

## **FY2025 Application Guideline for Joint Usage/Research**

### **Premier Research Institute for Ultrahigh-pressure Sciences (PRIUS)**

The Premier Research Institute for Ultrahigh-pressure Sciences (PRIUS), operated by the Geodynamics Research Center (GRC) at Ehime University, is approved as a Joint Usage/Research Center by the Japanese Ministry of Education, Culture, Sports, Science and Technology. The purpose of PRIUS is to effectively utilize (1) advanced high-pressure apparatuses and analytical instruments, (2) techniques of ultrahigh-pressure experiments and numerical calculations, and (3) nanopolycrystalline diamond (NPD, HIME Diamond) materials, at the GRC via collaborative researches to further develop the ultrahigh-pressure sciences. For this purpose, PRIUS is calling for collaborative research projects and research meetings in FY2025.

#### **1. Types of collaborative research projects**

PRIUS is calling for the following types of collaborative research in the ultrahigh-pressure sciences and any related field. Full-time faculty at the GRC and researchers at universities and/or institutions other than Ehime University should be included as project members.

##### A. Use of PRIUS facilities

This type of collaborative research project mainly utilizes equipment and apparatuses at the GRC including high pressure apparatuses, analytical instruments, and/or GRC owned equipment and apparatuses at other institutions such as SPring-8 etc. The following experimental apparatuses are applicable. (Please see “GRC Facilities” for further details.)

- Ultrahigh-pressure apparatuses and related apparatuses such as multi-anvil apparatuses and diamond anvil cells
- Analytical instruments and processing equipment such as ATEM, FE-SEM, FIB, XRD
- Measuring instruments and ultrahigh-pressure apparatuses at synchrotron radiation facilities

##### B. Collaborative research

This is a collaborative research project without utilizing any facilities (Supplementary use of the facilities is applicable). The following are examples of the subject areas.

- Utilization of HIME Diamond
- Theoretical simulations such as *ab initio* calculations and computational fluid calculations, etc.
- Analysis and ultra-high-pressure synthesis of samples on request

### C. Meetings

This is to organize a research meeting. This category is for meetings that are widely publicized to interested parties and of a size of 10 or more participants. In principle, the meeting will be held at Ehime University. If necessary, it is also acceptable to be at another institution or university (limited ONLY to Japan), and a statement of its necessity in the application form is required in this case. It is also acceptable to organize a training (internship) program combining lectures and practical training for the purpose of improving the research techniques of researchers and students. Please note that the project leader and members are responsible for arranging the venue and facilities for the meeting.

### YA. Young scientist proposal (use of PRIUS facilities)

### YB. Young scientist proposal (collaborative research)

Young scientists' proposal is collaborative research proposal of which project leader is either a graduate student or a researcher who is less than 8 years after Ph.D. acquisition. YA is the proposal which uses PRIUS facilities, and YB is without utilizing any facilities. The project leader can receive preferential treatment in travel support and in use of some PRIUS facilities.

\* If you plan to use both TEM (including FE-TEM) and other instruments, you may be asked to submit two separate proposals, one mainly for conducting TEM analysis and the other for using other instruments at a preliminary meeting with GRC host faculty member(s) (hereinafter called "Host faculty member(s)") .

## **2. Eligibility**

The applicant should be a researcher (an eligible applicant for research grants) or an equivalent researcher (including graduate students) from universities, institutions, or companies. We also accept those who are approved by PRIUS steering committee. If the applicant is a graduate student, he/she is required to possess the following two conditions in order to apply: 1) In order to become a project leader, his/her supervisor should take part as a project member, and 2) in order to become a project member, he/she needs to obtain permission from his/her supervisor.

For clarity, graduate students who are project members are not allowed to solely use our facilities without the assistance of their project leaders or others as a general rule.

## **3. Expenses**

It is free of charge to use the GRC's research facilities for those whose research projects have been approved. There are cases where the user(s) is/are obliged to compensate for any damage to the equipment and devices if the damage is the fault of the user(s). If there are any research supplies needed, the user should discuss about the necessity of them with host faculty member(s) in order

to purchase appropriate quantities. However, we cannot afford expensive consumables such as sintered/single crystal diamond anvils, tungsten carbide anvils that are more than 52 mm square or used under the extreme condition of more than 25 GPa such as F05 (TF05), precious metal components and so on. Travel expenses could be covered for the approved research projects based on the regulations on travel expenses at Ehime University, but the travel costs from overseas are basically not to be covered by PRIUS. Please note that the accommodation fees could be covered at the amount equivalent to our university guest house. The financial support on travel expenses for project types A and B is provided up to a maximum of two times (one person  $\times$  2 or two people  $\times$  1) per project per fiscal year, that for type C is provided up to a maximum of 4 persons, and that for project types YA and YB is provided up to a maximum of four times (only the project leader can receive the support more than once) due to our limited budget. Please note that travel expenses may not be reimbursed up to the maximum number of times or number of people depending on the budget situation.

#### **4. Application procedure**

Please fill out the application form that can be downloaded from the website (<http://www.grc.ehime-u.ac.jp/en/guidelines>) and send it to the e-mail address ([prius@stu.ehime-u.ac.jp](mailto:prius@stu.ehime-u.ac.jp)) after consulting with host faculty member(s) about your research project.

\*Please read “Guideline for PRIUS Users” thoroughly for more information on the use of Multi-anvil Device.

#### **5. Application deadline**

**January 31, 2025**

#### **6. Contact information**

PRIUS Office

Geodynamics Research Center, Ehime University

2-5 Bunkyo-cho, Matsuyama Ehime, 790-8577, JAPAN

Tel: +81 89 927 8165 Fax: +81 89 927 8167

Email: [prius@stu.ehime-u.ac.jp](mailto:prius@stu.ehime-u.ac.jp)

#### **7. Selection**

The comprehensive review for applications is conducted at PRIUS steering committee meeting, to be held in March 2025, for selection in terms of the necessity of the research project, originality, feasibility, and so on.

#### **8. Notification of acceptance/rejection**

We shall forthwith contact the project leaders after the deliberation at the steering committee meeting.

## **9. Research results**

Please add statements on the support for the research project from the joint usage/research center for PRIUS at the GRC, Ehime University when the results of the research project are published. When the research results are published, please send their reprints (either paper or digital (PDF) forms) to us via e-mail or mail (see No.6 for contact information).

Example: This work was supported by the Joint Usage/Research Center PRIUS, Ehime University, Japan.

## **10. Report on research results and meetings**

The project leader is required to submit an annual report on the research results and meetings after the end of fiscal year (the fiscal year ends on 31<sup>st</sup> March in Japan). Please use the "Annual Project Report" form which can be downloaded from our website and send to us via e-mail or mail (see No.6 for our contact information). The statements given in "Summary of Results" on the form will be released and printed for publication as an annual report on collaborate research projects of PRIUS.

Note: The results of the research projects will be released as a general rule. Exceptions are (1) all or parts of the result(s) are related to patent applications, and (2) the project is still so ongoing that it is not appropriate for releasing at that time. Please consult with us if a postponement on releasing the results is necessary due to the reason(s) above.

## **11. Participation on symposium**

A symposium will be held regularly at the GRC for presenting the results of the research projects, therefore, the leader or a member of the project will be asked to have a presentation at the symposium to report the results.

## **12. Intellectual property right**

If intellectual property is created by conducting the research project, the intellectual property offices (or any equivalent office) at institutions or universities of each project member should discuss the application, procedure, cost, rights, and so on.

## **13. Security export control**

If research instruments, samples, or techniques are to be exported/transferred to outside Japan and visiting us from abroad, if needed, the official procedure based on the Regulation of Securities and Export Control in Ehime University will be undertaken.

#### **14. Insurance**

Researcher(s) and student(s) coming to PRIUS must have travel insurance coverage from the day they leave their country to the day they return.

#### **15. Pledge**

Please sign on the pledge at your first visit to PRIUS in FY2025. The pledge includes 1) observance of the rules of Ehime University and PRIUS, 2) limitation on transfers of samples and instruments etc. and technical information, and 3) understanding of safety and health policy of PRIUS.

Last updated : April 1, 2025