



FY2021 FOREST Program Overview of the Call

This is an overview only.
Please read the Application Guidelines before applying.

**Japan Science and Technology Agency,
Office of Disruptive Research**

Formation of a place for fusion (FOREST Program)

FOREST program supports unrestricted, challenging and fusion-oriented research not bound by the existing frameworks, while securing an environment in which researchers can devote themselves to their research on a long-term basis.

- ✓ Moonshot R&D Program and FOREST Program provide support to produce results leading to disruptive innovation. <The basic principle of economic and financial management and reformation in 2020>
- ✓ In particular, it is necessary to ensure an environment in which researchers can dedicate themselves to research, free from short-term achievements to advance challenging and inter-disciplinary fusion-oriented research; FOREST program is initiated to support them. <The integrated innovation strategy in 2020>
- ✓ As the future direction of the Government R&D investment, it should focus on two research areas, namely "Strategic Research" aiming at realizing Society 5.0 and "FOREST" aiming at creating disruptive innovations through diversity and fusion without setting specific topics or short-term goals. [Japan Business Federation Proposal]

[Overview]

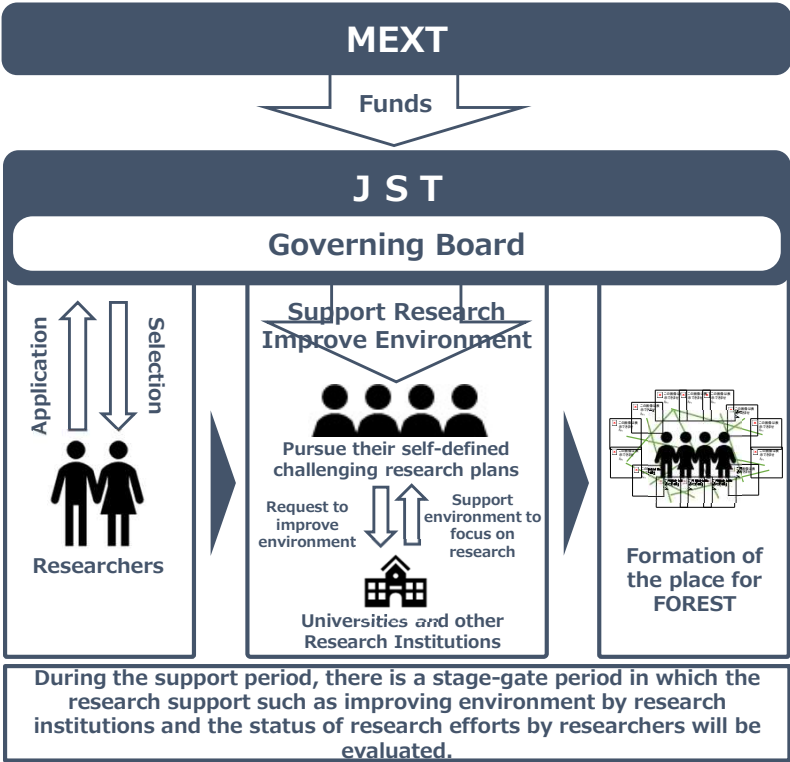
- Requirements for Research Applications : Researchers at universities, etc. who are independent, or planning to become independent.
 - * 15 years or less since obtaining a doctorate (Child nursing, childbirth, nursing in general, and other life events are considered separately.)
- Number of Projects to be Selected : approx. 250 proposals per year × called for 3 times
 - * The expenditure necessary for the screening, selection, and other processes in relation to the call-for-program are funded from the initial budget.
- Support amount unit: 7 million yen/year (average) & indirect costs
 - * It will be managed flexibly according to the field and environment the researcher is in, for example, the use to help secure research time by reducing the administrative burden. (The buyout system (the review to enable the payment for the cost in relation to the substitution in the work other than the research) and the payment for the labor cost (PI labor cost) of the research director from the direct costs are introduced antecedently.)
- Support period: 7 years (can be extended up to 10 years)
- The mobility of researchers is ensured by enabling the continued support even in the case of the change in affiliation during the support period.
- Separately, considering the supports etc. from affiliated institutions such as universities, additional support to improve the research environment will also be implemented.
 - * The RA support for the doctoral course students etc. to sustain the FOREST research under the direction of an independent researcher is enriched depending on the status of the progress etc. of the research.
- Opportunities to share collaborative and fostering experiences to stimulate each other among FOREST researchers are provided.

[Features]

- ① Targeting mainly at the variety of young researcher resources, bring together, and enable fusion among, the researchers with internationally competence and potential.
- ② Secure the research environment for researchers to focus on FOREST under the supports etc. from affiliated institutions such as universities.
- ③ By way of ① and ② above, researchers can actively pursue their self-defined challenging research plans.

→ By maximizing ambition and research hours of excellent human resources, create outcomes that lead to disruptive innovations

[Project Scheme]





FY2020 Call Schedule

Call for Research Application Start	<u>Thursday, April 1st, 2021</u>
Application Deadline (Deadline date and time for submission on the e-Rad)	<u>12:00 pm (noon)</u> <u>Wednesday, June 2nd, 2021</u> <u>[Strictly enforced]</u>
Document Screening Period	Early June to mid-September
Notification to Interviewees	Late August to early October
Interview Screening Period	Late September to mid-November
Notification/Announcement of the Selected Projects	Sequential notification/announcement in late November and later
Research Start	Sequential start after January, 2022



Notes on Application

- ✓ Applications that have not been submitted by the specified deadline (at noon on Wednesday, June 2nd) will not be considered for any reason.
- ✓ Applications cannot be replaced or changed after the submission deadline.
- ✓ Please allow plenty of time to complete the submission, as the system response may become slow due to heavy access to the e-Rad near the deadline.

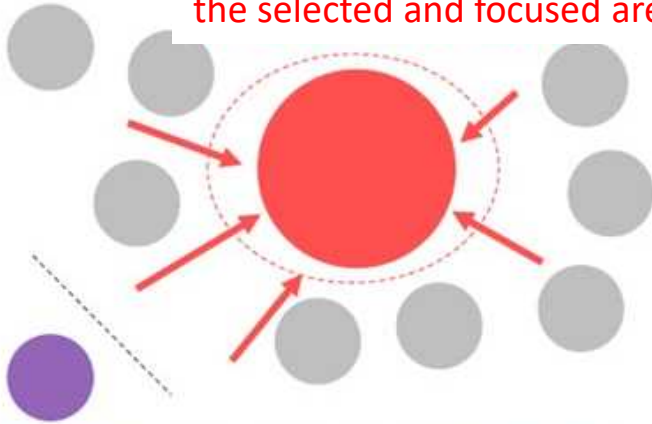


What is FOREST*?

*Fusion Oriented REsearch for disruptive Science and Technology

Selection and Focus

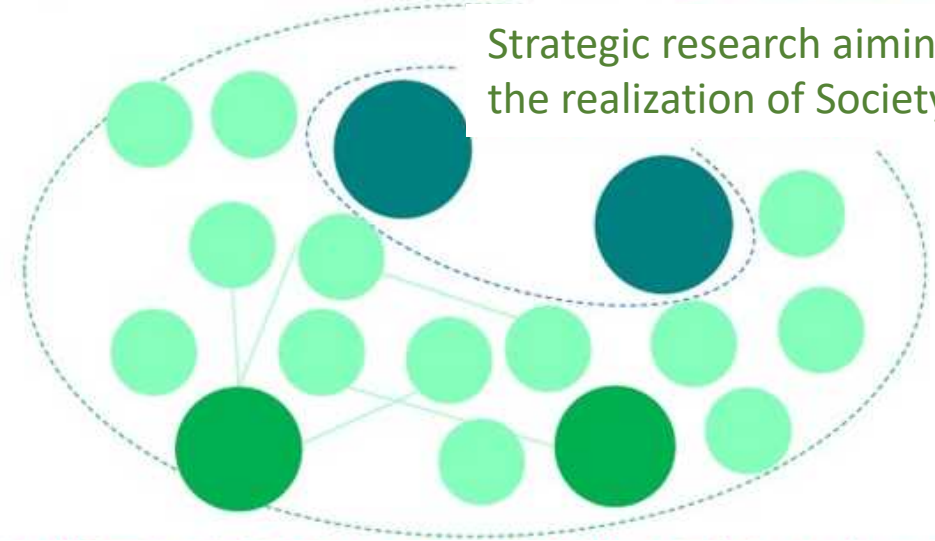
Competition is already fierce in the selected and focused areas



Disruptive innovations emerge from the areas least expected outside of the selection

Strategy and FOREST

Strategic research aiming at the realization of Society 5.0



FOREST aiming at creating disruptive innovations through diversity and fusion without setting specific projects or short-term goals

Source: Transformation to “Strategy” and “Emergence” aiming at the realization of Society 5.0 (Japan Business Federation)

What is Emergence? (from Organization Theory)

“Behavior that induces innovation beyond expectations and intentions based on certain requirements by combining the abilities and ideas of individuals”



Components of FOREST Program

Support FOREST to create seeds that lead to disruptive innovations

- ✓ Support ambitious challenges without fear of failure
 - Long-term Research Funds (7 years in principle, max 10 years)
 - Target independent, or planning to be independent, researchers
 - Support improving environment to focus on research
- ✓ Enhance diversity
 - Wide variety of research projects/researchers,
Improved international mobility
- ✓ Promotion of fusion research
 - Provide a Place for Fusion, Mentor system



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- ✓ You can specify the FOREST panel you want for the screening using the e-Rad system during your application process. The fields mainly covered by the FOREST POs and the messages from the FOREST POs are disclosed.
 - * You need to specify your research areas (both main and minor areas).
- ⇒ See Chapter 6 in the Application Guidelines.
- ✓ The restriction on duplicated applications of applicable projects is partially relaxed.
 - ⇒ See Chapter 2, <Projects Subject to Duplication Restriction>.
- ✓ The schedule is advanced by two months compared to the last fiscal year.
 - ⇒ You are expected to start your research in January 2022.



FOREST POs

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

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



FOREST Panels (FOREST POs and Advisors)

PANEL headed by Professor ABE



FOREST Program Officer

Abe, Keietsu

Dean, Professor, Graduate School of Agricultural Science, Tohoku University

Advisors (Alphabetical order)

Inui, Masayuki	Chief Researcher, Group Leader, Molecular Microbiology and Biotechnology Group, Research Institute of Innovative Technology for the Earth
Kumagai, Hitomi	Professor, College of Bioresource Sciences, Nihon University
Nakai, Madoka	Professor, Institute of Agriculture, Tokyo University of Agriculture and Technology
Ohsawa, Ryo	Professor, Faculty of Life and Environmental Sciences, University of Tsukuba
Shirasu, Ken	Group Director, Plant Immunity Research Group, CSRS, RIKEN
Suyama, Yoshihisa	Professor, Graduate School of Agricultural Science, Tohoku University
Takayama, Seiji	Professor, Graduate School of Agricultural and Life Sciences, The University of Tokyo
Yoshizaki, Goro	Professor, Department of Marine Biosciences, Tokyo University of Marine Science and Technology

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



Major Areas Covered by FOREST PO and PO Message (Example)

Major Areas covered by FOREST PO (Case of Panel Headed by Professor Abe)

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	

For details, see 1.1.2 and 6.1 of Application Guidelines

Message from FOREST PO (Case of Panel Headed by Professor Abe)

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



Precautions for Using the e-Rad System for Registering the Panels and the Areas

- ✓ Ensure specifying the FOREST panel (FOREST PO) you want for the screening, research area (major), and research area (minor) using the e-Rad system.
- ✓ In particular, the research area (minor) is not a mandatory item in the e-Rad system but is mandatory for FOREST program; be cautious to not to forget specifying this area.
- ✓ Ensure selecting 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).

For details, see sections 2.2.2, 5.5, and 6.1 in the Application Guidelines.



Eligible Research Proposals

The program calls for a variety of challenging and original research projects, which require a long-term commitment without fear of failure, with the potential to create the seeds for disruptive innovations in any of the following categories ① through ⑤.

- ① Research with the potential for “discovery and/or creation of new knowledge” and/or “elucidation of the principles”
- ② Research in a field that should be continuously addressed from the perspective of diversity of research
- ③ Research with the potential for generating new technological knowledge and/or developing of innovative technology
- ④ Subject matter for which breakthrough and new research areas are expected to be created through the "fusion" of scientific and technical knowledge
- ⑤ Subject matter that is expected to transform society and systems for the actual or wide-spread use of research outcomes

For details, refer to “2.1.1 Eligible Research Proposals”
in the Application Guidelines



Notification

- ✓ For the FY2021 call, only one application can be submitted per applicant.
- ✓ Out of 3 calls (FY2020, 2021, 2022) that this program offers, applications may only be made up to 2 times.

For details, refer to “2.1.3 Limitations on the Number of Applications” in the Application Guidelines



Overview

- ✓ Research Period 7 years in principle (Maximum 10 years)
Phase 1 (3 years)/Phase 2 (4 years)
Stage-gate in the 3rd year
- ✓ Research Budgets
(Direct Costs) 50 million yen (Maximum)
Phase 1: 20 million yen (Maximum)
(Indirect Costs: Up to 30% of direct costs)
- ✓ Projects to be
selected
(FY2020) Around 250 projects

For details, refer to the sections 2.1.6 through 2.1.8
in the Application Guidelines



Application Requirements

- ✓ The research application must be based on the applicant's own research plan.
- ✓ The applicant must be able to conduct research independently to execute his or her own research plan.
- ✓ The applicant must have completed a research ethics education program at the affiliated research institution, or the education program offered by JST before the submission deadline.

For details, refer to “2.1.9 Application Requirements”
in the Application Guidelines



Application Requirements (Affiliation etc)

- ✓ The applicant must be affiliated with a research institution in Japan, and capable of conducting FOREST.
 - ✓ Those researchers who are not affiliated with a Japanese research institution at the time of the application may apply on the condition that they become affiliated with a research institution in Japan and start the research by April 1st, 2022.
 - ✓ Researchers of Japanese nationality are allowed to postpone the start of the research by up to 2 years after the selection.
 - You must belong to a research institution in Japan within two years following your application selection.
(You will not encounter any problem even if at the time of your application there is no specific institution to which you will belong after you return to Japan.)

For details, refer to “2.1.9 Application Requirements”
in the Application Guidelines



Application Requirements

(History of Receiving Research Funding etc.)

- ✓ The applicant must have received, or be currently receiving, research funding that can be used under his or her own responsibility and authority (research funding received as the Research Director) within the past 2 years. If there are special circumstances in which the applicant has not received research funding during the past 2 years, the reason should be clearly stated in the research application.
- ✓ Research funding supported by a public call-for-program in fiscal year 2019, 2020, or 2021 (up to the present day) is applicable.
- ✓ Here, internal research funding called from affiliated institutions are not included as “Research Funding”.
For details, refer to “2.1.9 Application Requirements” in the Application Guidelines



Application Requirements (Experiences)

① 15 years or less since obtaining a doctorate as of April 1st, 2021

(The doctorate is conferred on or after April 2, 2006.)

② Completed medical, dental, or veterinary medicine courses & clinical trainings after the doctoral program

→ 17 years or less since obtaining a doctorate as of April 1st, 2021

(The doctorate is conferred on or after April 2, 2004.)

If there was a period in which the applicant was unable to devote to the research

③ A period of childbirth/childcare within 15 years (within 17 years for the case ②) since receiving a doctorate

→ 20 years or less (22 years or less for the case ②) since obtaining a doctorate as of April 1st, 2021

④ A period of care giving within 15 years (within 17 years for the case ②) since obtaining a doctorate

→ The conditions in ① and ② will be increased by the length of such period (up to 2 years)

★ In the case of both ③ and ④, up to 20 years or less for the case ① (22 years or less for the case ②) since obtaining a doctorate

For details, refer to “2.1.9 Application Requirements”
in the Application Guidelines



Application Requirements (Experiences)

[Examples]

Obtain doctorate

Years since obtaining doctorate



In principle



15 years or less

Childbirth



20 years or less

Experience of childbirth/childcare

Childbirth



15 years or less

Care giving

Experience of care giving



Length of care giving + 15 years or less

Experience of childbirth/childcare/care giving



20 years or less

Clinical training

Experience of clinical training



17 years or less

Clinical training



15 years or less

Clinical training Childbirth



22 years or less



Application Requirements (Research Funding Duplication Restriction)

If selected to receive research funding as the Research Director

You are allowed to make an application if in the final fiscal year.

[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: **targeted at research area representation***)
Grants-in-Aid for Transformative Research Areas (A) (**targeted at research area representation***),
Fundamental Research (S)
- 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)

* The research directors of a call-for-program or a planned research are excluded from the scope of our duplication restriction.

※In the case of a PRESTO or PRIME program, a system to postpone the start of your research exists (see the next page).



Application Requirements

(Research Funding Duplication Restriction)

For the Projects Subject to Duplication Restriction

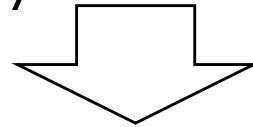
If the research is scheduled to be completed
by the end of March, 2022

(This fiscal year is the final fiscal year.)

For JST-PRESTO & AMED-PRIME

If the research is scheduled to be completed
by the end of March, 2023

(The next fiscal year is the final fiscal year.)



Permitted to apply for FOREST for this fiscal year
Commence research after the completion
of the Projects Subject to Duplication Restriction

For details, refer to “2.1.9 Application Requirements”
in the Application Guidelines



Conditions for Independence

The following conditions for independence must be met when applying, or, will be met during Phase 1 (3 years):

- ✓ Must be in the position of a corresponding author of the paper for the applicant's own research;
- ✓ Must have responsibility for, or be in a position to have responsibility for, the guidance of graduate students, etc.*;
- ✓ Must be the person in charge of the research group when the research is conducted by forming a research group; and
- ✓ Must have a laboratory **.

*This is applicable to researchers and undergraduates. The right to participate in a dissertation defense is not a prerequisite.

** Must be responsible for the management of the research facilities and laboratory rooms required for conducting independent research. Being registered as an administrator to a research institution is not a prerequisite.

For details, refer to “2.1.9 Application Requirements”
in the Application Guidelines



Conditions to be met within 3 years after the selection

- ✓ Although it is possible to apply without currently meeting the conditions for independence, if the conditions are not met at the time of screening, the future prospectus and desire to become independent will be checked and the selection will be made on the condition of making the utmost effort.
- ✓ The stage-gate review in the 3rd year will evaluate whether or not to continue supporting the research not only based on the conditions for independence but also from the overall perspective.

For details, refer to “2.1.9 Application Requirements”
in the Application Guidelines and the FAQ



Selection Perspective

- ✓ It is consistent with the objectives of the program;
- ✓ The research application is eligible for this call for applications;
- ✓ The research application is based on the applicant's own ideas;
- ✓ The applicant has the willingness to execute the research plan, and it feels feasible;
- ✓ The applicant has the necessary research capabilities and systems;

Continued



Selection Perspective

- ✓ The applicant will 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;
- ✓ The applicant is willing to request cooperation from, or coordinate with, research institutions as necessary to ensure a research environment suitable for conducting Fusion Oriented Research; and
- ✓ The applicant is expected to become independent (within 3 years), and it is highly likely to happen.

For details, refer to “2.2.1 Selection Perspective”
in the Application Guidelines



Research Budget Usage

- ✓ The maximum expenditure for expenses for outsourcing non-research work (buyout expenses) is, in principle, 1,400,000 yen per year.
- ✓ The maximum expenditure for personnel expenses of the individual researcher is, in principle, 700,000 yen per year.
- ✓ The maximum expenditure for the sum of the expenses above is 2,100,000 yen per year within the limit of the effort allocated to this program.
- ✓ When making expenditure for applicable expenses, please make sure to check a separate Administrative Procedures Manual which sets forth the requirements and necessary procedures.

For details, refer to “3.1.3 Research Budget” in the Application Guidelines and the Administrative Procedure Manual.



Request for Allocating Time for Research

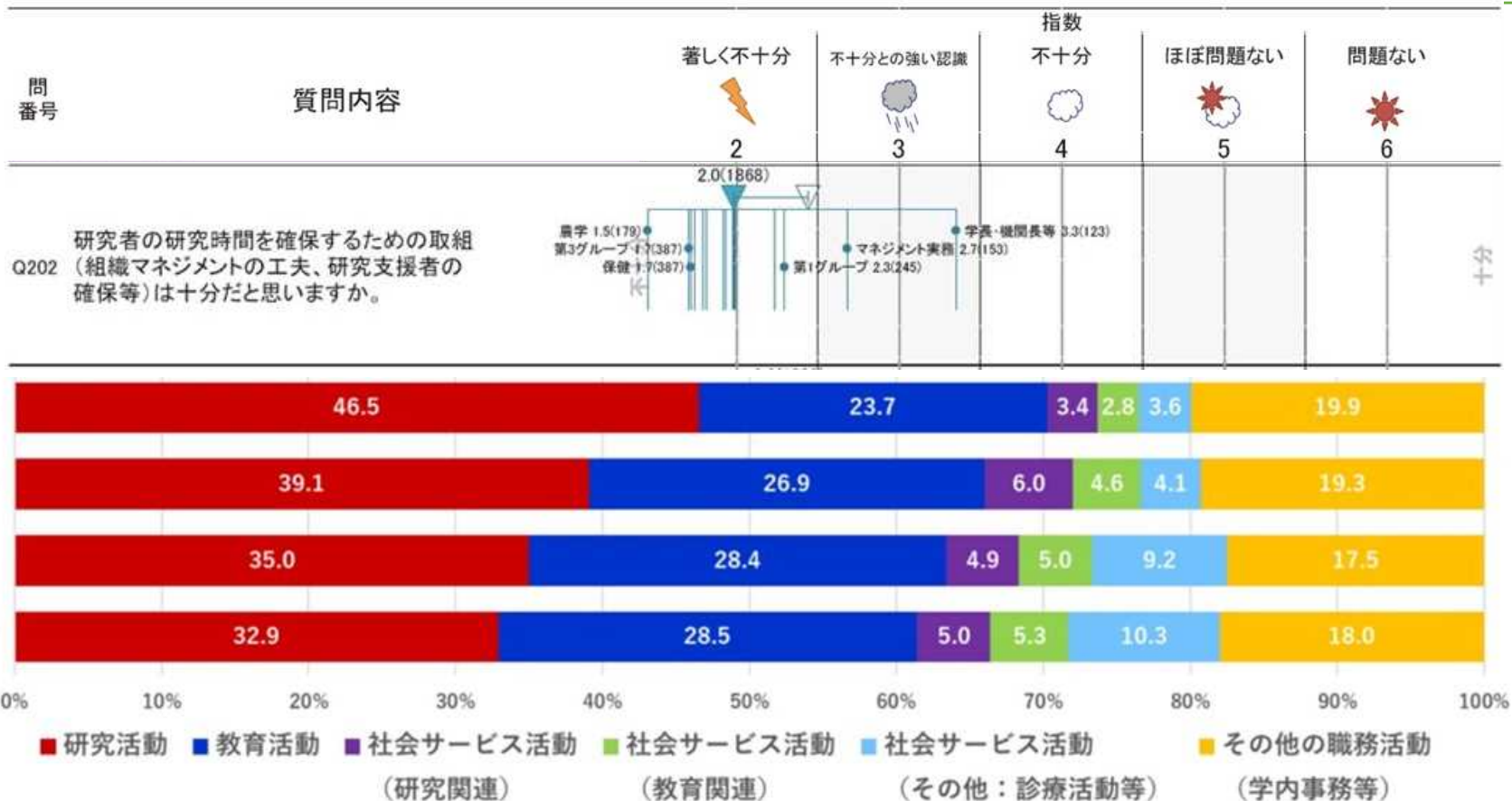
Research time has been decreasing yearly.



The buyout system introduced (1.4 million yen at the maximum)

Your support is sought for allocating time for research.

All research/work activities
 Science and similar fields: 55%
 Engineering, agriculture, and similar fields: 45%
 Medical science and similar fields: 35%





Support to Improve Research Environment

- ✓ This program aims to secure an appropriate research environment suitable for the execution of FOREST with the support of the affiliated research institutions of each researcher.

Example: shared use of the facilities, securing research hours, and environment to enable devotion to research

- ✓ 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.

For details, refer to “3.2.2 Securing Research Environment”
in the Application Guidelines



Place for Fusion & Mentoring System for selected researchers

- ✓ The selected researchers will participate/present/discuss/manage/etc. in the “Place for Fusion*” which will be held regularly to initiate emergence.
* inspiring knowledge, promoting research fusion, and building network
- ✓ FOREST Program Officers and FOREST Advisors provide guidance and progress management to maximize the outcome.

What is Emergence (the basic concept of FOREST)?
(from Organization Theory)

“Behavior that induces innovation beyond expectations and intentions based on certain requirements by combining the abilities and ideas of individuals”

For details, refer to “3.2.3 Formation of the Place for Fusion”
in the Application Guidelines



Other Notes

- ✓ When applying, please check the notes described in the “Chapter 4: Notes on Application” in the Application Guidelines.
- ✓ Applications for this program are accepted on the Cross-ministerial R&D Management System (e-Rad). Please check Chapter 5 in the Application Guidelines which explains how to apply using the e-Rad and related notes.



Other Notices

(Collaboration with High Energy Accelerator Research Organization)

- ✓ Research projects under the FOREST Program are entitled to the priority use of the facilities at High Energy Accelerator Research Organization, etc.

- ✓ Facility usage fee:
 - Standard Performance Beamline - 12,800 yen/hour
 - Advanced Performance Beamline - 25,600 yen/hour

- ✓ For details: <https://www2.kek.jp/imss/pf/use/program/>

- ✓ Advice on projects suitable for multi-probe applications is available from the Center for Integrative Quantum Beam Science, High Energy Accelerator Research Organization.

- ✓ For details: <https://www2.kek.jp/imss/ciqus/>



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

If you have any questions, please contact the inquiry desk listed on the application website.

souhatsu-application @ jst.go.jp