

Host Institution's Commitment

Date 1st June 2021

To Ministry of Education, Culture, Sports, Science and Technology

High Energy Accelerator Research Organization (KEK)
Director General Dr. Masanori Yamauchi

I confirm that the measures listed below will be carried out faithfully and concretely as follows regarding "International Center for Quantum-field Measurement Systems for Studies of the Universe and Particles" (hereinafter referred to as "Center") if it is adopted under the World Premier International Research Center Initiative.

Concrete Measures

• Describe the concrete measures that the host institution will take to satisfy the following requirements.

- 1) For the center to become a truly "world premier international research center" and independent by the time WPI support ends, the host institution must clearly define the center's role within its own mid-to-long-term strategy and provide its comprehensive support from the time that the funded project starts.**

※Describe the center's role within host institution's own mid-to-long-term strategy.

KEK is the top-class accelerator research institute in the world with its unique high energy accelerators serving for vast area of interdisciplinary research including particle and nuclear physics, material science, biology, and even archaeology. KEK is best to place a new center on innovative measurement systems, as the Center can utilize the KEK's infrastructure effectively and have a close contact with its user communities. Development of measurement systems is also a key subject for KEK's various researches as well as being able to accept the top-down organization that is completely different from inter-university research institute structure, thus the mutual benefit is clear and the synergy are highly expected.

As one of the Inter-University Research Institutes, KEK provides a wide range of research platforms for domestic and international researchers. The KEK Roadmap and following KEK Project Implementation Plan (KEK-PIP) describe the institute's research plan in mid-term. The KEK Roadmap was updated in May 2021, and the importance of the detector R&D is clearly stated. Once this WPI is adopted, KEK will further clarify its commitment in KEK's mid-term plans.

KEK will comprehend the WPI's progress based on the Center's annual report and suggestions from program committee and working group members who receive follow-up. In the process, as several packages where the stronger collaborations may emerge, KEK will update the commitment accordingly. KEK's Open Innovation Promotion Department will tightly collaborate for the spin-off from the Center for the wider science community and for the industrial and sociological applications.

- 2) Provide a mid-to-long-term policy for amending the plan on the direction of the host institution's organization and operation, one that includes the reform of the institution's existing organization in ways that will achieve the center's independence and create a permanent place for it within the organization. A concrete plan and schedule must be set and carried out for restructuring the host institution's organization.**

※Describe both a mid-to-long-term policy for amending the plan on the direction of the host institution's organization and operation and provide a concrete plan and schedule.

This Center will be set up as special organization in KEK, independent from the existing institutes and laboratories, in order to support its potential to be the world-class international center.

In the first fiscal year, KEK will support the establishment of general rules and regulations for the Center, including its autonomous institutional structure, recruitment procedure and researches commitment on research and education, so that the Center can effectively start its activities with newly hired researchers in early second fiscal year. As KEK already has flexible systems on the recruitment, salary, and personal evaluation which can be a basis to create the Center's rules and regulations so the organizational preparation can be implemented without delay.

Toward the establishment as a permanent organization after 10 years, KEK with a leadership of the Director General will assist the Center to have its own financial base, in the same way with other KEK research projects. Along this line, KEK will proceed toward the upgrade of the necessary facilities and acquiring the tenure positions for senior researches and technicians gradually after the sixth year.

3) Provide sufficient support for carrying out the center's operation and research activities, including necessary personnel, financial, and system support.

KEK will support allocating human resources for setting up rules and regulations on important issues of the Center's operation, such as the budget and staff recruitment, in which the Center director makes the major decisions. The director is, therefore, able to take a leadership to carry out its operation and research activities. Details are described in following section 5).

KEK will make a following initial support to the Center in human resource:

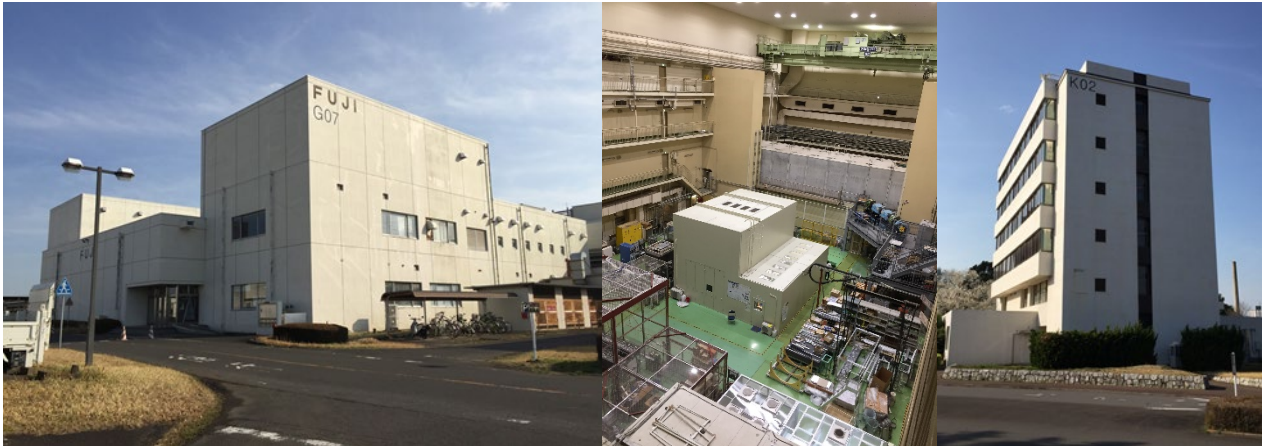
- A deputy director of the Center;
- PIs and Co-PIs who are tenures of KEK;
- Technical and engineering staffs; and
- Administrative staffs in KEK Administration Bureau

Some of the staffs will be partially working for the Center. Especially for the technical and administrative staffs, concurrently working both for KEK and the Center is important in the point of the continuity of the work and the human resource circulation between the two, and will also contribute to work efficiency. As stated in the above section, KEK will support to obtain tenure positions for technicians in the later stage of the 10-year program.

KEK will make a following financial support, such that the sum from the KEK support and the external resource is equal or more than the support from the WPI fund. Here is the main summary

- Human resource stated above (according to their effort)
- Discretionary budget for the Center director
 - KEK offers annual 50-million-yen budget which the Center director can use flexibly to accelerate the research with their leadership.
- Facilities
 - Office space (~1,000 m²)
 - Laboratory space (~2,000 m²)
 - Non-charge usage for the KEK facilities such as its accelerators and test beam facilities

Following photos show the candidate location for the office and lab space. They are currently used for various purposes and KEK will arrange for the reallocation.



In addition to this, though this is not for exclusive use, KEK has a large-scale dormitories and apartments with English-speaking staffs at the front desk full-time. These facilities will help to support the social life of the WPI researchers and its visitors. Especially a new dormitory No. 5 which will have 68 rooms is under construction and will be operational in April 2022. Total capacities including the apartments will become 240 rooms.



Dormitory No.5

- 3 stories building
- Total floor area: Approximately 1,700 m²
- Private room type (68 rooms, with unit bath and toilet)
- Construction period: June 2021 (scheduled) -March 2022
- Start of operation: April 1, 2022

- 4) Provide for the independent operation of the center even after the WPI grant period ends. Provide necessary support to include the long-term provision of personnel, facilities, equipment and other resources needed to establish the center as a “top world-level research institute.” Also, secure and provide from an early stage of the center’s establishment the infrastructure needed for it to carry out its activities (e.g. land, research facilities and equipment, research space), and do so with a commitment to continually maintaining this infrastructure after the WPI grant period ends.**

KEK will provide necessary support to the Center so that it can keep the position of the world premier international research center after the decade. KEK will position it as a research center of KEK with the proposed mission with its identity.

For examples, KEK will keep offering the infrastructure listed in section 3), even after the 10-year period, in order that the Center can develop its activities afterwards. As stated in section 2), KEK will assist the Center to have its own financial base, in the same way with other KEK research projects. Along this line, KEK will proceed toward the upgrade of the necessary facilities and acquiring the tenure positions for senior researches and technicians gradually after the sixth year.

In the next ten years, KEK will support the Center in establishing its self-reliance by offering existing research

infrastructures, including particle accelerators and buildings. The Center will also gradually increase contributions from KEK, primarily for hiring four senior scientists and five high-ranked technicians who are hired entirely with the WPI grant. There are many strong research groups around KEK with great interest in the activities at QUP. Collaboration with those groups will also be beneficial to establish self-reliance, which will be an advantage of having this Center at KEK. After ten years, the Center's mission will be strongly continued. The optimal roles of KEK's existing institutions and the Center will be reorganized to continue its functions as a whole.

KEK has been renovating its organizational structure for the perpetual changes in the research needs and is keen to move forward to make the further progress with the Center. Recently, as existing examples, KEK newly founded the Center for Applied Superconducting Accelerator (CASA) since April 2019 and the Center for Integrative Quantum Beam Science (CIQus) since April 2020 and can be said that KEK has the adequate knowledge and experience for independent operation of the Center.

5) Provide a system that will in practice allow the center director to make decisions in implementing the center project, including personnel and budgets, and that will secure the autonomy of its operation.

KEK will support to establish the autonomous rules and regulations of the Center so that it can serve as a world premier international institute to realize the world-wide circulation of talented researchers. Some examples are as follows.

- In order to ensure the Center director's leadership, a Center Steering Committee with the director and a few key members from the Center will be established, which essentially decides on the Center's budget, recruitment and other important issues in a system that can be done with the director's initiative. As an inter-university research institute, KEK, in principle, requires a resolution from the Education and Research Council regarding faculty appointments. However, as an exception, we will consider delegating this task to the Center. At the same time, we will support collaboration between the Center and other research institutes and communicate with the related research community.
- KEK's existing flexible recruitment and salary systems will be fully utilized to help optimize the treatment of staff members. We will also delegate individual evaluation to the Center under the leadership of the director.

6) Provide support to the center director by coordinating with other departments regarding the assigning of researchers to the center and the creating of an effective environment for the center within the host institution. Needed adjustments to do so should be made proactively while giving consideration to their effect on the educational and research activities of those departments.

KEK Director General will properly arrange the human resource of KEK including researcher, engineers, and administrative staffs for the successful realization of the Center's visions.

The KEK Administration Bureau will fully cooperate for the Center's business to smoothly process. In order to keep the close contact, the administrative head of the Center will attend the monthly administrative meeting which is composed by the managers of each administrative department and divisions.

7) Offer cooperation in flexibly applying, revising, or supplementing the host institution's internal systems as needed for the center to effectively implement new management methods unfettered by conventional modes of operation (e.g. English-language environment, merit-based pay, top-down decision making, linkage to graduate school education).

As the Center has a different operation scheme from the one for KEK's user facilities, various new governance idea needs to be developed in the foundation of the Center. Since KEK already has flexible scheme on research and education and relevant rules including on recruitment procedure, KEK is considering that the implementation can be done without difficulty.

As for the English-language environment, KEK is hosting large international collaborations in particle physics

such as Belle II and T2K experiments. 2,000 users are from foreign universities and institutes among the total 8,000 users annually and KEK is already at a level to accept another international institute. Admittedly, it is not yet in the level of some prominent foreign international institutes but the establishment of the Center will be a great opportunity for KEK to improve even further. The Center will be responsible for supporting and accommodating foreigner researcher's research and living where there will be a full back-up from the KEK's International Office and Users Office, and the synergy between KEK and the Center will be expected.

8) Provide other types of assistance to give the center maximum support in achieving its concepts and objectives and in becoming a world premier international research center in both name and deed.

KEK will provide maximum support for the development of the Center into a world-class international research center under the consistent medium- to long-term vision of the center director. KEK will promote this through the annual report of the center and the annual remarks from the program committee and working group members.

9) The host institution is to self-evaluate the results of the system reforms achieved by the center and distribute the results that it evaluates highly to all of its departments.

KEK will acknowledge the scientific achievement of the Center and utilize them in the applicable research area. In the aforementioned external review, the excellent system brought by the Center will be identified and then, after evaluated by the KEK directorate, it will be adopted to a relevant part of KEK.

10) (For host institutions that already have an existing WPI center and/or Academy center) Fully support and sustain the existing WPI and/or Academy center and advance its development as a top world-level research institute, while being capable of fully supporting the new center at the same time.

Not applicable.

11) (For host institutions that already have an existing WPI center and/or Academy center) Take the initiative to spread the existing centers' good system reform results to other departments throughout the host institution and apply them to implementing its own reforms.

Not applicable.