Research Funds In Research Institutions (practice standards)” (Revised on February 18, 2014);
- If the research application is selected, the FOREST researcher shall not engage in fraudulent activities (fabrication, falsification, and plagiarism) or misuse of research funds; and
- No misconduct in research activities has been committed in the past research outcomes described in this research application.

* Please confirm on the application information entry screen of the e-Rad.

i. If you have been selected as a research director (the director of a research area, a program manager) in the <Projects Subject to Duplication Restriction> stated below, you are not eligible to apply for our program (however, excluding the cases in which the project having been selected as Projects Subject to Duplication Restriction is in its final fiscal year). Furthermore, if you have been selected and assisted as a research director or the like in one of the <Projects Subject to Duplication Restriction> listed below by the year before the final fiscal year of Phase 1 (by FY 2023[7]), the applicable research project will be canceled (aborted).
In the final fiscal year of Phase 1 or after (FY 2024 and following years), if you have been selected and assisted as a research director or the like in the <Projects Subject to Duplication Restriction> stated below, the applicable research project will be canceled (aborted) or the research costs will be reduced (in principle), and the research can be continued or extended. For more information, see the Official Administration Manual (for FOREST, Supplemental Version, in Japanese only).
Please note that “Projects Subject to Duplication Restriction” may be changed due to establishment of a new competitive research funding system, or revisions thereof, in the future.

<Projects Subject to Duplication Restriction>

- Projects under the auspices of the Japan Society for the Promotion of Science (Grants-in-Aid for Scientific Research)
  Grants-in-Aid for Specially Promoted Research, Grants-in-Aid for Scientific Research on Innovative Areas (Research in a Proposed Research Area) (limited to research directors [8]), Grants-in-Aid for Transformative Research Areas (A) (limited to research directors), Fundamental Research (S)

[7] If you use section 3.2.4, "Programs for research interruption and extension, and postponement of the start of research," your research period will be delayed by the same amount.
[8] However, the aforementioned condition does not apply to the research directors of a planned research or a research called for from the public.

- Projects under the auspices of the Japan Science and Technology Agency
  JST-Mirai Program (Small-start Type (Full-fledged research), Large-scale Type)
  Strategic Basic Research Programs (ERATO, CREST, PRESTO (*))
  Moonshot Research and Development Program (targeted at Project Managers)
  A-STEP (Industry-academia collaboration (Full-fledged type, Seeds nurturing type)
- Projects under the auspices of the Japan Agency for Medical Research and Development
  Advanced Research and Development Programs for Medical Innovation (LEAP, AMED-CREST, PRIME (*))
- Projects under the auspices of the New Energy and Industrial Technology Development Organization (NEDO)
  Moonshot Research and Development Program (targeted at Project Managers)
- Projects under the auspices of the National Agriculture and Food Research Institute
  Bio-oriented Technology Research Advancement Institution (BRAIN)
  Moonshot Research and Development Program (targeted at Project Managers)

* For PRESTO and PRIME, applications may be submitted for the call for applications of this fiscal year as long as the research is scheduled to be completed by the end of March 2023. FOREST must be started after the completion of the applicable research, and the period until then shall be treated as a grace period to start the research. For details, please refer to "3.2.4 Programs for Interruption and Extension of Research, and Postponement of the Start of Research."

(3) Conditions for Independence[9]

The conditions for independence in below must be met, or, in principle, become compliant during Phase 1 (3 years) (In the process of selection, the feasibility of independence may be objectively checked if necessary).

[9] The conditions for independence are defined for "independent researchers" and "the researchers to be independent with the courage to cope with the challenging and unique research theme specified by them and to satisfy the terms and conditions here within three years" to apply for our program. Your application will be screened based on the evaluation of the contents of the application, the ability to make actions, human nature, the state of independence, and so forth in general. If you fail to satisfy these terms and conditions herein as of the time of screening, we may confirm your perspective in the future, your volition for independence, and so forth and may select your application on condition that you make your best efforts. As stated in section 3.2.1, item (1), not only the terms and conditions for independence but also other norms may be considered in our screening from a comprehensive viewpoint to evaluate the feasibility of continuing to support your research. If an applicant fails to satisfy part of the requirements for independence after making efforts to be independent, we consider such a situation in our evaluation.
The above-mentioned are applicable to researchers and undergraduates. The right to participate in a dissertation defense is not a prerequisite.
Being registered as a chief administrator, safety administrator, or the like is not a prerequisite.

(a) Must be in the position of a corresponding author for the paper for the applicant's own research

(b) Must have responsibility for, or be in a position to have responsibility for, the guidance of graduate students[10], etc.

(c) Must be the person in charge of the research group when the research is conducted by forming a research group.

(d) Must have a laboratory (*)

* Must be responsible for the management of the research facilities and laboratory rooms required for conducting independent research.[11]

(4) Requirements for Research Institutions to Conduct FOREST

When conducting research, the research institutions that conduct FOREST must be fully aware that the source of funds for collaborative research is public funds, comply with all relevant laws and regulations, and strive to conduct the research efficiently. If the duties stated in section 3.2.7, "Responsibilities of Research Institutions", are not fulfilled, you will not be allowed to conduct your research at a research institution. Note that we will cancel your research project or take some other measures if it becomes obvious that the duties are not fulfilled after your application is selected. We encourage all parties concerned to treat the voluntary applications made by individual researchers with as much respect as possible when they make applications for this program.

[10] The aforementioned are applicable to researchers and undergraduates. The right to participate in a dissertation defense is not a prerequisite.

[11] Being registered as a chief administrator, safety administrator, or the like is not a prerequisite.

2.2 Selection of Research Applications

2.2.1 Selection Perspective

(1) Selection Criteria (Pre-evaluation Criteria)

Selection criteria are as follows (It is a prerequisite to meet the "2.1.9 Application Requirements"):

a. It is consistent with the objectives of the program;

b. The research is application eligible for this call for applications (see "2.1.1 Eligible Research Applications");

c. The research application is based on the applicant's own ideas;

d. The applicant has the willingness to execute the research plan, and it feels feasible;

e. The applicant has the necessary research capabilities and systems;

f. The applicant contribute to the development of emerging and integrated fields and the continuous progress of the related research fields through the activities to execute the research plan and the efforts for discussions and mutual inspirations with other researchers;

g. The applicant is willing to request cooperation from, or coordinate with, research institutions as necessary to ensure a research environment suitable for conducting FOREST; and

h. With respect to (3) of "2.1.9 Application Requirements," the applicant is expected to become independent (within 3 years), and it is highly likely to happen.

(2) "Unreasonable Duplication" and "Excessive Concentration" of Research Budgets

Whether the application falls under "unreasonable duplication" or "excessive concentration" of research budgets is also a factor in the selection. For details, please refer to "4.2 Measures Against Unreasonable Duplication and Excessive Concentration."

2.2.2 Selection Method

For schedule, please refer to "Introduction: (1) Call for Research Applications and Selection Schedule."

(1) Flow of Selection

When you make a research application, use the e-Rad system to specify the FOREST PO as the chief screener in the screening process of your research application and your desired areas of specialty (major and minor). For the relation between the FOREST POs and research areas, see section 6.1, "FOREST POs and Assigned Research Areas" The FOREST PO specified by the applicant for research will cooperate with other FOREST POs and FOREST ADs, external specialists, and other parties for document screening and interview screening in the screening process. The final candidates are selected after the interview screening; the FOREST Program Director

(PD) Committee makes deliberation, and JST finally determines successful applicants. For the selection, we consider various research areas and researchers (including their organizations, genders, etc.).

In addition, surveys and other activities may be conducted as necessary during the selection process. Furthermore, if the applicant is affiliated with a commercial organization and the like, it may be requested to submit a financial statement.

If you apply for research that covers two or more research areas, the evaluators from relevant areas examine your application from multiple points of view. The evaluators in such screening are selected in consideration of the information provided to the e-Rad system (including the FOREST PO and research areas (major and minor)) as well as the contents of the application for research. Make sure to register both research area (major) and research area (minor) when you use the e-Rad system for registration <applicable to all applicants>.

If you register an area code belonging to "Humanities & Social Sciences" or "Others" as your research area (major), you must make sure to register an area code not belonging to "Humanities & Social Sciences" or "Others" as your research area (minor). If you fail to register, as stated above, your application will not be accepted. If you register an area code belonging to "Humanities & Social Sciences" or "Others" as the research area (major) and research area (minor), your application will not be accepted either. For the area codes belonging to "Humanities & Social Sciences" or "Others", see section 6.1, " FOREST POs and Assigned Research Areas."

*Research area (minor) is a mandatory item but No error message appears even if you don`t fill it in the e-Rad system; use caution not to forget to specify this area.

Before you fill in the form in the e-Rad system, see the separate paper, "How to Apply from the Cross-ministerial R&D Management System (e-Rad)."

For your reference, while you try to decide a research area to submit your application, our FOREST POs have posted their messages (in Japanese only). See Section 6.2, "Messages from FOREST POs. You can watch our FOREST POs' video messages, which include the same contents as the aforementioned, on our website about the research organization in the FOREST Program: https://www.jst.go.jp/souhatsu/research/index.html.

(2) Conducting Interview Screening and Notification of Selection Results

a. Please confirm the interview screening schedule on the Call for Research Applications website before the results of the document screening are finalized. The applicants who have been selected for interviews as a result of the document screening will be notified by e-mail along with the information about the interview process, the schedule, and additional materials to be submitted (No written correspondence will be sent. The notification will be sent to the email address registered on the e-Rad. Make sure to set it as ready to receive). The applicant may be asked to submit applications, plans, and other document for other research funds at the

time of interview screening. If the applicant is affiliated with a commercial organization, etc., it may be requested to submit a financial statement. The applicants who are unfortunately unsuccessful in the document screening will be notified in writing by email after the screening results are confirmed.

As soon as the schedule of interview screening is fixed, it will be announced on the Call for Research Applications website.

https://www.jst.go.jp/souhatsu/call/index.html

b. At the interview screening, the applicant himself or herself is asked to explain the research plan. In principle, the interviews are conducted in Japanese, however if the applicant has difficulty in Japanese conversation, interviews in English are also possible.

c. Unsuccessful applicants will be notified of the selection results in writing by e-mail after the selection results are confirmed. In addition, the reason for rejection will be separately sent e-mail from the e-Rad for unsuccessful applicants.

d. As a result of the selection process, the selected applicant will be notified in writing by e-mail along with the information on the procedure for starting the research.

* Those applicants who are likely to be selected as a result of the interview screening will be contacted by JST (by phone or e-mail) to confirm whether or not the Collaborative Research Agreement can be completed in late October or later.

2.2.3 Implementation of Conflict of Interest Management

We take the management of conflicts of interest based on the provisions of JST from the viewpoint of a fair and transparent evaluation and the distribution of research funds.

(1) Persons Involved in the Selection Process

To ensure fair and transparent evaluations, the following persons and parties who have conflicts of interest with an 'applicant'.

a. Persons, who are relatives of research project applicants:
b. Persons or parties who are affiliated with the same department, specialty, or research laboratory at a university, a national institute, or a national experiment institution, or a company with which research project applicants are affiliated. Here, "same department, specialty, or research laboratory" means a group one rank above a laboratory, a research team, or another group which is the smallest research unit.
c. Persons, who are conducting a close collaboration in a research work with research project applicants. (Examples are persons, who are conducting a joint research project or have co-authored a paper with research project applicants, a researcher pursuing the same research objectives as research project applicants, or a co-

researcher of the proposal of research project applicants, and others, being recognized those practically affiliated with a research group with which research project applicants are affiliated.)

d. Persons in a close teacher-student relationship, or in a direct employer-employee relationship.
e. Persons in relationships of direct competition with research project applicants.
f. Persons in other relationships judged by JST to representing conflicts of interest with research project applicants.

(2) Conflict of Interest Management for Research Applicants

When a research applicant specifies an "organization in relation to the research applicant" as a participating organization while making an application and if JST allocates some research funding to the "organization in relation to the research applicant," this may lead to some conflict of interest concerning the research applicant. Therefore, to avoid any doubt or the like of any third party, we take the management of such conflicts of interest with respect to the conflicts of interest between such research applicant and such "organization in relation to the research applicant" in an appropriate consideration to the necessity, rationality, adequacy, etc. of the applicable relation.

An "organization in relation to the research applicant" here refers to any participating organization that comes under any following condition. Note that not only the research applicant but also the spouse and the relatives in the first degree of the research applicant (referred to as "researcher etc." from here) are regarded as the same in items "a" and "b" below.

a. An organization founded on the achievement of research by the researcher, etc. (including the cases in which the researcher etc. do not have any direct relation in the management of the organization but are appointed as a technical advisor or the like and in which the researcher etc. only have some stocks of the organization).
b. An organization of which the researcher, etc., are appointed as directors (including CTOs and excluding technical advisors).
c. An organization of which the research applicant has some stocks.
d. An organization from which the research applicant has revenues as a license fee.

Our screening committee makes deliberation from the vantage points of the necessity, rationality, adequacy, etc. of the applicable organization with respect to the application, including the "organization in relation to the research applicant" as a participating organization.

For this purpose, declare that the "organization in relation to the research applicant" is included as a participating organization in the column for special remarks (Form 7) in your application form if you specify an "organization in relation to the research applicant" is included as a participating organization.

To implement the management of the conflict of interest with the research applicant, additional documents may be asked.

(3) Conflict of Interest with JST

It is regarded as conflicts of interest on the side of JST (conflicts of interest as an organization) to distribute, in the FOREST program, a research fund to a company JST has invested in (hereinafter "invested company"). Therefore, to avoid any doubt of any third party, JST clarifies it to avoid the conflict of interests between JST and the invested companies.

With respect to the proposals made by a researcher who belongs to an invested company of JST, we assess the necessity, rationality, and adequacy of the applicable invested company.

For that purpose, if a researcher who belongs to an invested company of JST is regarded as a proposer, fill in the "special remarks (Form 7)" to declare that a researcher who belongs to the applicable invested company is included in the proposers.

This management is taken to guarantee the fairness and transparency of the process on the side of JST. It is not disadvantageous to have accepted funds from JST in the process of the adoption in the FOREST program. You are asked to be cooperative in JST's management of conflicts of interest.

* As for JST invested company, please refer to the following website. Companies which have finished the investment form JST are not regarded as institute with conflict of interest and researchers who belongs to these companies are not requested to declare.
  https://www.jst.go.jp/entre/result.html#M01
* Standard date for the declaration starts from the date which call for research applications have started. Companies which are selected but not yet disclosure as JST invested company, are not requested to declare in accordance with the non-disclosure commitment. Please refer to the following website for disclosure of investment by JST.
  https://www.jst.go.jp/entre/news.html

Chapter 3 Proceeding with the Research Post-selection

3.1 Research Plan and Agreement-related Matters

3.1.1 Creation of Research Plan

a. Once selected, a Phase 1 research plan is to be created for the entire period of Phase 1 (3 years). In addition, an annual research budget plan is to be created for each fiscal year. The research plan includes research budget and research team organization plans. The proposed research budget will be assessed through the selection process. The actual research budget will be determined after careful review and approval by the FOREST PO at the time of formulating the research plan for the research project.

b. Research plans become official once they are examined and approved by FOREST PO. FOREST PO will offer advice and coordination assistance on the research plan and provide instructions when necessary.

c. FOREST PO, in approving research project plans may merge or link research projects, or take other coordinative actions.

* Research organizations and budgets set forth in research plans may be revised during the research project period in response to overall FOREST Program budget conditions or factors like results of research evaluations.

3.1.2 Collaborative Research Agreement

a. Once a research project is selected, JST, in principle, will enter into concluding a Collaborative Research Agreement (*) with the research institutions with which the Researchers are affiliated.

b. If it is not possible to conclude Collaborative Research Agreement with these research institutions, or not possible to put in place the management and audit systems required in connection with the use of public funds, or if the related research institutions are conspicuously financially unstable, it may be impossible to pursue research at the research institutions in question. For more details, please refer to "3.2.7 Responsibilities of Research Institutions." The FOREST Pos, who shall examine and/or approve a research plan and work as a mentor afterward, may be different from the FOREST PO specified at the time of applying for research.

c. In principle, patents and other intellectual property rights resulting from research shall, in accordance with Collaborative Research Agreement contract terms, reside with research institutions under the condition that the research institutions abide by the items provided in Article 17 (Japanese version of the Bayh-Dole Act) of the Industrial Technology Enhancement Act.

d. If an Research Director is transferred to another institution, the research can be continued on the condition that it can be continued without interruption. It is not permitted to change the Research Director as a result of the transfer. It is stipulated in the research agreement that, in principle, items acquired with research budget (direct cost) must be transferred in some ways to the research institution to which the researcher is transferred.

* The latest version of a Collaborative Research Agreement template is published on the website.

3.1.3 Research Costs

JST pays the costs of a contract research, to the research institution that have concluded a contract of agreement with JST. The costs consist of the research cost (the direct cost) and the indirect cost that is 30% of the direct cost in principle. As for some items of expenditure, JST has implemented handling rules and guidelines specific to the FOREST Program, based on the Collaborative Research Agreement, official administration manuals, and the "Cross-ministerial Expenses Handing Partitioned Table". There may be cases where the treatment is different between universities and others (universities, public research institutes, non-profit making incorporated associations, and others identified by JST) and private companies other than universities. Please refer to the official administration manual for the details which is published on the website.

(1) Research Budget (Direct Costs)

Research budget (direct costs) are those that are directly related to and required for pursuing the subject research. Research costs include (Note3):

a. Commodities: Costs for purchasing new facilities *, equipment, consumable supplies, etc.
   * The purchase of new research equipment and apparatuses shall be proceeded according to the "Research Equipment and Apparatus Sharing Systems for Research Organization Units" (hereinafter referred to as "apparatus sharing systems"), which shall operate on the premises of "Introduction of New Research Equipment and Apparatuses Operating Integrally with Research Organization Management" (Advanced Research Fundamentals Working Group, Scholarship Commission, November 2015). Please refer to "4.12 Promotion on Effective Use of Research Facilities and Equipment".
b. Travel Expenses: Expenses for travel by the Research Director and Research Participants listed on the research plan etc.
c. Personnel expenses and honoraria: Personnel expenses and honoraria for Research Director, and research participants and others listed in the research plan
   * However, if the person is subject to personnel expense coverage by the Government (grants and subsidies, etc.) or public funds, and personnel expenses covered by the relevant funds (grants and subsidies, etc.) is not permitted to be replaced, it cannot be expensed as direct cost.
d. Others: Expenses for publishing research outcomes (paper submission fees, etc.), equipment leasing, transportation, outsourcing, and expenses for outsourcing non-research work (buyout expenses)
   * The maximum expenditure for expenses for outsourcing non-research work (buyout expenses) is, in principle, 1,400,000 yen per annum (see Note 2). When making such an expenditure, please make sure to check the separate Administrative Procedures Manual which sets forth the requirements and necessary procedures.
   * Outsourcing is permitted if it is necessary to conduct the research. In the case of such outsourcing, however, it is assumed that it is under a service agreement that does not include research and development elements. Subcontracting that includes research and development elements is, in principle, not permitted.

NOTE 1: The following are examples of items not handled as research costs (direct cost).

・Costs for items not consistent with the research objectives.

・Costs that are considered to be more appropriately handled as overhead costs（indirect cost).

・Costs that JST judges that use is not appropriate in the settlement of commissioned research expenses.

NOTE 2: The upper limit of the total expenses related to personnel and honoraria within the scope of activities funded by this program for research directors in a single year in item "c" and buyout expenses in item "d" is 2.1 million yen.

(2) Overhead (Indirect) Costs

Overhead (indirect) costs are costs required for the management, etc. of research institutions pursuing research; they are in principle capped at 30% of direct costs. According to “Common Guidance for the Execution of Indirect Expenses of the Competitive Fund” (agreed upon by the coordination committees of relevant ministries and agencies in April 20, 2001, and revised on July 18, 2019), a policy on use, etc. shall be created and shall be systematically and properly executed to ensure that use of indirect expense be transparent.

(3) Multiple-year Contract and Carryover

From the perspective of more effective and efficient use of research funds for maximizing research outcomes and preventing fraud, JST has adopted multi-year contract for Collaborative Research Agreement to enable carry-over of collaborative research funds and procurement agreements spanning over the fiscal years. Please note that, in the case of the carry-over system, there may be cases in which multi-year agreements and carry-overs are not allowed due to the differences in its handling between universities and companies, the administrative management system of the research institution, and other reasons. If the end of the research period does not fall on the end of March, in consideration of the agreements for research assistants and others hired under this program, the contract period can be extended till the end of March of the last fiscal year of the research period with the approval of the FOREST PO and JST, provided that it does not involve an increase in the research budget.

3.2 Matters for Proceeding with the Research

3.2.1 Operation Scheme

The research period for this program is, in principle, seven years with two research phases, namely Phase 1 (3 years, until the end of FY2024[12]) and Phase 2 (4 years, until the end of FY2028). All those newly selected will commence their research in Phase 1, and at the end of Phase 1, a stage-gate review will be conducted to determine

[12] If the system for postponing the start of a research is used or if the research is interrupted or extended during the research, the planned ending period of each phase will be postponed by the same period. For details, see section 3.2.4, "Programs for Interruption and Extension of Research, and Postponement of the Start of Research."

the transition to Phase 2. For those projects that pass the stage-gate review, the research will continue on to Phase 2. If it does not pass the stage-gate review, the FOREST will be terminated as of the end of Phase 1.

(1) Review Criteria for the Stage-gate Reviews [13]

During the stage-gate reviews of projects that cleared finished Phase 1, the items stated below are followed for confirmation.

a. There has been steady progress and trial-and-error in research based on the research plan.

b. The researcher has strong willingness to take on challenges without fear of risk;

c. There been any progress in securing an appropriate research environment suitable for conducting FOREST[14];

d. The researcher actively participated and cooperated in the Fusion Conferences (see "3.2.3 Formation of the "Place for Fusion"); and

e. The conditions for independence (Items (a) through (d) of "2.1.9 (3) Conditions for Independence") at the time of the application were met.[15]

(2) Methods for Conducting the Stage-gate Review

About six months before the end of Phase 1, the FOREST PO will conduct the review with the cooperation of the FOREST AD and others and JST will make a decision.

The results of the stage-gate review will be reflected in the adjustments to the research plan (including increases or decreases in research budget, review of the research team organization, etc.) after the Phase transition, and measures may be taken to end (terminate) the research project early.

(3) Extension after the end of Phase 2

When the project is expected to produce significant outcomes by extending the research period and it is difficult to obtain support from other sources, and the termination of support is believed to cause a negative impact on international competition, the research project may, in principle, be extended for up to 3 more years after the end of Phase 2 upon approval of the FOREST PO each fiscal year.

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[13] This program gives support to the challenging and unique research applications that need to be coped with for a long time. For this purpose, our stage-gate reviews try confirming mainly the progress of a research and the situation of the endeavors.

[14] "Any progress in securing an appropriate research environment suitable for conducting FOREST" here refers to such endeavors as whether any sufficient efforts are secured to cope with the FOREST research, whether any appropriate organization for conducting the research is secured, whether the research funding from this program is appropriately used for these purposes, and so forth.

[15] Make the best efforts to satisfy the conditions for independence within three years. Our stage-gate reviews evaluate not only the conditions for independence but also the sustainability of the continuation of the support to the research from a comprehensive viewpoint. If an applicant fails to satisfy part of the requirements for independence after making efforts to be independent, we consider such a situation in our evaluation.

The review to determine whether or not to extend after the end of the project will be conducted at an appropriate time prior to the completion of the research.

3.2.2 Securing Research Environment Suitable for Execution of FOREST

In this program, it is stated that it aims to secure an appropriate research environment suitable for the execution of FOREST with the support of the affiliated universities and other research institutions of each researcher while ensuring maximum discretion for the researchers. For example, the affiliated institutions are expected to provide finely tuned support in consideration of the situations the researchers are in, such as “the shared use of research equipment available to the researchers supported by this program due to the limited budget for this program” and “consideration and support from the affiliated institutions for securing research hours in light of the fact that the research hours of university faculty members are becoming shorter every year.” For those affiliated institutions that have provided proactive and excellent support for securing a research environment in which the researchers supported by this program can concentrate on FOREST, there is a plan to provide additional support, upon review, to improve the research environment surrounding those research institutions.

3.2.3 Formation of the “Place for Fusion”

In this program, JST and FOREST researchers will take the lead in managing the "Place for Fusion" for the purpose of understanding research in different fields and enabling the fusion of research. FOREST researchers will be asked to participate in the camp-style FOREST Conferences (as a rule, every six months) that will be held in each of the research fields, regions, and other groupings, along with the FOREST PO and FOREST AD, and to present and discuss the outcomes of their respective research.

Through friendly rivalry and mutual inspiration among FOREST researchers in addition to discussions and interactions with the FOREST POs, FOREST ADs, and a variety of external experts, it aims to encourage FOREST researchers to create imagines of their goals and visions as researchers as well as their plans for future research development, and to build a network that contributes to the formation of team-based research.

Various meetings (study groups, public events, etc.) planned by researchers on their own initiative are encouraged as a part of the "Place for Fusion", and JST will support the planning and management of these meetings.

In addition, the FOREST PO and FOREST AD will, through such activities as site visits to researchers, provide advice and guidance on the efforts to secure an appropriate research environment suitable for the subject matter of individual research and the execution of FOREST.

3.2.4 Programs for Interruption and Extension of Research, and Postponement of the Start of Research

(1) Programs for Interruption and Extension of Research

If it becomes difficult for an FOREST researcher to continue his or her FOREST for any of the following reasons (a) through (d), the research can be temporarily suspended with the approval of the FOREST PO and JST. The

research period of the Phase at the time of the interruption can be extended by the duration of such interruption. In this case, JST will compensate for the same amount as the unused portion of the research budget due to the interruption of the research after it is resumed. The duration of the interruption will be determined through the discussions among the FOREST researcher, the FOREST PO and JST.

In addition, if your research is selected as a research in the <Projects Subject to Duplication Restriction> stated in item "i," segment (2) of section 2.1.9, "Application Requirements" after the final fiscal year of Phase 1 (after FY 2024[16]), you can extend the research period and continue the research. In such cases, research funding is, in principle, reduced depending on the period of the duplication of the research. To extend the research period and reduce research funding, the research director FOREST PO and JST make deliberation and make a decision. For details, see the Official Administration Manual (Supplemental Version) (in Japanese only)."

(a) When a life event occurs (childbirth, childcare, care giving)

(b) Long-term stay in a foreign institution under a program other than this program

* When the researcher is unable to allocate more than a certain level of effort (set by the FOREST PO) on the FOREST while staying at a foreign research institution for international collaboration activities that contribute to the researcher's career development, such as overseas training programs or joint research with overseas researchers through external funding programs other than this program.

(c) In the event of damage to research institutions due to a large-scale disaster, etc.

(d) In the event of other circumstances, which cause the interruption of the research, approved by the FOREST PD Committee, FOREST PO, or JST.

(2) Program for Postponement of the Start of Research

If any following condition from (a) to (c) are satisfied, the start of your research is postponed, while you can hold the eligibility as a successful applicant.

(a) Until the transfer to the institution in Japan that is to conduct the FOREST research in the case of a researcher who belongs to an organization overseas and has a Japanese nationality at the time of the research application successfully selected

(b) Until the finalization of the research in the PRESTO Program and the AMED PRIME program in the case of a research director who has received research funding from JST in the PRESTO Program and from AMED in the PRIME Program (applicable only to the research projects to be completed by the end of March 2023).

(c) In any other special circumstance necessitates delaying the commencement of research, subject to the FOREST Program Director (PD) Committee, FOREST POs, and JST providing approval to such decisions.

[16] If you choose section 3.2.4, "Programs for Interruption and Extension of Research, and Postponement of the Start of Research," your research period will be postponed by the same period.

However, when starting the research, the application requirements (see "2.1.9 Application Requirements") that were met at the time of the selection must remain met.

(3) Upper Limit on Interruption of Research and Postponement of the Start of Research

The research interruption period based on "(1) Interruption and Extension of Research" and the period of postponement based on "(2) Postponement of the Start of Research" are limited to two years in total for each Research Director.

3.2.5 Evaluation of Research Project

a. The FOREST PO, with the cooperation of the FOREST AD and others, will conduct ex-post evaluation of the research project as soon as possible after the completion of the research or at an appropriate time before the completion of the research, depending on the characteristics and stage of development of the research.
b. In addition to the above, the FOREST PO may conduct a project evaluation at a time when it is deemed necessary.

3.2.6 Responsibilities of the Selected Researchers

a. FOREST Researchers are obliged to conduct their research, honestly and effectively, fully understanding that their research is funded by precious tax revenues collected from citizens.
b. These persons must agree with fulfilling the following duties presented to them at JST briefing and other and submit an agreement to JST, after their research projects are selected.
   (1) Comply with application guidelines and other requirements.
   (2) Understand that JST research budgets are funded by tax revenues from citizens and do not become involved in any research misconduct, including fabrication, falsification, and plagiarism, and/or the improper use of the research fund.
   (3) Ensure that all the researchers and others participating in the research project are informed of the JST-designated Educational Program on Research Integrity (eAPRIN (ex-CITI Japan) e-learning program) and let them to enroll in and complete the program. For details, refer to “4.23 Enrolling in and Completing the Educational Program on Research Integrity”. Note that failure to complete the Educational Program on Research Integrity would result in the suspension of the research budget until the completion has been confirmed by JST.
c. Pursuing and Managing Research
   (1) FOREST Researchers are responsible for arranging research conducting locations and environments necessary for pursuing their research. If serious weaknesses in theses are found, the research project may be cancelled.
   (2) FOREST Researchers are responsible for submitting research reports and other required documents to JST (including FOREST PO) as well as for materials preparation required for the evaluation of their research

project. They also are responsible for submitting a research report describing the progress of their research to FOREST PO on his/her request as well as for regularly submitting a semiannual report to him/her.

d. The FOREST researcher will be responsible for the control and management of research budget, administrative procedures, management of research participants, travel, etc. Please give consideration to the research environment, working environment and conditions of the research participants, especially of the researchers hired with the research budget of this program.

e. When hiring young postdoctoral fellows with research budget, please make a proactive effort to support them in ensuring diverse career paths both domestically and internationally. An activity plan to support diverse career paths for young postdoctoral researchers hired with research budget (*) will be confirmed at the interview screening. For details, please refer to "4.13 Improvement of Treatment of Doctoral (second semester) Students."

* Some of the activities under this activity plan may be included in the research effort.

f. The researcher is asked to participate in various events of the "Place for Fusion" including the FOREST meeting as well as to cooperate in the planning and management of the events.

g. Handling of Research Results

(1) Given that research results are obtained with national government funding, it is requested that research results be actively reported both domestically and internationally, with due consideration for the acquisition of intellectual property rights.

(2) When reporting on research results through research papers or other media, please acknowledge that the research results were obtained by the FOREST Program.

(3) Research team members may be requested to participate in domestic and international workshops and symposia sponsored by JST and to report on research results there.

(4) It is requested that an active effort be made to secure intellectual property rights. In principle, intellectual property rights are to be applied, in accordance with Collaborative Research Agreement contract terms, by the research institutions with which researchers are affiliated.

h. Researchers are requested to actively engage citizens in discussions of science and technology to promote citizens' understanding and support of science and technology.

* Please refer to the guideline details in "8.15 Dialogue and Collaboration with Public Stakeholders."

i. Researchers shall abide by Collaborative Research Agreement entered by JST and research institutions, and shall abide by JST's various rules.

j. It should be noted that JST will provide research project names, names of researchers, research budget information, and other required information to the Cross-ministerial R&D Management System (e-Rad) and the Government Research and Development Database. Research Directors and others, therefore, are going to be requested to provide these types of information in this respect. ("4.25 Handling of Information Provided in Research Proposals, etc.")

k. Researchers are requested to working together with JST, for conducting Research evaluations, JST accounting examinations, accounting audits by the national government, and other similar activities.

l. With the cooperation of the affiliated institution, by organizing an environment in which FOREST researchers can devote more time to the research, please ensure that the research hours are at least the following ratio of effort to the overall work activities such as research activities, education activities, and social service activities.[17]

- Science-related: 55%
- Engineering- or Agriculture-related: 45%
- Medicine-related: 35%

* As for the concept of effort, please refer to “4.2 Measures Against Unreasonable Duplication and Excessive Concentration.”

m. FOREST researchers who have not met "2.1.9 (3) Conditions for Independence" at the time of the application are encouraged to make an effort to meet the conditions during the Phase 1 period.

3.2.7 Responsibilities of Research Institutions

Research Institutions must fully recognize that the research funds are public funding and ensure compliance with related law, and make efforts to implement the research effectively. Research institutions that cannot accomplish the tasks described below will not be enjoined to implement research. Researchers are requested to obtain consent for pursuing the tasks from their research institutions, where their research is going to be implemented before the research implementation.

a. Research institutions are obliged to conclude a Collaborative Research Agreement with contents proposed by JST, as a standard, also they are obliged to properly implement a research, in accordance with the Collaborative Research Agreement(*), administration process manual, and research plan approved by JST. In the case that they cannot conclude a research contract with JST, and in the case that they are judged by JST that they cannot properly implement a research, an implementation of a research at the institutions shall not be admitted.

※ The latest sample of research contract agreement which is published on FOREST website.

b. Research institutions with an autonomous institutional management and audit system for public research budgets are obligated to properly execute the contract research funds in accordance with the “Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)” (decided by the Minister of Education, Culture, Sports, Science and Technology on February 15, 2007; revised on Feb. 18, 2014). in addition to reporting the status of their management and audit system for public research budgets to the Ministry of Education, Culture, Sports, Science and Technology, research institutions are also obligated to be corporative in various investigations into their system implementation and other related

[17] The aforementioned refers to the ratio of the hours taken for the research activities in general as opposed to not only this program but also to the overall work activities.

matters (4.20 Consideration on "Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)").

https://www.mext.go.jp/a_menu/kansa/houkoku/1343904.htm

c. In accordance with the "Guidelines for Responding to Misconduct in Research" (August 26, 2014, adopted by the Minister of Education, Culture, Sports, Science and Technology), research institutions are obliged to implement regulations and systems necessary for preventing research misconducts, and are responsible for operating the regulations and systems effective in actual situations. Also, research institutions are responsible for responding to various investigations relating to the construction of administration based on the guideline (4.21 Consideration on "Guidelines for Responding to Misconduct in Research").

https://www.mext.go.jp/b_menu/houdou/26/08/1351568.htm

d. Research institutions are responsible for ensuring that associated researchers fully recognize the contents of the above guideline described in a., b. and c. and making them trained with educational materials related to research ethics provided by JST.

e. Research institutions shall expend and manage research expenses properly in accordance with the regulations of the research organization while keeping reasonable flexibilities in the expenditure operation; as for expense items subjected to the administrative process manual, and etc., provided by JST, stating special regulation rules of expense in FOREST Program. (Research institutions receiving Grants-in-Aid for Scientific Research expenses can handle their expense in conformity with the handling rule of the Grant-in-Aid for Scientific Research expenses, as for items not described in the administrative process manual).

f. Research institutions need to conclude contracts with researchers who are going to participate in the Research and are to be an inventor of intellectual properties with regard to the Research, to ensure the properties be transferred from the researchers to the institutions. In particular, when a person who is not subject to the service invention regulations of a research institution such as a student who is not in an employment relationship with the research institution is a research participant, it is necessary to take appropriate action, such as concluding an contract with the student in advance to ensure that intellectual property rights pertaining to the invention (including conception) made by the student in the course of conducting the research belong to the research institution, except in cases where it is clear that the said student cannot become the inventor. Regarding the conditions of compensation for transfer of intellectual property rights, those concerned are asked to act in a way that is not unfavorable to the student who is the inventor.

In addition, when the intellectual property is transferred to and exclusive licenses to use the property are granted to other persons or parties, etc., a prior approval of JST is needed in principle, and when the application, registration, implementation, and renunciation of the property rights are going to be conducted, a priori report to JST is needed. Regarding the intellectual property produced through conducing the contract research of JST by research institutions, the institutions are obliged to notify and make necessary applications to JST that are relevant to Article 17 of the Industrial Technology Enhancement ACT, even after the completion of the contract research.

g. Research institutions are responsible for responding to accounting investigations by JST and account audits by the government.

h. Research institutions are obliged to obey measures pertaining to the change of terms of payment as well as accept the decrease of payments decided by JST, based on JST investigations on their administrative management systems, financial conditions, etc.

   In addition, if the project evaluation at the end of the JST mid- and long-term target period calls for the dissolution or contraction of the JST, or changes in the state of budgetary measures in the country, the contract period, in the case of contract cancellation and contract research expenses reduction measures may be taken. In addition, based on the results of the mid-term evaluation of research subjects, it may take measures such as increase or decrease of commissioned research expenses, change of contract period, cancellation of research, etc., and when JST judges that the continuation of research is not appropriate. Even during the term of the contract, JST may take measures such as cancellation of the contract. Research institutes need to follow these measures.

i. When research institutions are national or municipal organizations, such institutions concluding research contracts are definitively obliged to implement necessary budgetary measures before entering research contracts for which they are responsible. (In case it becomes apparent that the non-fulfillment of necessary measures has not been taken, after the concluding the contract, JST will take measures to release the research contact and rescind the research funds.)

j. As a part of the effort to prevent misconduct in research and development activities, JST has required researchers, who take parts of newly selected research projects and who also are affiliated with a research institution, to enroll in and complete the educational program on research integrity (The procedures required for enrollment will be handled by JST). Research institutions are responsible to supervise, without fail, their enrollment in and completion of the program by the relevant persons.

   In the case that the relevant researchers of the institution fail to complete the educational program as stipulated despite repeated reminders by JST, JST will halt, partially or entirely, the payment of contract research fund. In line with this, the research institution is to halt all use of the research funds and not to restart the use until further notice from JST is given.

k. Research institutions are obliged to take necessary measures, such as concluding research contracts with other institutions participating in the Research, regarding the handling of intellectual property rights and non-disclosure agreements, not to creating problems in implementing the Research and utilizing the Research achievement.

l. Research institutes are requested to execute appropriate measures to fulfill their accountability, paying full attention to economics, efficiency, effectiveness, legitimacy, and accuracy, since the state funds shall be used as a source of funding for entrusted research expenses. In addition, research institutes need to make sure to work on planned execution and be careful not to procure for the purpose of budget reduction at the end of the research period or at the end of the fiscal year.

m. In this program, it is stated that it aims to secure an appropriate research environment suitable for the execution of FOREST with the support of the affiliated universities and other research institutions of each researcher. For example, the affiliated institutions are expected to provide finely tuned support in consideration of the situations the researchers are in, such as “the shared use of research equipment available to the researchers supported by this program due to the limited budget for this program” and “consideration

and support from the affiliated institutions for securing research hours in light of the fact that the research hours of university faculty members are becoming shorter every year." In particular, if an FOREST researcher has not met the "2.1.9 (3) Conditions for Independence" at the time of the application, please give considerations so that he or she can meet these conditions during the Phase 1 period. For those affiliated institutions that have provided proactive and excellent support for securing a research environment in which the researchers supported by this program can concentrate on FOREST, there is a plan to provide additional support, upon review, to improve the research environment surrounding those researchers.

3.2.8 Programs for Supporting Childbirth, Childcare, and Care Giving

As part of the efforts to promote gender equality, JST offers a support program for childbirth, childcaring, and care giving. This program provides a "Gender Equality Promotion Fund" (maximum amount: 300,000 yen per month x number of months of support) for research projects, etc., with the aim of enabling the researchers who are employed full-time as researchers or the like under the research funds (excluding indirect costs) from JST programs to continue their research, or their careers from the time they return to their research if they are forced to temporarily suspend their research, in the event of a life event (childbirth, childcare, care giving).

For details, please refer to the website below.

https://www.jst.go.jp/diversity/about/research/child-care.html

3.2.9 The use of JREC-IN Portal

The database of research human resources (JREC-IN https://jrecin.jst.go.jp/seek/SeekTop?ln=1) is the largest website supporting research human resources in Japan. It is free to browse this service containing information on human resources, including researchers, their supporters, and engineers involved in research.

At present, the database holds more than 10,000 pieces of information on needed human resources from universities, public research organizations, and private business firms, in addition to more than 130,000 registered users. Use JREC-IN Portal to look for research human resources (postdoctoral, researchers, and so on) with high levels of knowledge to promote research projects.

Furthermore, JREC-IN Portal collaborates with researchmap. It may be reach by logging in with a researchmap ID and password. It functions for the preparation of resumes; achievement lists can use the information registered in researchmap to prepare these documents.

Chapter 4 Key Points in Submitting Proposals

4.1 Enrolling in and Completing the Educational Program on Research Integrity

The research project applicant must complete the Educational Program on Research Integrity as a prerequisite for application. Note that if completion of the program cannot be confirmed, the application will be disqualified for failing to meet the requirements.

To enroll in the Educational Program on Research Integrity and to submit a declaration of completion, follow either procedure (1) or (2) below. For application instructions using e-Rad, refer the e-Rad user manual.

(1) For applicants who have completed an equivalent program at their institution

Applicants, who have already completed an e-learning program or educational seminar on various aspects of research integrity (including eAPRIN (ex-CITI Japan) e-learning program and JSPS e-Learning Course on Research Ethics) at your institution by the time of their application, are requested to make the declaration of it on the e-Rad application information input screen.

(2) For applicants who have not completed an equivalent program at their institution (including applicants at institutions who do not have such a program)

a. Applicants who have in the past completed eAPRIN (ex-CITI Japan) e-learning program in a JST program.
Applicants who have in the past completed eAPRIN (ex-CITI Japan) e-learning program in a JST program by the time of their application are requested to make the declaration of it on the e-Rad application information input screen.

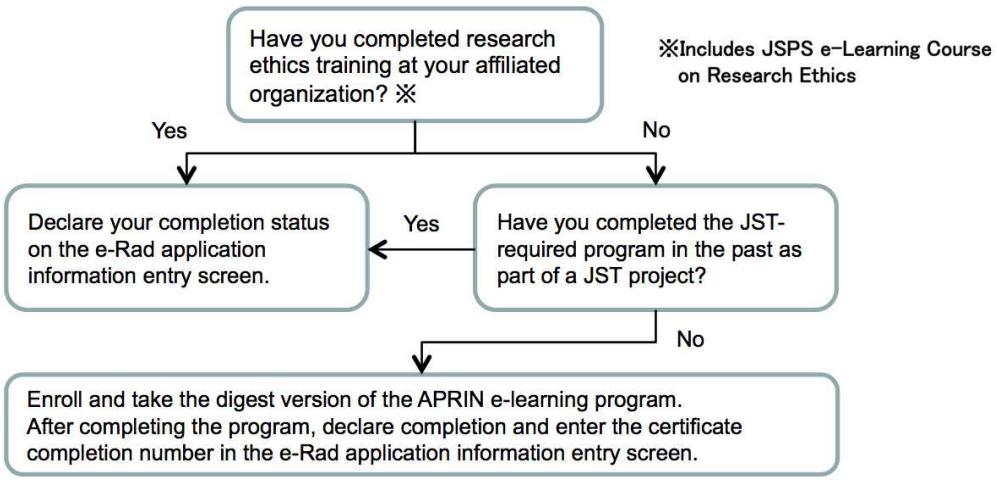
b. For other applicants for whom a. above does not apply.
Applicants who find it difficult to enroll in the educational program for research integrity because their institution does not offer such a program or for other reasons may enroll in and take a digest version of eAPRIN (ex-CITI Japan) e-learning program offered through JST. Please attend from the URL below.
Course URL: https://edu2.aprin.or.jp/ard/

No cost is needed for completing the program, which will take one to two hours to complete. Once enrolled, applicants are expected to complete the program without delay and then to declare the completion of the program and to also enter the number of the completion confirmation sheet (7 figures number ＋ARD) in the e-Rad application information input screen.

■ Contact for consultation on the Educational Program on Research Integrity
Japan Science and Technology Agency
Department of Audit and Legal Affairs, Research Integrity Division
Email: rcr-kousyu@jst.go.jp

■ Contact for consultation on the call for application
Japan Science and Technology Agency
Department of Innovation Research
Email: souhatsu-application@jst.go.jp * Include the program name, e-Rad project ID, research applicant name, and project name in the body of email.

<Flow chart for Reporting Completion of Research Ethics Education Programs>



JST requires researchers FOREST program to enroll in and complete designated units of the eAPRIN (ex-CITI Japan) e-learning program. All researchers of an accepted proposal are required to complete the designated units of the eAPRIN (ex-CITI Japan) e-learning program (excluding those who have already completed the seven designated modules at their institution or in another JST program).

4.2 Measures against Unreasonable Duplication and Excessive Concentration

○ Measures against “Unreasonable Duplication”

If a researcher is unnecessarily receiving competitive funds from multiple sources for the same research project (same project name or content receiving competitive funding or proposal-based research funding (hereinafter referred to as "competitive funds") being undertaken by the same researcher, and any of the following applies, the researcher shall be made ineligible to apply for this program, or selection of their research project withdrawn, or their budget reduced (hereinafter referred to as “withdrawal of research project selection.”)

1) In the case that simultaneous proposals have been submitted for multiple competitive research funds and duplicate approval granted for essentially the same research project (including cases in which there is a considerable degree of research content duplication; hereinafter the same shall apply).
2) In the case that a duplicate application is made for funding of a research project that is essentially the same as another research project that has already been selected and has already received competitive research funding.
3) In the case that there is an overlap in intended application of research funding between multiple research projects.
4) Other cases equivalent to the above.

At the application stage for this program there are no limitations regarding the submission of proposals to other competitive funding programs, etc. If a research project is selected by another competitive funding program, report this promptly to administrator of FOREST program in JST (Office of Disruptive Research, JST). If reporting is omitted, the approval decision for the research project may be revoked.

○ Measures against “Excessive Concentration”

Even if the content of the research proposed for this program differs from the content of another research being carried out under another competitive funding program, if that the overall research funding allocated to the same researcher or research group (hereinafter referred to as “researchers”) in relevant fiscal year exceeds an amount that can be utilized effectively and efficiently and can be used within the research period, and any of the following applies, selection of the research project under this program may be withdrawn.

1) In the case that an excessive amount of research funding is being received in light of the capabilities of the researchers and the research methods being used, etc.
2) In the case that an excessive amount of research funding is being received, compared with the amount of effort (percentage of the researchers’ overall working time that is required for carrying out the said research project* :100%) allocated to the research project.
3) In the case that highly expensive research equipment is purchased unnecessarily.
4) Other cases equivalent to the above.

For this reason, if you submit proposals to other competitive funding programs, after submitting your application to this program, and the research project is selected by another competitive funding program, or if any information provided on your application changes, please report this promptly to administrator of FOREST program in JST (Office of Disruptive Research, JST). If reporting is omitted, the approval decision for the research project may be revoked.

*The total work time of a researcher includes the time not only for research activities but also for teaching activities, management assignments, and other activities substantially equivalent to work.

Besides the <Projects Subject to Duplication Restriction> stated in item "i," segment (2) of section 2.1.9, if the research applicant is to receive the funding exceeding 30 million yen per year in total in any other system, research aid, or the like including that from any system or private funds overseas in FY 2021 or in FY 2022, the judgement of acceptance or rejection of the application, the amount of the budget, and so forth will be determined based on a

comprehensive viewpoint in consideration to the elimination of unreasonable duplication or excessive convergence[18]. The aforementioned does not necessarily apply to the research at the stage of application; however, the research application in this program may be excluded from the screening process and the research application successfully selected may be canceled depending on the result of the aforementioned selection.

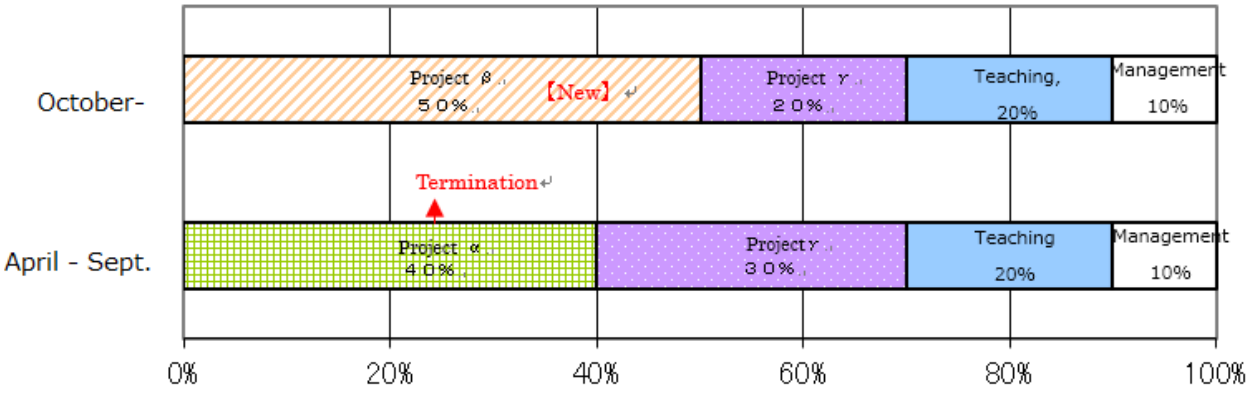
[18] In the case in which excess research funding has been distributed compared with the effort (the ratio (%) of the time that is to be necessary for the implementation of the applicable research with respect to the total time of the work of the researcher) distributed to the applicable research project.

How "effort" should be understood

Definition of "effort"

○ According to the Third Science and Technology Basic Plan, "effort" is defined as "the distribution of time during which an individual engaging in a research copes with a research, education, and management."
○ When a researcher makes a proposal for a research project, he/she needs to describe the percentage of his or her time required to implement the research relative to the time that is taken for his/her total work."*
○ Note that the total work time includes not only the time for research activities but also the time taken for teaching and management activities.

○ Accordingly, the amount of "effort" may vary depending on a review or an assessment of a research.
Ex. Project α is canceled halfway in the fiscal year and Project β is adopted. The state of the percentage of the total work time is as shown here. (Project γ continues for one year.)



○ In this example, Project α is canceled at the end of September (40% effort distributed) and Project β is started as a new one from October (50% effort distributed). The "effort" in Project γ varies from 30% to 20%.

*"Guideline for Proper Implementation of Competitive Funds" (an agreement at the liaison committee of relevant governmental bodies concerning competitive funds, revised on June 22, 2017)

○ Information on Proposal Contents Provided to Eliminate Unreasonable Duplications and Excessive Concentration

In order to eliminate unreasonable duplication and excessive concentration, to the extent necessary the information of some proposals (or selected projects/programs) may in some cases be provided through the Cross-ministerial R&D Management System (e-Rad) to other departments in charge of competitive funds, including other government ministries. Furthermore, when it is required that checks be made for duplicate project applications under other funding programs, the information may be provided in a manner alike.

4.3 The State of Acceptance of Applications for Other Competitive Funds Including Other Governmental Bodies

Based on information on the content of the research proposal and effort (research time allocation rate), if either unreasonable duplication or excessive concentration of competitive funding has formed, the research proposal may not be selected, or selection may be withdrawn, or research funding may be reduced. Furthermore, the research proposal may also not be selected, or selection may be withdrawn, or research funding may also be reduced in the case that the information provided in the research proposal is found to be false.

4.4 Measures against Inappropriate Usage of Research Funds

Inappropriate use and reception (referred to as "inappropriate usage" hereinafter) of research budgets related to implemented issues are strictly treated as described below.

○ Measures Taken in the Case that Inappropriate Usage of Research Expenses are Found

(i)Measures to Cancel Contracts

The Collaborative Research Agreement contract is cancelled or altered if issues of inappropriate usage are found, and a request is made for refunding all or part of the entrusted funds. Contracts for the following year and subsequent years may not be concluded.

(ii) Measures to Restrict Application and Participation Eligibility[19]

Restriction measures set out in the table below, depending on the levels of inappropriate usage, are taken against the application and participation eligibility of researchers[20] (including researchers who conspired, referred to as ("researchers who conspired to inappropriate usage")) who exercised inappropriate usage of research expenses of this project or those whose involvement in inappropriate usage is not proven but who violated due care of a prudent manager. Or, they are otherwise reprimanded.

Furthermore, the outlines of pertinent inappropriate usage (names of researchers who exercised inappropriate usage, project names, affiliations, research issues, amounts of budget, fiscal year of research, contents of inappropriate usage, contents of measures taken) are provided to persons of other ministries and their independent corporations in charge of competitive funds, who may restrict application and participation of the researchers in other systems for competitive funds of the prefectures.

[19] "Application and participation" refer to the proposal, subscription, and application of a new project; participation in research as a new joint researcher; and participation in an ongoing research project as a research director or a joint researcher.

[20] "Researchers who violate due care" refer to those whose involvement in inappropriate usage is not proven but who violated the duty of due care of product manager they should exercise.

<table>
<tr><td>Classification of person who committed or is involved in misconduct in use of research budget</td><td colspan="2">Extent of maliciousness in misconduct</td><td>Period of ineligibility for applying to competitive research fund, deemed to be reasonable*3</td></tr>
<tr><td rowspan="4">A researcher who committed a misconduct or a researcher who was in conspiracy with a person who committed a misconduct *1</td><td colspan="2">1. Use of a research budget to make a private profit</td><td>10 years</td></tr>
<tr><td rowspan="3">2. Other than 1.</td><td>①Impact of the misconduct on the society is substantial and maliciousness of the misconduct is judged to be high</td><td>5 years</td></tr>
<tr><td>② Neither ① or ③</td><td>2-4 years</td></tr>
<tr><td>③The impact of the misconduct on the society is small and the maliciousness of the misconduct is judged to be low.</td><td>1 year</td></tr>
<tr><td>A researched who used a fabrication and other dishonest means to receive a competitive research fund or etc. and a researcher who was in conspiracy with the person who committed this misconduct</td><td colspan="2"></td><td>5 years</td></tr>
<tr><td>A researcher who did not commit or was not involved in a misconduct, but used a research budget, inappropriately, failing to fulfill his/her duty of due care of prudent manager *2</td><td colspan="2"></td><td>1 to 2 years (in maximum) in accordance with the degree of failure of fulfilling his/her duty of due care of prudent manager</td></tr>
</table>

A strict warning is issued under any of the following conditions without restricting application or eligibility for participation.

*1: In case of item 1, the influence over the society is minor, the malignancy of the act is minor, and the amount of unjustifiable use is small.

*2: In case of item 3, the influence over the society, as well as the malignancy of the act, is minor.

*3: Also ineligible in the fiscal year in which inappropriate usage of research funds are identified.

(iii) About Public Announcement of a Case of Inappropriate Usage

Among those who are involved in an inappropriate usage of the program's research funds or those who failed to fulfil their duty of due care of prudent manager, regarding those researchers whose eligibility of application to or participation in this program is restricted, information of the outline of their misconduct (name of researcher, name of program, name of affiliated institution, fiscal year of research, details of misconduct, details of measures taken) will be disclosed in principle by JST. At the same time, information of outline of their misconduct will be disclosed in principle by MEXT.

https://www.mext.go.jp/a_menu/kansa/houkoku/1364929.htm

Furthermore, according to the "Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)," once misconduct is determined as the outcome of an investigation of an institute, it will be the responsibility of the research institution to announce the results of the investigation; hence, we request that each institution deal with the matter appropriately, following the "Guidelines".

4.5 Measures taken for Researchers whose Application and Participation Eligibilities are Restricted in Another Competitive Fund System

Researchers on whom restriction is imposed for the reason of inappropriate usage of research expenses in another competitive fund system (*) under the central government or independent administrative agencies are not eligible to apply to or participate in this program while their qualifications are restricted for application in the competitive fund system.

"Other competitive fund systems" include those systems that newly start a call for proposals in public 2021 fiscal year and those that finished before the 2020 fiscal year.

* Refer to following website
https://www8.cao.go.jp/cstp/compefund/

4.6 Majors taken to the Violation of Related Guidelines

Violation of the guidelines provided in this chapter or any other inappropriate behavior may result in withdrawal of approval for the research project or cancellation of the research; return of all or part of the project's research funding, and measures taken to publicize the facts of the matter.

Violation of related laws or guidelines, etc., in conducting research may result in penalties and sanctions being applied to persons and organizations that committed the violation, and the suspension or cancellation of research funding.

4.7 Storage of Receipts and Report of Actual Usage of Overhead Costs (Indirect Costs)

Institutions who received overhead costs are required to manage the costs appropriately and store the receipts as an evidence for the appropriate use of overhead costs for five years counted from the next fiscal year from which the project ended.

Institutions which received overhead costs are required to report the actual use of overhead costs via e-Rad before June 30 of the next fiscal year. (If a research institute has acquired two or more competitive funds, report all indirect costs accompanied by such competitive funds.)

How to use e-Rad system is described on user manual of e-Rad is provided on the website (https://www.e-rad.go.jp/manual/for_organ.html).

FAQs are also provided on the website (https://qa.e-rad.go.jp/?site_domain=default).

4.8 Carryover of Research Expenses

Making a carryover of research expenses until the end of next fiscal year for a maximum, may be permitted according to the delay of the progress in the project occurs and is difficult to conclude within the fiscal year due to

unavoidable conditions difficult to determine in advance the research or study method of the experimental research, such as weather-related conditions, obtaining rare materials and others etc.

4.9 Cross-ministerial Expenses Handing Partitioned Table

The expense items of research costs specific to FOREST Program are determined on the basis of “Cross-ministerial Expenses Handing Partitioned Table.” As for research expenditure, refer to the “Cross-ministerial Expenses Handing Partitioned Table” as well as JST official administration manual which is published on the website.

https://www8.cao.go.jp/cstp/compefund/toitsu_rule_r30305.pdf

Currently, the systems of competitive research funding are during improvement under the influence of "Integrated Innovation Strategy 2020" and "Comprehensive Package for the Enhancement of Research Abilities and the Support for Young Researchers." On this basis, this project has defined necessary terms and conditions as posted on the websites for the cases in which the expenses for the labor cost of a research director (referred to as "PI" from here) are paid or any expense for the cost of outsourcing any work other than researching (buyout expenses) is paid from the fudged for direct costs.

(Expenses for the labor cost of PIs)

https://www8.cao.go.jp/cstp/compefund/pi_jinkenhi.pdf

(Buyout expenses)

https://www8.cao.go.jp/cstp/compefund/buyout_seido.pdf

4.10 Exchange of Direct Costs between Expense Items

Direct costs of different expense items can be exchanged under certain condition. Exchange are allowed without approval from JST when the amount of direct costs to be exchanged does not exceed 50% of the total direct costs.

4.11 Securing Research Period until the end of Fiscal Year

In order to enable researchers to continue their research work until the end of a fiscal year, statements below should be followed in every JST competitive funds.

(1) The research institutes and researchers must submit the notification of the completion as a work product of the project in a prompt manner when a project is finished. JST makes inspections on the completion of the project and the achievements of the research.

(2) Submit the accounting report by May 31.

(3) Submit the report on the research achievements by May 31.

* When the end of the research falls on a date other than March 31, the deadline for submission is, as a rule, 61days after the end date.

Each research institute should make efforts to organize necessary systems at the institute based on the fact that the purpose of those practices is to secure the research period that continues at the end of a fiscal year.

4.12 Promotion on Effective Use of Research Facilities and Equipment

According to “Reform on Competitive Research Funds for Sustainable Creation of Research Achievements (Midterm Summary)” (Examination Meeting on the Reform of Competitive Funds, June 24, 2015), it is considered appropriate that facilities/equipment which are comparatively large in scale and have high general applicability should in principle be shared, under the assumption that the original research objectives are sufficiently accomplished.

In addition, “Introduction of a New Research Facility/Equipment Sharing System Integrated with the Management of Research Institutes” (Advanced Research Platform Group, Council for Science and Technology, November 2015) requires the operation of a “system to share research facilities/equipment in research organization units” (hereinafter, “equipment sharing system”) in universities, National Research and Development Agencies, and similar institutions.

In addition, the "Research Enhancement Reform 2019" (Ministry of Education, Culture, Sports, Science and Technology, April 23, 2019) and the "Comprehensive Package for Enhancing Research Capability and Supporting Young Researchers" (Council for Science, Technology and Innovation, January 23, 2020) also call for the facilitation and sharing of research equipment and facilities.

Based on the above, for research facilities/equipment which are purchased by this program, and particularly for large scale, general purpose items, positive efforts for sharing should be made, including sharing within the scope that does hinder the progress of the applicable Research Project, use of research facilities and equipment purchased with other research funds, and purchase and sharing by combining multiple research funds, within the scope of the management conditions of other research funds and in accordance with the equipment sharing system in the affiliated institution or organization. Please note that it is necessary to strike a balance between management as shared equipment/facilities and accomplishment of the research purpose of the applicable Research Project.

Moreover, in addition to the above-mentioned equipment sharing system, participants are also asked promote sharing of research facilities/equipment beyond the framework of individual research organizations and institutes by positively cooperating with the “Inter-University Network for Common Utilization of Research Equipments,” which was implemented for the purpose of mutual use of facilities in the Institute for Molecular Science, National Institutes of Natural Sciences, and the nationwide academic sharing system constructed in the “Facility Support Center Development Project” by each national university.

○ "Introduction of a New Research Facility/Equipment Sharing System Integrated with the Management of Research Institutes" (Advanced Research Platform Group, Council for Science and Technology, November 2015), in Japanese.
https://www.mext.go.jp/component/b_menu/shingi/toushin/__icsFiles/afieldfile/2016/01/21/1366216_01_1.pdf

○ "Reform on the Competitive Research Funds for Sustainable Creation of Research Achievements (Midterm Summary)" (Examination Meeting on the Reform of Competitive Funds, June 24, 2015), in Japanese.
https://www.mext.go.jp/b_menu/shingi/chousa/shinkou/039/gaiyou/1359306.htm

○ Unification of usage rule of competitive research funds (April 20, 2017), in Japanese.
https://www8.cao.go.jp/cstp/compefund/shishin3_siyouruuru.pdf

○"Purchase of shared facilities by multiple research funding systems (combined use)"(March 31, 2020), in Japanese.
https://www.mext.go.jp/a_menu/content/20200910-mxt_sinkou02-100001873.pdf

○ Inter-University Network for Common Utilization of Research Equipments, in Japanese.
https://chem-eqnet.ims.ac.jp/

○ New shared system introduction support program, in Japanese.
https://www.jst.go.jp/shincho/program/pdf/sinkyoyo_brochure2019.pdf

4.13 Improvement of Treatment of Doctoral Student Participants

In the 5th Science and Technology Basic Plan, in order to attract outstanding students and professionals domestically and internationally, it is stated "to aim for about 20% of doctoral (second semester) students to be able to receive an amount equivalent to the cost of living" as the numerical target to enhance financial support for graduate students, especially for doctoral (second semester) students. Consequently, there is a need to increase employment and improve treatment of doctoral (second semester) students as RA (research assistant), or others at each one of the universities and research and development corporations. Furthermore, in the "Comprehensive Package for Enhancing Research Capability and Supporting Young Researchers " (Council for Science, Technology and Innovation, January 23, 2020), with the aim that “doctoral students in second semester can receive an amount equivalent to the cost of living if desired in the future”, it presents the "promotion of securing an appropriate salary level for RAs and other researchers on competitive research funds and joint research funds" as one of the concrete measures.

Furthermore, the "Guideline for the Employment and Nurturing of the Postdoctoral etc." Human Resources Committee, Council of Science and Technology, December 3, 2020) stated concerning the students in doctoral courses that "they have the aspects of both students and researchers, and providing a good environments for conducting research activities and securing the working conditions for them are important duty of the universities and colleges, which are to nurture researchers," that "specifying the compensation appropriate to the nature and contents of work, paying compensation according to the time spent for work under an appropriate management of the working, and providing the compensation according to the contribution appropriately evaluated are important in

particular," and that "reviewing the rules, regulations, and the like in each universities and colleges is necessary so that some necessary cost may be counted up as the direct cost to recruit an RA at the time of application for a competitive research funding, and that paying the compensation at an appropriate level to such RA may be possible."

Based on the above, in this program, please actively employ doctoral (second semester) students who are necessary for the execution of the research as RAs and TAs to the extent consistent with the objectives of this program and the research plan of the FOREST researcher, and pay them according to the hours worked under appropriate work management by setting a unit price commensurate with the nature and content of the work while setting the salary level to be equivalent to the cost of living. In addition, when applying for this program, please apply with a financial plan that also takes into account the costs of the above-mentioned assistance work by doctoral students.

* Salary level equivalent to living expenses (around 1.8 to 2.4 million yen per year):
  It is set at 1.8 to 2.4 million yen as a guideline for the range of amounts needed for living based on the fact that 1.8 million yen per year is assumed to be the equivalent of living expenses in the 5th Science and Technology Basic Plan, and the amount paid for Research Fellowship (DC) as research grants provided to outstanding doctoral (second semester) students to enable them to concentrate on their research without financial concerns.

- The "Guideline for the Employment and Nurturing of the Postdoctoral etc." states concerning the treatment in the case in which a student in a doctoral course is hired for executing a research project that "the payment of 2,000 yen to 2,500 yen per hour be standard in consideration to the average amount of the salaries etc. of the specially appointed assistant professors etc. hired for some competitive research funding, etc."
- The specific amount and period of payment will be determined by the research institution. There is no restriction on the amount of payment above or below the level mentioned above.
- When hiring students as RAs, etc., please consider not making them work excessive hours and the balance between the work time and doctoral (second semester) students' own research and study time.

In this program, it is planned that some additional support necessary to hire an RA (equivalent to the amount of living expenses at the maximum) is paid in an attempt to nurture the FOREST researchers to be leading researchers and to further facilitate the FOREST research with excellent students in their doctoral courses participating and, in addition, to promote the awareness being changed by researchers, universities, and colleges. For such additional support, we comprehensively review whether the FOREST researcher can take proactive attitudes to cope with the nurturing of the next-generation human resources that may lead the future of this country as a chief at a research laboratory.

4.14 Securing Independent and Stable Research Environment for Young Researchers

In the “Research Enhancement Reform 2019” (Ministry of Education, Culture, Sports, Science and Technology, April 23, 2019) and the “Development of science, technology and innovation policy towards knowledge-based value creation: Becoming a world leader country with the realization of Society 5.0: interim report” (Special Committee on General Policy, Council for Science and Technology, October 24, 2019), with regard to posts with tenure, such as specially appointed faculty members and postdoctoral fellows, the importance of securing tenure of 5 years or more has been pointed out, as the short term of office can be an obstacle to career development.

Additionally, in the case of National University Corporation and Inter-University Research Institute Corporation, it is stated that “In order to achieve two goals of fostering young faculty members and ensuring stable employment, it is desirable to promote the system design that incorporates the perspective of fostering researchers while maintaining mobility, for example by securing a fixed period of employment of around 5 to 10 years through the use of indirect expenses, donations, and other highly flexible expenses, even for a fixed term” in the “Guidelines for Human Resources Salary Management Reform of National University Corporation and Others: Towards building an attractive salary management system that contributes to improving education and research capability.”

Based on the above, if you intend to utilize this program to partially fund the employment of young researchers, such as specially appointed faculty members and postdoctoral fellows, please make an effort to secure the length of the term of office for the phase in which the research is being conducted, upon confirmation with the human resources and accounting staff of the department, etc., and also try to secure the term of office for a certain period of time (around 5 years or more) to the extent possible by utilizing other external funds such as indirect costs, basic costs, and donations.

4.15 Voluntary Research Activities of Young Researchers Employed for Executing a Project

Based on "Implementation Policy on Voluntary Research Activities of Young Researchers Employed for Competitive Research Fund Projects" (The Coordination Committees of Relevant Ministries and Agencies on Competitive Funds, February 12, 2020), when the principal investigator determines that it does not hinder the promotion of the program, participation of such young researchers contributes to the promotion of the program, and approval from affiliated research institute is obtained, the personnel costs for such young researchers can be paid from the research cost, and a part of their efforts can be spent for their activities, including their voluntary research activities and their research and management capacity improvement. For details, refer to the following website:

○"Voluntary Research Activities of the Young Researchers Employed for Executing a Project (Liaison Committee)" (April 10, 2020)

https://www.jst.go.jp/osirase/2020/pdf/20200414.pdf

4.16 Support for Diverse Career Paths for Young Researchers

The “Basic Policy of the Ministry of Education, Culture, Sports, Science and Technology for Supporting Diverse Career Paths for Young Researchers with Doctoral Qualifications Employed with Public Research Funds” (December 20, 2011, Council for Science and Technology, Committee on Human Resources) calls for “active efforts to support public research institutions and Research Directors that employ young researchers with doctoral qualification with public research funds, with the aim of securing diverse career paths in Japan and other countries for young researchers with doctoral qualifications. Based on this, when a project is selected in this call for research applications and young researchers with doctoral qualifications are to be employed with public research funds (competitive research funds or other project research funds, or public invitation-type education research funds for universities), the institution concerned should make active efforts to support those researchers in securing diverse career paths.

Institutions should also consider using indirect funds in these efforts.

4.17 Security Export Control (Measures against Leakage of Technology internationally)

Many advanced technologies are studied at research institutions. Particularly at universities, there is a heightened risk of leakage of advanced technologies and research-related materials/equipment or misuse in development/manufacture of weapons of mass destruction owing to the increased number of international students and foreign researchers due to internationalization. For this reason, an organizational response by the research institution is required when a research institution conducts research activities, including the relevant contract research, so that research results with potential military applications are not passed to groups or individuals considering activities of concern, such as terrorist groups and developers of weapons of mass destruction.

In Japan, export controls (*) are imposed based on the Foreign Exchange and Foreign Trade Act (Act No. 228 of 1949; hereinafter, “Foreign Exchange Act”). Accordingly, when attempting to export (provide) goods or technologies controlled under the Foreign Exchange Act, in principle, a license from the Minister of Economy, Trade and Industry (METI) is necessary. All those participating in this program must comply with the Foreign Exchange Act and all other laws, ordinances, guidelines, notifications, etc. of the national government. In addition to legal action and penalties, distribution of research funds may be stopped and the decision to allocate research funds may be cancelled if research is conducted in violation of the relevant laws, ordinances, guidelines, etc.

(*) Based on international agreements, etc., Japan’s security export control system currently consists mainly of two systems: (1) List control, under which a license from the Minister of METI is necessary in principle in order to export (provide) good (technologies) that have specifications or functions of a certain level or higher (for example, carbon fiber or numerically-controlled machine tools) and (2) catch-all control, under which a license from the Minister of METI is necessary in order to export (provide) goods (technologies) that do not fall under

list control, but do satisfy certain other conditions (application conditions, end-user conditions, and notification conditions).

In addition to the export of goods, technology provision is also subject to control under the Foreign Exchange Law. When a technology which is subject to list control is to be provided to a non-resident of Japan or a foreign country, advance approval for provision of that technology is necessary. “Technology provision” includes provision of technical information such as design drawings, specifications, manuals, samples, prototypes, etc. in paper form, by email, and by CDs, DVDs, USB memory devices and other memory media, and also includes the provision of operational knowledge through technical guidance and technical training, technical support through seminars, etc. Receiving international students from other countries and conducting joint research activities, etc., may also include numerous exchanges of technology that could be subject to control under the Foreign Exchange Act.

Detailed information on security export control has been published at the website of the Ministry of Economy, Trade and Industry (METI), etc. For details, please see the following.

- Ministry of Economy, Trade and Industry (METI)： Security export control (general)
  https://www.meti.go.jp/policy/anpo/englishpage.html
- Ministry of Economy, Trade and Industry (METI)： Security Export Handbook (in Japanese)
  https://www.meti.go.jp/policy/anpo/seminer/shiryo/handbook.pdf
- Center for Information on Security Trade Control: http://www.cistec.or.jp/english/index.html
- Guidance on machine technology control in relation to security export control (for universities/research institutions, in Japanese):
  https://www.meti.go.jp/policy/anpo/law_document/tutatu/t07sonota/t07sonota_jishukanri03.pdf

4.18 Dialogue and Collaboration with Public Stakeholders

According to “Promotion of Dialogue on Science and Technology with the Public (a Basic Approach Policy)” (June 19, 2010, decision of the Minister of State for Science and Technology Policy and expert committee), if a proposal is selected in this call and receives an allocation of public research funds (competitive funds or project research funds) in an amount of 30 million yen per year or more for one project, it is considered essential to have an attitude in which excellent achievements in science and technology are constantly produced, and achievements in science and technology are returned to the public in order to further develop science and technology in Japan, and science and technology are advanced jointly with the understanding and support of the public through “Dialogue on Science and Technology with the Public.” In addition, the 5th Science and Technology Basic Plan (Cabinet decision of January 22, 2016) calls for deepening the conventional relationship, in which science and technology and society are opposed, into a relationship of dialogue and cooperation by various stakeholders, i.e., researchers, citizens, the media, industry, and policymakers, in other words, a relationship that promotes “co-creation.” From these viewpoints, efforts to explain the content and results of research activities to society and the public in easily-understood terms, and efforts to promote dialogue and cooperation among various stakeholders are demanded. Based on this, we ask

that program participants make active efforts in connection with these activities, including holding public lectures and symposiums on research achievements, continuously posting information on research achievements on the internet, and holding roundtable meetings with various stakeholders.

(Reference) “Promotion of Dialogue on Science and Technology with the Public, (A Basic Approach Policy)”
https://www8.cao.go.jp/cstp/stsonota/taiwa/taiwa_honbun.pdf

(Reference) “The 5th Science and Technology Basic Plan”
https://www8.cao.go.jp/cstp/kihonkeikaku/5honbun.pdf

4.19 Data disclosure from The National Bioscience Database Center

The National Bioscience Database Center (NBDC) (https://biosciencedbc.jp/) was established in the Japan Science and Technology Agency (JST, a National Research and Development Agency) in April 2011 to promote the integrated use of databases in the life sciences field created by various research institutions and others. In “Progress and Future Direction of the Integration of Life Science Database Project" (January 17, 2013), the object projects that receive provision of data and databases are to be expanded, centering on the NBDC.

Based on these points, program participants are asked to cooperate in disclosure by the NBDC of the following types of data and databases obtained from this program.

No.	Type of Data	Place of Disclosure	URL
1.	Overview of databases constructed for disclosure	Integbio Database Catalog	https://integbio.jp/dbcatalog/?lang=en
2.	Copies of data in connection with results published in paper presentation, etc. or copies of databases constructed for disclosure	Life Science Database Archive	https://dbarchive.biosciencedbc.jp/index-e.html
3.	Of items in 2, data related to human beings	NDBC Human Database	https://humandbs.biosciencedbc.jp/en/

< Contact >
National Bioscience Database Center of Japan Science and Technology Agency
TEL: +81-3-5214-8491
e-mail: nbdc-kikaku@jst.go.jp

4.20 Inclusion of the Systematic Number in Acknowledgment and Other Sections

When presenting the outcomes of the research obtained through this program, please indicate the receipt of the grant through this program.

When stating the receipt of the grant through this program in the Acknowledgment section of the paper, please include the systematic number specified by this program. The systematic number will be informed individually to each FOREST researcher selected.

The systematic numbers in this program are in the form of JPMJ + FR + four-digit number
Shown below are examples of the systematic numbers used in the acknowledgment in papers.

【in English】

This work was supported by the JST FOREST Program (Grant Number JPMJFRXXXX).

【in Japanese】

本研究は、JST創発的研究支援事業　JPMJFRXXXXの支援を受けたものです。

*If you have two projects or more in relation to a paper, list the names of the projects and the systematic numbers.

4.21 Reformation of Competitive Funds

Currently, the systems of competitive research funding are being discussed by the government of Japan under the scope of "Integrated Innovation Strategy 2020" and "Comprehensive Package to Strengthen Research Capacity and Support Young Researchers " to enable the efficient and effective use of research funds. Further notice will be provided if any principle or the like common in competitive research fund programs with respect to the improvement and operation of the systems is presented within the period of this call-for program and if such a principle is applied to this call-for program and its operation.

4.22 Consideration on “Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)”

（1） Implementation of Management and Audit Systems Based on the “Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)”

In implementing the program, research institutions must stringently observe the “Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)” (decided by the Minister of Education, Culture, Sports, Science and Technology; revised on February 11, 2021) *. There is a need for research institutions, having implemented a system for managing and auditing public research funds, to take responsibility for making every effort to properly disburse the contract research funds in line with the aforementioned guidelines. If the Ministry of Education, Culture, Sports, Science and Technology (MEXT) decides that the system of a research institution for managing and auditing is insufficient, based on an investigation according to the said guidelines, measures such as reduction of overhead costs of competitive funding could be taken on the said institution. “Competitive funding” includes all financing distributed by the MEXT and the independent administrative agency under the jurisdiction of the MEXT.

* Please refer to the following URL for the details of the "Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)."
https://www.mext.go.jp/a_menu/kansa/houkoku/1343904_21.htm

(2) Submission of the "Self-evaluation Checklist for Implementation of Proper Systems" based on the "Guidelines for the Management and Audit of Public Research Funds in Research Institutions (Practice Standards)"

In concluding a contract for this project, the research organization must prepare for a management and auditing system for research expenses based on the said guidelines and submit a "Self-evaluation Checklist for Implementation of Proper Systems" ("checklist," hereinafter), which is a report on the situation (research undertaking is not approved unless the checklist is submitted).

It is necessary for a research organization to use the research and development management system (e-Rad) common to ministries in order to submit the checklist in the form given on the website below to the Competitive Fund Coordination Office, Promotion Planning Section, Promotion Bureau, Ministry of Education, Culture, Sport, Science and Technology by the date of the conclusion of the Collaborative Research Agreement. However, submission of a new checklist is not necessary if it has been submitted on another occasion after April 2021. Each research organization must submit a checklist of the applicable fiscal year by the specified date during the execution period of this program. However, organizations that do not accept any competitive funding or the like or any provision from the Ministry of Education, Culture, Sports, Science and Technology or from an independent administrative agency in the jurisdiction of the Ministry of Education, Culture, Sports, Science and Technology do not need to submit a checklist.

For details on how to submit a checklist, access the following website of the Ministry of Education, Culture, Sports, Science, and Technology.

https://www.mext.go.jp/a_menu/kansa/houkoku/1301688.htm

* Note: A perfect environment for using e-Rad is necessary for checklist submission. Note that it usually takes about two weeks. See the URL below in addition to the URL given above for details of the procedure related to the use of e-Rad.

https://www.e-rad.go.jp/organ/index.html

Since the said guidelines encourage the "promotion of issuing and sharing information," please provide the checklist at the websites of research organizations to proactively use the information.

4.23 Consideration on "Guidelines for Responding to Misconduct in Research"

(1) Administrative System based on the "Guidelines for Responding to Misconduct in Research"

In applying to this funding program and conducting research activities, research institutions are required to adhere to the "Guidelines for Responding to Misconduct in Research" (decided by the Minister of Education, Culture, Sports, Science and Technology (MEXT) on August 26, 2014, hereinafter referred to as the "guidelines"[21]).

In the case that the Ministry of Education, Culture, Sports, Science and Technology finds defects in the approach of organizations as a result of a survey of the situation, based on the guidelines, the Ministry may take measures including reduction of indirect expenses of the whole competitive fund for the pertinent organization. The "whole competitive fund" includes all financing distributed by the MEXT and independent administrative agencies under the jurisdiction of the MEXT

(2) Submission of the "Self-evaluation Checklist" Based on the "Guidelines for Responding to Misconduct in Research"

When concluding a contract for this program, research organizations must submit "a checklist related to the approach, based on 'Guidelines for responding to misconduct in research" (hereinafter, "checklist of inappropriate research conduct"). (Research undertaking is not approved unless a checklist of inappropriate research conduct is submitted).

It is necessary for a research organization to use the research and development management system (e-Rad) common to ministries in order to submit the checklist in the form given on the website below to the Office of Equitable Research Promotion, Human Resources Section, Academic Policy Bureau, Ministry of Education, Culture, Sports, Science and Technology by the date of the conclusion of the Collaborative Research Agreement. However, there is no need to submit a checklist of inappropriate research conduct, if it has already been submitted on a different occasion after April 2020[22]. Each research organization must submit every year a checklist of inappropriate research conduct of the applicable fiscal year during the execution of this program. Further, you do not need to submit the application if your organization is not engaged in research activities, or in the case where yours is engaged in such activities, if it does not accept budgets or funds from the Ministry of Education, Culture, Sports, Science and Technology (MEXT) or an incorporated administrative agency under its jurisdiction.

See the website of the Ministry of Education, Culture, Sport, Science and Technology for details of the method for submitting a checklist of inappropriate research conduct.

https://www.mext.go.jp/a_menu/jinzai/fusei/1374697.htm

*Note: A perfect environment for using e-Rad is necessary for submission of a checklist for inappropriate research conduct. See the URL below for details of the procedure related to the use of e-Rad (Note that subscription process for e-Rad requires approximately two weeks) :

[21] Refer to the following webpage for the guideline (in Japanese)
https://www.mext.go.jp/a_menu/jinzai/fusei/index.htm

[22] Note that checklist has been changed since 2018.

https://www.e-rad.go.jp/organ/index.html

(3) Measures Taken for Misconduct in Research Activities Based on the "Guidelines for Responding to Misconduct in Research"

Misconduct in research activities in this program is treated strictly as described below.

(i) Measures to Cancel the Contract

In the case of specific misconduct (fabrication, falsification, and plagiarism) is identified of research of the program, the Collaborative Research Agreement is cancelled or altered and a refund of all or part of the entrusted expenses is requested. Furthermore, there may be cases in which no agreement is concluded in the following years.

(ii) Measures to Restrict Application and Participation Eligibility

Measures given in the table below, depending on the level of inappropriateness and responsibility of specific misconduct, to restrict application to and participation in this project are imposed upon researchers involved in certain misconduct in research papers or reports of this project and those whose involvement has not been established but who are found responsible to an extent for the violation of the duty of due care as a distinct manager of pertinent papers and reports. Furthermore, in the case that such restriction measures are taken on qualification for application and participation, information is provided to pertinent sections of competitive fund systems (referred to as "competitive fund system related to the Ministry of Education, Culture, Sport, Science and Technology" hereinafter) distributed by the Ministry of Education, Culture, Sport, Science and Technology and independent administrative agencies of the ministry and to pertinent sections of competitive fund systems (referred to as "competitive fund systems related to other ministries" hereinafter) distributed by other ministries and their independent administrative agencies, which may similarly restrict qualification for application and participation in competitive fund systems related to the Ministry of Education, Culture, Sport, Science and Technology and to other ministries.

(iii) Measures Taken to Researchers whose Qualification is Restricted for Application to and Participation in the Competitive Fund System and Base Expenses

Qualification is restricted for application to and participation in this project for researchers whose qualification is restricted for application to and participation to competitive fund related to MEXT; management grants to national university corporations, inter-university research institute corporations and independent administrative agencies under MEXT; base expenses including private school subsidies; or competitive fund systems related to other ministries during the period the restriction is in effect.

(iv) Public Announcement of Misconduct

In principle, JST makes a public announcement with regard to the outline of specific misconduct in research activities of this project (name of researcher, project name, affiliation, research year, contents of misconduct, and measures taken). The Ministry of Education, Culture, Sports, Science and Technology also makes a public

announcement concerning the contents of the pertinent misconduct (name of misconduct, kind of misconduct, research field of misconduct, name of expense account of misconduct, outline of misconduct, measures taken by research organization, measures taken by fund distributor, and so on).

The said guidelines state that a research organization announces the survey result immediately. Each organization is requested to handle the case accordingly.

https://www.mext.go.jp/a_menu/jinzai/fusei/1360483.htm

<table>
<tr><th colspan="3">Classification of person ineligible to apply to competitive research funds, being involved in specific research misconduct</th><th>Degree of maliciousness in specific research misconduct</th><th>Ineligible period of application. The peri d starts from the beginning of next fiscal year after the time when misconduct is identified[23]</th></tr>
<tr><td rowspan="5">Person who was involved in a research misconduct</td><td colspan="2">1． Especially malicious person, who, from the beginning of research, had an intention to commit a specific research misconduct</td><td></td><td>10 years</td></tr>
<tr><td rowspan="3">2. The author of a research paper, which is a product of a research where a specific research misconduct was committed</td><td rowspan="2">The authors of the paper, who are responsible for the whole content of it. Namely, they are the supervisor and the representative author of the paper or others who are identified to be equivalently responsible for the paper.</td><td>The misconduct has a substantial impact on the development of relevant research fields and on the society, or the maliciousness of the deed is judged to be high.</td><td>5-7 years</td></tr>
<tr><td>The misconduct has a small impact on the development of relevant research fields and on the society, or the maliciousness of the deed is judged to be low</td><td>3-5 years</td></tr>
<tr><td>The authors of the paper other than those described above.</td><td></td><td>2-3 years</td></tr>
<tr><td colspan="2">3. Persons who conducted a specific research misconduct other than those of 1 and 2.</td><td></td><td>2-3 years</td></tr>
<tr><td colspan="3">Person who has not been involved in a specific research misconduct but is a responsible author of a paper relevant to a research where a specific research misconduct was committed, being the supervisor or representative author of the paper, or a person, who is identified to be equivalently responsible for the paper.</td><td>The misconduct has a substantial impact on the development of relevant research fields and on the society, or the maliciousness of the</td><td>2-3 years</td></tr>
</table>

[23] Also ineligible in the fiscal year which misconduct is identified

	deed is judged to be high.	
	The misconduct has a small impact on the development of relevant research fields and on the society, or the maliciousness of the deed is judged to be low	1-2 years

4.24 Duty to Complete Education on Research Ethics and Compliance

Researchers who participate in the project of this research program shall receive training on research ethics education for the prevention of misconduct in research activities as per the "Guidelines for Responding to Misconduct in Research" and on compliance education as per the "Guidelines for the Management and Audit of Public Research Funds in Research Institutions."

During the process of concluding a Collaborative Research Agreement after the selection of a proposed research project, it is necessary for all researchers participating in the research project, including the Research Director and FOREST Researchers, to receive training on research ethics education and compliance education and submit a document to confirm their understanding of the contents of the training.

4.25 Handling of Information on Projects and Other Items on the e-Rad

Information on the e-Rad about each application (program name, project title, affiliated institution, research director name, budget, research period, and project overview) will be treated as "Information planned to be made public" in accordance with the "Act on Access to Information Held by Independent Administrative Agencies" (Act No. 140, 2001) Article 5, Item 1 (a). This information will be made available on the website for the program as appropriate after the selection.

4.26 Provision of information from e-Rad to the Cabinet Office

According to the 5th Science and Technology Basic Plan (Cabinet decision in January 2016), in order to promote science and technology innovation policy based on objective evidence, publicly-offered funds are to be thoroughly registered in the Cross-ministerial R&D Management System (e-Rad) for evaluation and analysis, and the information registered in the e-Rad will be utilized for appropriate evaluation of research and development funded by the Government, effective and efficient planning of general strategies and resource allocation policies, etc. In response to this, CSTI and the relevant ministries and agencies have enforced thorough registration of information on the outcomes of papers, patents, etc. and accounting performance records in the e-Rad in order to link output and outcome information to the inputs of the publicly-offered research funding programs.

For this reason, you are requested to input information on research outcomes, accounting performance records, and indirect cost execution records for competitive grants, for each fiscal year for the selected project in the e-Rad.

The information necessary for macro analysis, including information on research outcomes and accounting performance records, will be provided to the Cabinet Office.

4.27 Registration of Researcher Information on researchmap

In this program, it is planned to utilize the researcher information database (researchmap*) operated by JST as a master database for performance information in various situations, such as performance reports, in the future. In addition, using the community function of the researchmap, it will be utilized to distribute various files, provide information on events, and other business operations. For this reason, FOREST researchers who have not yet registered on the researchmap are recommended to register as soon as possible as it is mandatory.

* Researchmap (https://researchmap.jp/?lang=english), previously referred to as Read&Researchmap, is the largest Japanese database of researcher information to provide a partial view of Japanese researchers nationwide. A public organization operates the services in a stable and sustainable manner, so as to make information on registered profiles and achievements available to the public via the internet. Moreover, researchmap collaborates with e-Rad and numerous databases of college professors to enable registered information to be accessed through other systems; there is no need for researchers to repeatedly register the same achievement in various applications and databases. In short, researchmap makes the researcher more efficient, thereby offsetting the cost of incidental tasks entailed by research activity.

4.28 Patent Applications by JST

In case a research institution does not acquire rights to an invention, JST may acquire those rights in some cases. Therefore, if a research institution does not foresee acquiring rights to an invention, the researcher should notify JST promptly, providing information concerning the said invention, etc. in any appropriate format. (The above “information concerning the said invention” means information necessary for JST to determine whether an application for intellectual property rights is possible or not, for example, a copy of the notification of invention used in the research institution.)

JST will conduct a study based on the received notice, and if JST judges, based on the results, that an application for the said invention, etc. is possible, a separate “Patent Rights Transfer Agreement” will be concluded between the research institution and JST.

4.29 “Research Support Services Partnership Accreditation System”

"The Development of the Science and Technology Innovation Policy for the Value Creation of the Knowledge-Intensive Type - To Be the Country to Realize Society 5.0 to Lead the World - Final Summary" (Special Committee for Comprehensive Policy, Council of Science and Technology, March 26, 2020) states that "with respect to returning

to the society the research achievements resulted from the research supported by public programs of the government, the formation of a new system in collaboration between governmental bodies and private entities is desired reflecting the emergence of the startups that run business with a strong will and passion."

Based on above, The Ministry of Education, Culture, Sports, Science and Technology established the "Research Support Service Partnership Accreditation System" in 2019. The objectives of this system are to improve the research environment for researchers, accelerate the promotion of science and technology and the creation of innovation in Japan, and support the development of a variety of research support service initiatives by having the Minister of Education, Culture, Sports, Science and Technology accredit research support services provided by private business operators that meet certain requirements as "Research Support Service Partnerships."

Details of each service can be found on the following webpage of the Ministry of Education, Culture, Sports, Science and Technology. Please make full use of these services.

https://www.mext.go.jp/a_menu/kagaku/kihon/1422215_00003.htm

Chapter 5: Submission via the Cross-ministerial R&D Management System (e-Rad)

○ Cross-ministerial R&D Management System (e-Rad)*1

The cross-ministerial R&D Management System (e-Rad) is a cross-ministerial system that provides a series of on-line processes to manage the publicly funded research programs under the jurisdiction of ministries and agencies (Acceptance of applications → Screening → Selection →Management of selected project → Registration of research results and accounting performance).

For detail of e-Rad usage, please refer to the e-rad user manual:

https://www.e-rad.go.jp/en/manual/for_researcher.html

5.1 e-Rad usage notes

Applicants are requested to make an application using e-Rad (https://www.e-rad.go.jp/en). Please be aware of the following points when submitting your application:

○ **Please submit your application via e-Rad.**

A proposal for which the application procedure has not been completed via e-Rad by the deadline will not be subject to screening.

○ **Recommended system environments to use the e-Rad system.**

The recommended system environments to use e-Rad are IE, Firefox, Chrome, and Edge.

https://www.e-rad.go.jp/operating_environment.html

○ **Pre-registration of research institution and researcher information is required.**

Please refer to "5.4 Pre-registration of research institution and researcher information".

○ **Please allow several days (or more) after the application deadline for inputting information into e-Rad.**

Input of information into e-Rad takes a minimum of around 60 minutes. Furthermore, on the day of the application deadline, there is a risk that the e-Rad system may be congested and inputting may take a long time. Please allow sufficient time before the application deadline to commence inputting information into e-Rad.

○ **It is possible to "temporarily save" input information.**

*1 "e-Rad" is an abbreviation of the R & D management system common to all ministries, with the acronym for Research and Development (R & D for science and technology) followed by the acronym Electric ((Electron)).

It is possible to discontinue input of and temporarily save application information part way through. For details, please refer to “Temporary storage of application information and resumption of entry” in “How to Apply Using the Common R & D Management System (e-Rad)” of Appendix Document (in Japanese).

○ **“Retraction” on e-Rad system is possible.**

Up to and including the day prior to the application deadline, it is possible for researchers to retract and re-edit their research proposals. For details, please refer to the “Amending Submitted Application Information: ‘Retraction’” in “How to Apply Using the Common R & D Management System (e-Rad)” of Appendix Document (in Japanese).

Do NOT “retract” research proposals on the day of the application deadline. On the day of the application deadline, there is a risk that the e-Rad system may be crowded and re-editing the proposal after retraction may take a very long time.

5.2 Application method using e-Rad

(1) Register research institution and researcher information.

The research institution must register its researcher information and be issued a log-in ID and password.

* For detail, please refer to “5.4 Pre-registration of research institution and researcher information”.

↓

(2) Obtain required application documents and research proposal forms.

↓

(3) Prepare a research proposal. (Maximum file size: 3 MB)

↓

(4) Enter application information into the e-Rad system.

↓

(5) Submit your research proposal.

Upload file to e-Rad for submission as well as certificates, if required (refer to 2.1.9 (2) e.).

○ The created application form file can be uploaded only in PDF format. e-Rad has a PDF conversion function from WORD and Ichitaro files. You can also download PDF conversion software that can be used on your PC. The use of these functions and software is not essential for PDF conversion, but if you do, be sure to refer to the researcher's manual for usage and precautions.

○ Applications whose application status is NOT “Distribution Institution” or “Accepted” by the submission deadline will be INVALID. Please check the status of your application on the "Project List" screen.

5.3 Enquiries and Service Availability

5.3.1 How to operate e-Rad

For how to operate e-Rad, visit the portal site (https://www.e-rad.go.jp/en/) or download the manual from the site. Be sure to agree to the terms of use before making an application.

5.3.2 Where to direct questions on how to use the e-Rad system

Questions about the program itself are answered by the person in charge of the program, as usual. Questions about e-Rad operation methods are answered by the e-Rad Help Desk. Before asking questions, be sure to read both the website outlining the Call for Proposals and the e-Rad Portal site carefully. JST will not answer any questions regarding the status of the screening or acceptance.

Questions on matters such as programs, application documents for submission, and submission procedures	JST Department of Innovation Research (person in charge of calls for proposals)	Be certain to send questions by e-mail, except when in a hurry. For matters related to proposal submission: E-mail： souhatsu-application@jst.go.jp Tel： 03-5214-7276 Office hours: 10:00 -12:00, 13:00 - 17:00 ● Except on Saturdays, Sundays, holidays, the year-end and new year period. [Communication by e-mail may be requested even when a question is asked by telephone.]
Questions regarding usage of the e-Rad system	e-Rad helpdesk	Tel: 0570-066-877(navi dial) Office hours: 9:00-18:00 ●Except on Saturdays, Sundays, holidays, and the year-end and new year period .

- Website for this program: (https://www.jst.go.jp/souhatsu/en/call/index.html)
- e-Rad portal website (https://www.e-rad.go.jp/en/)

5.3.3 Availability of e-Rad

Basically, e-Rad operates 24 hours a day, 365 days a year, but may stop the service for system maintenance. This will be announced in advance on the portal site.

5.4 Operation Method and Notes

Research institutions have to be registered on e-Rad by the time of application. One research institution must assign a representative for e-Rad, download the research institution registration form from the e-Rad portal site (hereinafter referred to as “portal site”), and apply for registration. However, if the proposer belongs to an overseas research institution, the research institution will be registered at JST after adoption. Please proceed to the application screen with no affiliation registered for the researcher ID (Ministry-common R & D management system), and click the “Basic Information” tab (Attachment: Common R & D management system (e-Rad)) Please refer to "How to apply by"). In that case, it is necessary for the proposer himself to obtain the e-Rad login ID and password.

Applicants need to obtain a password in advance (if you have already registered for another application, you do not need to re-register).

The acquisition procedure is as follows. **Please register prior to two weeks or more**. Please refer to the portal site for details.

1) Researchers belonging to domestic research institutions
   - Worker: Research institution clerk
   - Registration Contents: Research Institution and Researcher Information

2) Researchers who belong to a foreign research institution or researchers who do not belong to a research Institution
   - Worker: Proposer yourself
   - Registration Details: Researcher Information

Please refer to the document below and the attached sheet for the application guidelines and the acquisition of research proposal forms.

"How to Apply Using the Common R & D Management System (e-Rad)" of Appendix Document
https://www.jst.go.jp/souhatsu/call/index.html (Japanese only)

5.5 Points to be Noted Specific to This Program on the e-Rad Registration System

・The research applicant needs to specify the panel with a role of the chief examiner (FOREST PO) in the screening step of the research application submitted.

・**Make sure to specify the research area (major) and the research area (minor) <applicable to all applicants>.**

・**You must register an area code not belonging to "Humanities & Social Sciences" or "Others" as your research area (minor) if you register an area code belonging to "Humanities & Social Sciences" or "Others" as your research area (major). If you fail to register, your application will not be accepted. If you register an area code belonging to the "Humanities & Social Sciences" area or "Others" area to both research areas (major and minor), your application will not be accepted either.**

- **Research area (minor) is a mandatory item but No error message appears even if you don`t fill it in the e-Rad system; use caution not to forget to specify this area.**
- You must register the state of the degree of satisfying "the conditions of independence" as of the time of submission.

For the relation of the research areas with the main FOREST POs or with the area codes belonging to "Humanities & Social Sciences" area or "Others" area, see section 6.1, "FOREST POs and Assigned Research Areas." Before you make your actual registration, see the separate paper for researchers posted on the portal website of the program, "How to Apply from the Cross-ministerial R&D Management System (e-Rad) (in Japanese only)."

Chapter 6: FOREST PANEL

6.1 FOREST POs and Assigned Research Areas

The e-Rad system should be used to specify the panel (the FOREST PO) as the chief screener in the screening process of your research application and the desired areas of the research (a major and minor area). The FOREST POs and the research areas they are assigned are shown below. See the table for your information when you select the panel (the FOREST PO) as the chief screener in the screening process of your research application and examine the desired area of your specialty (a major and minor area) for the screening of your research application.

CAUTION

If you select an area code belonging to Code 900 "Humanities & Social Sciences" or Code 9999 "Others" as your research area (major), **you need to register an area code (minor) other than those belonging to Code 900 "Humanities & Social Sciences" or Code 9999 "Others".**

. **Make sure to register** the research area (major) and **research area (minor).** If you fail to register, **your application will not be accepted.**

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by PANEL headed by Professor KAWAMURA	1000	Natural Science	11010	Algebra
	1000	Natural Science	11020	Geometry
	1000	Natural Science	12010	Basic analysis
	1000	Natural Science	12020	Mathematical analysis
	1000	Natural Science	12030	Basic mathematics
	1000	Natural Science	12040	Applied mathematics and statistics
	1000	Natural Science	13010	Mathematical physics and fundamental theory of condensed matter physics
	1000	Natural Science	13020	Semiconductors, optical properties of condensed matter and atomic physics
	1000	Natural Science	13030	Magnetism, superconductivity and strongly correlated systems
	1000	Natural Science	13040	Biophysics, chemical physics and soft matter physics
	589	Energy Engineering	14010	Fundamental plasma
	589	Energy Engineering	14020	Nuclear fusion
	589	Energy Engineering	14030	Applied plasma science
	1000	Natural Science	15010	Theoretical studies related to particle-, nuclear-, cosmic ray and astro-physics
	1000	Natural Science	15020	Experimental studies related to particle-, nuclear-, cosmic ray and astro-physics
	1000	Natural Science	16010	Astronomy
	1000	Natural Science	17010	Space and planetary sciences
	1000	Natural Science	17020	Atmospheric and hydrospheric sciences
	1000	Natural Science	17030	Human geosciences
	1000	Natural Science	17040	Solid earth sciences
	1000	Natural Science	17050	Biogeosciences
	589	Energy Engineering	80040	Quantum beam science

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Professor IMURA	689	Manufacturing Technology	18010	Mechanics of materials and materials
	689	Manufacturing Technology	18020	Manufacturing and production engineering
	689	Manufacturing Technology	18030	Design engineering
	689	Manufacturing Technology	18040	Machine elements and tribology
	689	Manufacturing Technology	19010	Fluid engineering
	689	Manufacturing Technology	19020	Thermal engineering
	289	Informatics	20010	Mechanics and mechatronics
	289	Informatics	20020	Robotics and intelligent system
	689	Manufacturing Technology	21010	Power engineering
	689	Manufacturing Technology	21020	Communication and network engineering
	689	Manufacturing Technology	21030	Measurement engineering
	689	Manufacturing Technology	21040	Control and system engineering
	689	Manufacturing Technology	21050	Electric and electronic materials
	689	Manufacturing Technology	21060	Electron device and electronic equipment
	889	Frontier Technology	24010	Aerospace engineering
	889	Frontier Technology	24020	Marine engineering

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Doctor HORI	789	Social Infrastructure	22010	Civil engineering material, execution and construction management
	789	Social Infrastructure	22020	Structure engineering and earthquake engineering
	789	Social Infrastructure	22030	Geotechnical engineering
	789	Social Infrastructure	22040	Hydroengineering
	789	Social Infrastructure	22050	Civil engineering plan and transportation engineering
	789	Social Infrastructure	22060	Environmental systems for civil engineering
	789	Social Infrastructure	23010	Building structures and materials
	789	Social Infrastructure	23020	Architectural environment and building equipment
	789	Social Infrastructure	23030	Architectural planning and city planning
	789	Social Infrastructure	23040	Architectural history and design
	789	Social Infrastructure	25010	Social systems engineering

	789	Social Infrastructure	25020	Safety engineering
	789	Social Infrastructure	25030	Disaster prevention engineering

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Professor KITAGAWA	489	Nanotechnology/Materials	26010	Metallic material properties
	489	Nanotechnology/Materials	26020	Inorganic materials and properties
	489	Nanotechnology/Materials	26030	Composite materials and interfaces
	489	Nanotechnology/Materials	26040	Structural materials and functional materials
	489	Nanotechnology/Materials	26050	Material processing and microstructure control
	489	Nanotechnology/Materials	26060	Metals production and resources production
	689	Manufacturing Technology	27010	Transport phenomena and unit operations
	689	Manufacturing Technology	27020	Chemical reaction and process system engineering
	689	Manufacturing Technology	27030	Catalyst and resource chemical process
	689	Manufacturing Technology	27040	Biofunction and bioprocess engineering
	489	Nanotechnology/Materials	28010	Nanometer-scale chemistry
	489	Nanotechnology/Materials	28020	Nanostructural physics
	489	Nanotechnology/Materials	28030	Nanomaterials
	489	Nanotechnology/Materials	28040	Nanobioscience
	489	Nanotechnology/Materials	28050	Nano/micro-systems
	489	Nanotechnology/Materials	29010	Applied physical properties
	489	Nanotechnology/Materials	29020	Thin film/surface and interfacial physical properties
	489	Nanotechnology/Materials	29030	Applied condensed matter physics
	489	Nanotechnology/Materials	30010	Crystal engineering
	489	Nanotechnology/Materials	30020	Optical engineering and photon science
	589	Energy Engineering	31010	Nuclear engineering
	189	Life Science	90120	Biomaterials

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Professor ITAMI	489	Nanotechnology/Materials	32010	Fundamental physical chemistry
	489	Nanotechnology/Materials	32020	Functional solid state chemistry
	489	Nanotechnology/Materials	33010	Structural organic chemistry and physical organic chemistry
	489	Nanotechnology/Materials	33020	Synthetic organic chemistry
	489	Nanotechnology/Materials	34010	Inorganic/coordination chemistry
	489	Nanotechnology/Materials	34020	Analytical chemistry
	489	Nanotechnology/Materials	34030	Green sustainable chemistry and environmental chemistry
	489	Nanotechnology/Materials	35010	Polymer chemistry
	489	Nanotechnology/Materials	35020	Polymer materials
	489	Nanotechnology/Materials	35030	Organic functional materials
	489	Nanotechnology/Materials	36010	Inorganic compounds and inorganic materials chemistry
	489	Nanotechnology/Materials	36020	Energy chemistry
	489	Nanotechnology/Materials	37010	Bio chemistry
	489	Nanotechnology/Materials	37020	Chemistry and chemical methodology of biomolecules
	489	Nanotechnology/Materials	37030	Chemical biology

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Professor ABE	189	Life Science	38010	Plant nutrition and soil science
	189	Life Science	38020	Applied microbiology
	189	Life Science	38030	Applied biochemistry
	189	Life Science	38040	Bioorganic chemistry
	189	Life Science	38050	Food sciences
	189	Life Science	38060	Applied molecular and cellular biology
	389	Environmental science	39010	Science in plant genetics and breeding
	389	Environmental science	39020	Crop production science
	389	Environmental science	39030	Horticultural science
	389	Environmental science	39040	Plant protection science
	389	Environmental science	39050	Insect science
	389	Environmental science	39060	Conservation of biological resources

	389	Environmental science	39070	Landscape science
	189	Life Science	40010	Forest science
	189	Life Science	40020	Wood science
	189	Life Science	40030	Aquatic bioproduction science
	189	Life Science	40040	Aquatic life science

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Professor ISHIZUKA	389	Environmental science	41020	Rural sociology and agricultural structure
	389	Environmental science	41030	Rural environmental engineering and planning
	389	Environmental science	41040	Agricultural environmental engineering and agricultural information engineering
	389	Environmental science	41050	Environmental agriculture
	189	Life Science	42010	Animal production science
	189	Life Science	42020	Veterinary medical science
	189	Life Science	42030	Animal life science
	189	Life Science	42040	Laboratory animal science
	189	Life Science	44050	Animal physiological chemistry, physiology and behavioral biology
	389	Environmental science	63020	Radiation influence
	389	Environmental science	63030	Chemical substance influence on environment

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Professor SHIOMI	189	Life Science	43010	Molecular biology
	189	Life Science	43020	Structural biochemistry
	189	Life Science	43030	Functional biochemistry
	189	Life Science	43040	Biophysics
	189	Life Science	43050	Genome biology
	189	Life Science	43060	System genome science
	189	Life Science	44010	Cell biology
	189	Life Science	44020	Developmental biology
	189	Life Science	44030	Plant molecular biology and physiology
	189	Life Science	44040	Morphology and anatomical structure

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Doctor GODA	189	Life Science	45010	Genetics
	189	Life Science	45020	Evolutionary biology
	189	Life Science	45030	Biodiversity and systematics
	189	Life Science	45040	Ecology and environment
	189	Life Science	45050	Physical anthropology
	189	Life Science	45060	Applied anthropology
	189	Life Science	46010	Neuroscience-general
	189	Life Science	46020	Anatomy and histopathology of nervous system
	189	Life Science	46030	Function of nervous system
	189	Life Science	51010	Basic brain sciences
	189	Life Science	51020	Cognitive and brain science

	189	Life Science	51030	Pathophysiologic neuroscience

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Professor MIZUSHIMA	189	Life Science	47010	Pharmaceutical chemistry and drug development sciences
	189	Life Science	47020	Pharmaceutical analytical chemistry and physicochemistry
	189	Life Science	47030	Pharmaceutical hygiene and biochemistry
	189	Life Science	47040	Pharmacology
	189	Life Science	47050	Environmental and natural pharmaceutical resources
	189	Life Science	47060	Clinical pharmacy
	189	Life Science	48010	Anatomy
	189	Life Science	48020	Physiology
	189	Life Science	48040	Medical biochemistry
	189	Life Science	49010	Pathological biochemistry
	189	Life Science	49020	Human pathology
	189	Life Science	49030	Experimental pathology
	189	Life Science	49040	Parasitology
	189	Life Science	49050	Bacteriology
	189	Life Science	49060	Virology
	189	Life Science	49070	Immunology
	189	Life Science	50010	Tumor biology
	189	Life Science	50020	Tumor diagnostics and therapeutics

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Professor AMAGAI	189	Life Science	52010	General internal medicine
	189	Life Science	52020	Neurology
	189	Life Science	52030	Psychiatry
	189	Life Science	52040	Radiological sciences
	189	Life Science	52050	Embryonic medicine and pediatrics
	189	Life Science	53010	Gastroenterology
	189	Life Science	53020	Cardiology
	189	Life Science	53030	Respiratory medicine
	189	Life Science	53040	Nephrology
	189	Life Science	53050	Dermatology
	189	Life Science	54010	Hematology and medical oncology
	189	Life Science	54020	Connective tissue disease and allergy
	189	Life Science	54030	Infectious disease medicine
	189	Life Science	54040	Metabolism and endocrinology
	189	Life Science	55010	General surgery and pediatric surgery
	189	Life Science	55020	Digestive surgery
	189	Life Science	55030	Cardiovascular surgery
	189	Life Science	55040	Respiratory surgery
	189	Life Science	55050	Anesthesiology
	189	Life Science	55060	Emergency medicine
	189	Life Science	56010	Neurosurgery
	189	Life Science	56020	Orthopedics
	189	Life Science	56030	Urology
	189	Life Science	56040	Obstetrics and gynecology
	189	Life Science	56050	Otorhinolaryngology
	189	Life Science	56060	Ophthalmology
	189	Life Science	56070	Plastic and reconstructive surgery
	189	Life Science	57010	Oral biological science
	189	Life Science	57020	Oral pathobiological science
	189	Life Science	57030	Conservative dentistry
	189	Life Science	57040	Regenerative dentistry and dental engineering
	189	Life Science	57050	Prosthodontics
	189	Life Science	57060	Surgical dentistry
	189	Life Science	57070	Developmental dentistry
	189	Life Science	57080	Social dentistry

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Professor TANAKA	189	Life Science	58010	Medical management and medical sociology
	189	Life Science	58020	Hygiene and public health: including laboratory approach
	189	Life Science	58030	Hygiene and public health: excluding laboratory approach
	189	Life Science	58040	Forensics medicine
	189	Life Science	58050	Fundamental of nursing
	189	Life Science	58060	Clinical nursing
	189	Life Science	58070	Lifelong developmental nursing
	189	Life Science	58080	Gerontological nursing and community health nursing
	189	Life Science	59010	Rehabilitation science
	189	Life Science	59020	Sports sciences
	189	Life Science	59030	Physical education, and physical and health education
	189	Life Science	59040	Nutrition science and health science
	189	Life Science	90110	Biomedical engineering
	189	Life Science	90130	Medical systems
	189	Life Science	90140	Medical technology assessment
	189	Life Science	90150	Medical assistive technology

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Professor YAGI	289	Informatics	60010	Theory of informatics
	289	Informatics	60020	Mathematical informatics
	289	Informatics	60030	Statistical science
	289	Informatics	60040	Computer system
	289	Informatics	60050	Software
	289	Informatics	60060	Information network
	289	Informatics	60070	Information security
	289	Informatics	60080	Database
	289	Informatics	60090	High performance computing
	289	Informatics	60100	Computational science
	289	Informatics	61010	Perceptual information processing
	289	Informatics	61020	Human interface and interaction
	289	Informatics	61030	Intelligent informatics
	289	Informatics	61040	Soft computing
	289	Informatics	61050	Intelligent robotics
	289	Informatics	61060	Kansei informatics
	289	Informatics	62010	Life, health and medical informatics
	289	Informatics	62020	Web informatics and service informatics
	289	Informatics	62030	Learning support system
	289	Informatics	62040	Entertainment and game informatics

FOREST PANEL	Code	Area	Code	Research contents
PANEL headed by Professor YOSHIDA	389	Environmental science	63010	Environmental dynamic analysis
	389	Environmental science	63040	Environmental impact assessment
	389	Environmental science	64010	Environmental load and risk assessment
	389	Environmental science	64020	Environmental load reduction and remediation
	389	Environmental science	64030	Environmental materials and recycle technology
	389	Environmental science	64040	Social-ecological systems
	389	Environmental science	64050	Sound material-cycle social systems
	389	Environmental science	64060	Environmental policy and social systems
	589	Energy Engineering	31020	Earth resource engineering, Energy sciences

	Code	Area	Code	Research contents
Humanities & Social Sciences Others Make sure to fill in a code belonging to a FOREST PO (other than "Humanities & Social Sciences" or "Others") if you register any of these codes as your major research area. If you register only codes belonging to "Humanities & Social Sciences" or "Others," your application will not be accepted.	900	Humanities & Social Sciences	1010	Philosophy and ethics
	900	Humanities & Social Sciences	1020	Chinese philosophy, Indian philosophy and Buddhist philosophy
	900	Humanities & Social Sciences	1030	Religious studies
	900	Humanities & Social Sciences	1040	History of thought
	900	Humanities & Social Sciences	1050	Aesthetics and art studies
	900	Humanities & Social Sciences	1060	History of arts
	900	Humanities & Social Sciences	1070	Theory of art practice
	900	Humanities & Social Sciences	1080	Sociology of science, history of science and technology
	900	Humanities & Social Sciences	2010	Japanese literature
	900	Humanities & Social Sciences	2020	Chinese literature
	900	Humanities & Social Sciences	2030	English literature and literature in the English language
	900	Humanities & Social Sciences	2040	European literature
	900	Humanities & Social Sciences	2050	Literature in general
	900	Humanities & Social Sciences	2060	Linguistics
	900	Humanities & Social Sciences	2070	Japanese linguistics
	900	Humanities & Social Sciences	2080	English linguistics
	900	Humanities & Social Sciences	2090	Japanese language education
	900	Humanities & Social Sciences	2100	Foreign language education
	900	Humanities & Social Sciences	3010	Historical studies in general
	900	Humanities & Social Sciences	3020	Japanese history
	900	Humanities & Social Sciences	3030	History of Asia and Africa
	900	Humanities & Social Sciences	3040	History of Europe and America
	900	Humanities & Social Sciences	3050	Archaeology
	900	Humanities & Social Sciences	3060	Cultural assets study
	900	Humanities & Social Sciences	3070	Museology
	900	Humanities & Social Sciences	4010	Geography
	900	Humanities & Social Sciences	4020	Human geography

900	Humanities & Social Sciences	4030	Cultural anthropology and folklore
900	Humanities & Social Sciences	5010	Legal theory and history
900	Humanities & Social Sciences	5020	Public law
900	Humanities & Social Sciences	5030	International law
900	Humanities & Social Sciences	5040	Social law
900	Humanities & Social Sciences	5050	Criminal law
900	Humanities & Social Sciences	5060	Civil law
900	Humanities & Social Sciences	5070	New fields of law
900	Humanities & Social Sciences	6010	Politics
900	Humanities & Social Sciences	6020	International relations
900	Humanities & Social Sciences	7010	Economic theory
900	Humanities & Social Sciences	7020	Economic doctrines and economic thought
900	Humanities & Social Sciences	7030	Economic statistics
900	Humanities & Social Sciences	7040	Economic policy
900	Humanities & Social Sciences	7050	Public economics and labor economics
900	Humanities & Social Sciences	7060	Money and finance
900	Humanities & Social Sciences	7070	Economic history
900	Humanities & Social Sciences	7080	Business administration
900	Humanities & Social Sciences	7090	Commerce
900	Humanities & Social Sciences	7100	Accounting
900	Humanities & Social Sciences	8010	Sociology
900	Humanities & Social Sciences	8020	Social welfare
900	Humanities & Social Sciences	8030	Family and consumer sciences, and culture and living
900	Humanities & Social Sciences	9010	Education
900	Humanities & Social Sciences	9020	Sociology of education
900	Humanities & Social Sciences	9030	Childhood and nursery/pre-school education
900	Humanities & Social Sciences	9040	Education on school subjects and primary/secondary education
900	Humanities & Social Sciences	9050	Tertiary education
900	Humanities & Social Sciences	9060	Special needs education

	900	Humanities & Social Sciences	9070	Educational technology
	900	Humanities & Social Sciences	9080	Science education
	900	Humanities & Social Sciences	10010	Social psychology
	900	Humanities & Social Sciences	10020	Educational psychology
	900	Humanities & Social Sciences	10030	Clinical psychology
	900	Humanities & Social Sciences	10040	Experimental psychology
	900	Humanities & Social Sciences	41010	Agricultural and food economics
	900	Humanities & Social Sciences	80010	Area studies
	900	Humanities & Social Sciences	80020	Tourism studies
	900	Humanities & Social Sciences	80030	Gender studies
	900	Humanities & Social Sciences	90010	Design
	900	Humanities & Social Sciences	90020	Library and information science, humanistic and social informatics
	900	Humanities & Social Sciences	90030	Cognitive science
	9999	Others	99999	Others

6.2 Messages from FOREST POs

Shown below are the messages from the FOREST POs in charge of the panels to the researchers who apply for this program.

Use them for your reference when selecting the research area to submit the application. You can watch our FOREST POs' video messages, which include the same content, on our website about the research organization in the FOREST Program. Access:

https://www.jst.go.jp/souhatsu/research/index.html

6.2.1 Kawamura, Hikaru　FOREST Program Officer

Fusion-Oriented REsearch for disruptive Science and Technology (FOREST) is a novel program with high potential to innovate the conventional impression of Japan Science and Technology Agency (JST) in that no particular subject or short-term objectives are specified. The idea of “a variety of free and challenging studies including interdisciplinary ones being supported in the long term” is especially appealing. I hope that such novel program will bear genuine fruits, and am willing to give our best effort to help young next-generation researchers achieve remarkable success. This panel covers mainly studies of various fields based on mathematics and physics. The fields to be covered are not necessarily limited to these, and we are looking forward to applications from various fields including interdisciplinary ones. In FOREST, our ultimate goal is "creation of seeds leading to the disruptive innovation", and we support various research stages from fundamental and academic to applied ones. This is because even the achievements of fundamental studies embrace the potential that may develop into big innovations over a long period. I think that this panel may cover the most fundamental part of this program. As such, this is a panel that embraces the potential for conspicuous changes; I personally feel; "I want to challenge this mission together with you all." We hope that all of you will fully exercise your abilities, not necessarily obsessed with short-term achievements.

Kawamura, Hikaru

6.2.2 Imura, Jun-ichi　FOREST Program Officer

Our panel covers various fields that focus on mechanical engineering and electrical and electronic engineering.

FOREST is an epoch-making program to support studies performed by young researchers for a maximum of 7 years. We want researchers, while they are young and in their most important period, to review their study from the perspective of a high vantage point and aim at the creation of seeds that can lead to an effective innovation without small accomplishments they can certainly attain. We have two requests for you pertaining to your application studies.

First, do not worry about failure and set an ambitious and challenging target application. We expect such research applications to exceed concepts and common knowledge in the present-day science and technology that may be one large step forward and may not be studied or brainstormed by anybody else.

Second, consider fusion with different fields; this may be done after your application is selected. We expect that some unexpected research results may originate in a fusion-oriented manner through the fusion of various individuals and disciplinary fields but not in a strategic manner. We want the researchers after their applications are selected to create new communities regardless of disciplinary fields and positively influence each other.

Our panel aims to bear considerable research achievements to lead the world in 10 or 20 years; we, considering your future, will support regardless of halfway results in our practice "to boldly challenge without fearing failure."

We are waiting for many of you to develop challenging applications.

Imura, Jun-ichi

6.2.3 Hori, Muneo　FOREST Program Officer

Civil engineering is strongly connected to the construction industry and is concerned with land planning and environment issues of cities and regions. It is also concerned with the mitigation of natural disasters such as earthquakes, tsunami, storm and floods and volcanic eruptions. There are two key issues of civil engineering, namely, the enhancement of productivity in the construction industry and the safety and security of national lands against all natural disasters. Research and development of new technologies are being required to provide solutions to these issues.

We think that the creation of a disruptive innovation is essentially important beyond the improvement of conventional technologies. From this vantage point, we think that FOREST is a precious opportunity out of all doubt.

I, as a PO in the FOREST program, have emphasized the significance of creating disruptive innovation, which is one of the features of FOREST. Specifically, the emphasis is put on the innovative nature and the general-purpose nature of the research achievements that can be applied for a long period and worldwide. Furthermore, I am willing to mentor researchers (i.e., you) with innovative ideas of design, together with FOREST advisors, who lead the fields of civil engineering and/or natural disaster prevention science. The word "mentor" defines an individual who listens to you carefully, understands the progress of your research, and tries to provide some hints for the further development of your research. Discussions with other researchers, who have various research backgrounds, will enhance your way of thinking. Being innovative differs from thinking impossible dreams. Academic fundamentals should be strong so that solid innovative ideas are made; we think that strengthening academic fundamentals is necessary.

Finally, FOREST is a blessing for me as I can communicate with excellent young researchers. I, together with FOREST advisors, am looking forward to your research.

Hori, Muneo

6.2.4 Kitagawa, Hiroshi　FOREST Program Officer

We want high-risk, original, challenging studies for FOREST. This panel does not require studies that have specific objectives as preconditions, e.g., problem-solving types, but wants applications with bold themes that you have been individually cherishing as a researcher, like with unique and liberated ideas, for instance, like turning "0" into "1."

We do not want applications that are extended parts of the existing studies or that may quickly achieve the target. Instead, we are looking for studies that one cannot easily imagine and include original and genuine ideas only the applicant can come up with.

FOREST may continue for as long as 10 years; we stand behind you so that you can steadily enhance your studies and have exciting "encounters" with researchers beyond the borders of fields. I had encounters with many researchers thanks to the PRESTO program, which significantly influenced my studies and some parts of my life to this day.

With FOREST advisors, we, PRESTO POs, support you with your studies so that your "personality" will further develop while advancing your FOREST studies; in addition, the researchers having met each other through the FOREST program may propagate new seeds of studies.

Why don't you join us in FOREST and embody research ideas you have been cherishing secretly? We expect your challenging studies and those of other researchers in FOREST to break down the feel of blockade in the society and give birth to innovation with significant influence. We expect and, at the same time, look forward to several ambitious applications.

Kitagawa, Hiroshi

6.2.5 Itami, Kenichiro　FOREST Program Officer

The FOREST program assists young researchers who genuinely want to advance challenging studies free from the constraints of conventional strategies/plans and existing frameworks. These are the research applications that, while they may seem outlandish from the vantage point of existing research frameworks or existing sense of values, may cause conspicuous breakthroughs and form the science of the future. Our panel emphasizes proposals that provide new concepts, uniqueness, and, above all, demonstrate passion rather than logical and honor-student-type research applications based on conventional research results. Based on this program, we want applicants to picture "what" they will be doing to be an outstandingly unique individual and lead the world on their own.

We want efficient and high-potential young researchers and advisory members to inspire each other and form groups that will take the lead in chemistry in Japan through FOREST. We want to hear your dreams and passions.

Itami, Kenichiro

6.2.6 Abe, Keietsu　FOREST Program Officer

This panel covers research areas in which we try to live in symbiosis with nature, and we pursue the production, and the conversion, of various biological materials including the food essential for the human being to live.

Today, various problems are piling up on the global scale; the roles played by agriculture are extraordinarily important to Japan and the world. Under the situation where the number of agricultural workers is decreasing and the population is aging due to a shrinking population and a declining birthrate in Japan, the social challenges in the area of agriculture in Japan are to transform the weakening agriculture, forestry, fisheries and food biotechnology industries into growing industries to establish a secure food supply system. From the vantage point of the world, some of the challenges we want to mention here should be to secure food production for 10 billion human beings and the preservation of the environment, living in symbiosis with the nature. Coping with environmental changes and natural disasters is one of the important challenges. In the area of agriculture involving such challenges, we expect your research applications to be the main factor to cause large-scale innovation.

Challenging research may be often accompanied by difficulties. We, the mentor team comprising advisors, including FOREST POs and administrative office, are willing to accompany you in your research. Moreover, in this program, as a "Place of Fusion", we are planning to create opportunities to socialize with researchers and advisory members in this panel and other panels as well; we are expecting you to stimulate and enlighten each other and enhance your research in a liberated manner.

We, including the mentor teams and administrative office members, are waiting for your ambitious applications.

Abe, Keietsu

6.2.7 Ishizuka, Mayumi　FOREST Program Officer

This panel covers, with the keyword "field," a wide range of research areas from veterinary medicine and animal husbandry to agricultural engineering, environmental agriculture, and the influence from chemicals. The areas we cover are not limited to these. We think that the studies that will not easily produce results can be an important foundation in future for young researchers even if they take some time. We are waiting for a wide range of applications.

This is a program that assists researchers for a long period and supports the development of new research areas. We, POs, feel that this is significant, and thus, we should prepare ourselves for resolutions as much as possible; we have an enormous responsibility. We hope that you, researchers, will develop yourselves using this program for new research areas and new fusions.

In addition, we expect you (young researchers) to enhance your research with ambition beyond existing ceilings. We, POs, are willing, to name but a few, to improve the motivation of participating researchers, to liberate them from the "borders" among research areas, and to cherish liberated ideas. Considering those, we need to facilitate proactive attitude toward the communications among researchers.

Finally, we expect that you may initiate some unexpected collaboration by participating in this research program, that you, as a result, will embody some breakthrough ideas that are not part of existing ideas or methods, and, in addition, you can enhance your research that should be, in a positive way, ambitious. We are waiting for such highly motivated applications.

Ishizuka, Mayumi

6.2.8 Siomi, Mikiko　FOREST Program Officer

Nurturing young human resources is essential for the continuous development of science and technology in this country. To do so, it is necessary to find young researchers with high potential in or outside the country in a timely manner and support them from various vantage points. With this in our mind and to embody this through FOREST, this panel wants challenging and fusion-oriented research concepts that are free from existing frameworks. In addition, we welcome applications from researchers with the potential for execution. Some of the conspicuous features of this program are the mentoring system and networking after applications are selected. The FOREST POs and advisors are involved in screening research applications and nurturing FOREST researchers after their applications are selected. Our panel, which comprehensively covers fundamental biology, has eight FOREST advisors as mentors, who lead the biology department in Japan. Our panel comprises advisors belonging to a wide range of generations, which include relatively young persons and accomplished persons and researchers dealing with developmental biology, structural biology, organelles, and plants. We believe that they, as FOREST mentors, would advise you about your future careers as a researcher and, from time to time, help in life counseling as well. We want to encourage you to make the best use of the advice from your advisors and produce outstanding results. This program, by the way, has 14 panels. We are planning to compose a network beyond the borders of the panels in the coming days; let us together embody your challenging and fusion-oriented research concepts based on our unique endeavors.

Siomi, Mikiko

6.2.9 Goda, Yukiko　FOREST Program Officer

Our panel calls for applications in areas ranging from genetics and anthropology, to brain and neuroscience. First and foremost, we expect applications that are original and exciting, and challenge the current understanding with a clear set of goals and strong implementation plans. We hope to nurture future generation of scientists who will stimulate and lead the dynamic life science communities in Japan, within the global playing field that is becoming increasingly competitive. Proposals with novel and exciting ideas are highly welcome. Even if the pilot data are not sufficient, we aim to support applications in reference to the past achievements of the applicants and the overall excellence of the proposal. In addition, we place importance on the diversity of researchers, including gender balance. Once selected, the researchers in the panel will benefit from our rich mentoring system involving the expertise of the FOREST Advisor groups. We will promote active interactions amongst all the researchers through panel meetings and fusion-oriented meetings and aim for synergistic scientific advances on all fronts.

Goda, Yukiko

6.2.10 Mizushima, Noboru　FOREST Program Officer

FOREST has three major features. First, this program is not limited to specific research areas or themes. We think that genuinely groudbreaking studies may not easily align with the existing research areas. In this program, we support studies, regardless of their areas, as long as they are the ones that can lead to the creation of disruptive innovation. Our panel covers research areas that include pharmacy and basic medicine; we, not limited only to studies in pharmacy or basic medicine per se, will also cover other areas in relation to them. Further, it is not necessary for you to include outputs for applied use. We pay particular attention to the magnitude of the question you are trying to solve and the importance of the technology you are trying to develop. We want you not to worry about making mistakes but to face bold challenges. The second feature is the long period of support. In this program, you do not need to have a short-term achievement as a goal. We want you to use the 7-year research period, which is relatively long, to cope with your challenging project with future vision while you are organizing your research environment to try something new. The third feature is the fusion of different areas. We want you to be proactive to socialize with researchers of different fields among or, furthermore, beyond our panels once your application is selected. We want such researchers who think about various possibilities without staying in areas of their specialty and with a wide viewpoint across areas. We expect some interesting developments to be appearing, which are not anticipated at the time of the selection of your application. For that matter, it is, we think, important to secure various research areas and researchers in terms of their organizations, genders, career paths, and others. We do want various researchers to challenge "FOREST" and are waiting for many interesting applications from you.

Mizushima, Noboru

6.2.11 Amagai, Masayuki　FOREST Program Officer

This program does not particularly specify any problems or short-term objectives and aims to create seeds for disruptive innovation through various fusions; i.e., fusion among researchers with their applications selected and FOREST advisors. We welcome unique creative themes that are not necessarily tied up to some outputs.

We want such researchers who may be thinking about some big questions on their own and trying to solve them with their uniqueness, who may be trying to make a big swing to blast a home run rather than earning a hit for sure, who may be unsuccessfully struggling to embody their dreams, or who may be scheming to face outstanding challenges as a researcher.

Having said that, we do not necessarily want you to be excessively excited to solve all of them alone. We have the network in our FOREST program. We have researchers in each panel and trustworthy FOREST advisors.

We, in this panel, welcome clinical scientists who are engaged in clinical practice in a clinical field and pursuing fundamental questions. On the other hand, you need to collaborate with MDs and PhDs to solve any major problem in the field of clinical practice. We welcome researchers (who are fundamental) who have their specific objectives in the field of clinical medicine. We think it is important to compose a community in which clinical scientists and basic scientists are mingled.

In the FOREST program, we prepare interesting plans, including retreats of each panel and retreats beyond the panels. Why don't you join us in the FOREST family to taste the fascination of life as a researcher?

We do want many of you to try our FOREST program. We look forward to sharing collaborative and cultivating experiences with you "as if we were all one family" for the creation of seeds for disruptive innovation.

Amagai, Masayuki

6.2.12 Tanaka, Junko　FOREST Program Officer

In our panel, we think it is important, for the time to come, to be brave enough to cope with such themes that are novel and never have been coped with before and/or that will be important in future even if they are not highly evaluated currently; therefore, we highly evaluate your ambitious research concepts free from risks and your honest attitude to cope with such concepts. For us, POs, as well as for the seven advisors, it may be extremely difficult to accurately determine whether a research application is just a casual idea that is groundless and has low feasibility or a concept that will be useful and impactful in future. However, we are going to screen your applications, preparing ourselves "to mine— and we want to mine—the concepts that will be large flowers"; therefore, be prepared to face challenges.

One of the features of FOREST is its 7-year research period, which is relatively long. We want you to use this feature and cope with the genuinely challenging research concepts that are not based on the principle of a short-term achievement. Describe your applications in such a way that your ambitious research concepts and your honest attitudes to cope with them will be conveyed to us. Furthermore, FOREST has more features that are not seen very often in any other program; i.e., schemes for mentoring by the POs and advisors after your applications are selected and for the support to organize your research environment. Therefore, we welcome such applications whose feasibility will be increased by supporting the research environment even if their feasibility may be low in the current research environment. Moreover, we, in this panel, are willing to select a variety of researchers in terms of localities, genders, organizations, research areas, unique career paths, and experiences in life events in accordance with the aims of FOREST. Allow me to repeat: in this panel, we expect applications that do not pursue short-term achievements and do not worry about risks but will deal with ambitious and challenging research concepts to finally become successful and effective that may lead to the Nobel Prize as well as such researchers who have the spirit to make it happen.

Tanaka, Junko

6.2.13 Yagi, Yasushi　FOREST Program Officer

FOREST is a long-term program that will last, in principle, for 7 years. Researchers can make endeavors to embody dreams with liberated ideas without restrictions about short-term progress. To make these 7 years more significant, it is important to have a clear vision in your studies. Make it clear what you are trying to attain to embody your dreams and how far you are trying to go, what are your goals in 3 and 7 years, and how you are going to approach them; furthermore, have a firm vision of the future you are aiming at. Making your dreams come true is not an easy task, but your one step will be a progress. Use these 7 years effectively and go forward step by step to embody your dreams.

We, in the FOREST program, will cooperate with you as much as we can to make your dreams come true. Once your application is selected, you have opportunities to socialize with researchers in the field of information science and other fields. You, as a researcher in the FOREST program, can talk about your dreams and stimulate other researchers to enhance your ideas. In addition, we have the honor to appoint, as our FOREST advisors, researchers who have made achievements to represent the field of information science. We do not doubt that they, based on their rich experience, will provide you with some effective ideas to enhance your studies.

We, in the Yagi Panel, are expecting research applications that are challenging and exciting. We are waiting for your applications.

Yagi, Yasushi

6.2.14 Yoshida, Naohiro　FOREST Program Officer

In FOREST program, there are various objectives pertaining to applications for areas concerning environments we cover, miscellaneous research methods, and interdisciplinary studies; therefore, we want to develop significant fusions and share collaborative and cultivating experiences in our areas. We are not particular about differences among science, engineering, and life sciences, and do not discriminate humanities or natural sciences. We are truly expecting unique research applications that are liberated from conventional research areas. FOREST advisors in this panel are from various backgrounds. In addition, you can make fusion with any of the other panels; through fusion-oriented meetings, we would want to socialize with people from different research areas to cultivate new areas. In the Earth-Life Science Institute (ELSI) of Tokyo Institute of Technology (listed in the WPI initiative), where I am a specially appointed professor, researchers of different countries gather and are cultivating themselves in a fusion-oriented manner. I think I can organize such useful environments considering my overall experience.

When I was an associate professor at Nagoya University, I participated in an interdisciplinary researchers forum held by JST. One of its objectives was to aim at fusion-oriented studies across medical science, chemistry, and environmental science. Thirty various top-level researchers from all over the world lodged together and discussed for a week, which was truly as exciting as science per se. I have a great impression of the prototype of "Place of Fusion" presented there, which aimed at trans-disciplinary studies but not inter- or not multi-disciplinary studies. Having experienced stimulations from different research areas, I made a research application for a 10-year long project across CREST, which had just started, and SORST. Long after that, the FOREST program is one of the most ideal things that we can imagine now; it is truly an honor for me, linked by fate, to contribute as a FOREST PO in the FOREST program, which reminds me of my experiences. With young researchers and in cooperation with FOREST advisors and other experts in different research areas, I am willing to make efforts to give what contribution I can make, no matter how small it may be, for young researchers, research areas, and the development of science. I am sincerely willing to make progress with you.

Yoshida, Naohiro

FOREST Program

Please make sure to visit our Invitation for Research Proposals page for the latest updates and frequently asked questions:

https://www.jst.go.jp/souhatsu/en/document/faq2020en.pdf

Contact for Inquiries (We cannot answer to inquiry related to selection process)

Please submit inquiries by email (except for urgent inquiries).

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［Communication by e-mail may be requested even when a question is asked by telephone.］