Inter-University Research Institute Corporation High Energy Research Organization (KEK)

Early Career Research Program on Accelerator Technology R&D

Funding Opportunity Announcement for JFY 2023

1. Summary

Advanced accelerator technology is already being used in various fields, including facilities for generating light and quantum beams such as synchrotron radiation, neutron beams, and muon beams, as well as medical accelerators that enable advanced medical treatment.

Therefore, it is necessary to develop technology elements that are important for improving the performance of future accelerator, leading to technological innovations in acceleration performance and control technology that will contribute to the realization of innovative utilization, as well as the accompanying miniaturization.

In large scale accelerator experiments in high energy physics, the demand for higher experimental performance goals in the advancement of research has led to larger accelerator facilities and higher construction costs, which have become global issues. To solve this problem, development of elemental technologies is required to enable optimal technology selection and verification of the feasibility of performance targets.

In particular, for the improvement of the performance of future accelerators, the rapid development of accelerator technology based on novel ideas is necessary, thus KEK solicits R&D proposals under this program that will lead to the rapid development of accelerator technology from early career researchers in Japan, and supports their research activities and expenses, thereby contributing to human resource development in this field (hereinafter referred to as "Breakthrough R&D").

In Japan, the Grants-in-Aid for Scientific Research (KAKENHI), which supports novel technologies and early career researchers, is well known, but in the field of accelerator science, opportunities for such researchers to actually engage in novel researches are limited, partly because the environment for such novel research is not conducive, excluding some large accelerator laboratory such as KEK. As for the "Breakthrough R&D" in this solicitation, early career researchers in Japan are invited to conduct research using KEK's facilities to realize their own ideas. Some example of feasible accelerator experiments that can be supported at KEK are low temperature experiment using liquid helium or experiment using electron beams. KEK will also provide support for such experiments available in overseas laboratories, provided that experimental evaluation is possible.

The important outcome and goal of this solicitation, through this "Breakthrough R&D", is for early career researchers to become talents who can contribute to solving social issues, such as the

realization of carbon neutrality, by making the leap to independent researchers through realizing novel ideas, and by contributing to the overall development of advanced accelerators.

For experiments that utilize KEK's facilities, accelerator researchers, including those in charge of the facility, will have the opportunity to give advice on the content of the research. In addition, the review committee will evaluate and give advice on the research each fiscal year to support the experiments.

The detail of solicitation will be as follows and KEK looks forward to your application.

2. Outline

(1) Expenses

Up to 6 million yen per project, per year. (If the amount is unavoidably exceeded, consultation is required.)

(2) Eligible Expenses

Equipment and fixtures expenses, consumables, domestic travel expenses, foreign travel expenses, travel expenses for inviting foreign nationals, etc., various fees, conference hosting expenses, communication and transportation expenses, printing and bookbinding expenses, rental expenses, miscellaneous service expenses, etc.

(3) Period

From the adoption to the end of FY2025 at the maximum. (Extension of up to 2 years is possible upon review during FY2025.)

(4) Applicants

Early career researchers who are under 45 years old as of April 1st , 2023 and belong to university or research institution in Japan (those who are eligible to apply for Grants-in-Aid for Scientific Research (KAKENHI)).

(5) Application deadline

1:00 p.m., Friday, June 30th , 2023

(6) Expected number of awards

Not exceeding 10

(7) Review method

The selection committee will review documents and conduct interviews as necessary.

3. Schedule

(1) Application deadline (June 30th)

(2) Review (mid-July)

(3) Notification of selection result (late July)

(4) Award and project start (early August)

(5) Submission of FY2024 plan (mid-March of the following year)

(6) Submission of report for FY2023 (late April of the following year)

4． Features of the Program

Although **the human resource development of early career researchers through R&D that will lead to the rapid development of accelerator technology** is an important element of this program, the following measures are features of this program. Applicants are advised to consult with KEK International Project Promotion Office before applying.

*Early career researchers will be able to use KEK's facility to realize their own ideas, and will receive advice from accelerator researchers, including those in charge of the facility.

(Examples of experiments using KEK facilities)

- Accelerator experiments at low temperatures using liquid helium
- Experiments that generate radiation
- Experiments using educational purposes accelerator (KETA)

*If the research is conducted at KEK facilities, the budget can be executed within KEK.

*Participation in R&D and other activities at overseas research institutions is also possible, and travel expenses can be covered within the budget.

5． Criteria

(1) Potential to dramatically improve existing accelerator technology.

(2) The research purpose and research plan must be appropriate.

(3) The research must have the ability to be carried out and the research environment must be appropriate.

6． Submission Procedures

(1) Application form: As shown in the separate sheet

(2) Where to submit the application: International Project Promotion Office, KEK

Email: i-promo@ml.post.kek.jp / Phone number：029.879.6203

(3) Submission deadline: Applications must arrive no later than 1:00 p.m. on Friday, June 30th, 2023.

(4) How to apply: Submit the application form by email attachment.

(5) Others: Please consult with International Project Promotion Office, KEK in advance if you intend to use KEK's facilities.

7．Other

* All inquiries should be made to **International Project Promotion Office, KEK** (i-promo@ml.post.kek.jp)

* The expenses will be handled in accordance with the handling procedures for the MEXT Development of key element technologies to improve the performance of future accelerators Program.

Handling Procedures for the MEXT Development of key element technologies to improve the performance of future accelerators Program (in Japanese only)

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