

§2. Enhancement of the Research Activities of Young Scientists and Institutional Documentation of Research Publications

Okamura, S., Matsuoka, K.

As is expressed in the name of this office, one of the important tasks of the Research Enhancement Strategy Office (RESO) is the promotion of the research activities of the National Institute of Fusion Science (NIFS). We put more emphasis on the activities of young scientists because they need more support from the institute for guidance in understanding the procedures and rules of the various research funding sources. The National Institutes of Natural Sciences (NINS) has a research support program for young scientists called "NINS Program for Cross-Disciplinary Study." NINS accepts applications from scientists affiliated with NINS institutes in each year. We conduct strategic discussions with applicants in NIFS to improve their proposals. Two proposals from NIFS were approved in this program, which initiate new interdisciplinary physical sciences.

1. Development of the three-dimensional laser Thomson scattering diagnostics using micro-tip pico-second lasers.
2. Development of new plasma diagnostics using a rotating electric field laser.

In order to encourage young scientists to initiate new research topics, one of the most important steps is gaining experience in international collaboration. We have a financial support program for sending young scientists to research institutes abroad for sufficiently long terms so that they may complete the collaboration research program. Although applications for this program are based upon the motivations of individual scientists, the strategic organization is necessary in NIFS where a large research project requires the programmatic arrangement of staff members for shared work. Movement of people without arrangement would cause problems in the project. Therefore, RESO leads the negotiation for the arrangement of schedules for overseas travel of young scientists applying for the financial support program for international exchange.

NIFS has a project budget for operating the Large Helical Device (LHD) experiment. Scientists in NIFS have their individual roles in the project, and their financial support comes from this budget. In addition to this, scientists in NIFS apply for financial support to "Grants-in Aid for Scientific Research" ("Kakenhi" in Japanese), which is managed by the Japanese government, for conducting their own individual research programs. The objective of such an individual research program may be closely related to the subjects of LHD project or it may have a very different research scope. Because this funding program is open to all scientists in the Japanese scientific academy, scientists in NIFS must prepare their own proposals in order to obtain this financial support. RESO gives strong support to young scientists in their preparation of the proposals for Kakenhi funding. We

reviewed most of the proposals of the young scientists who sought our assistance and offered comments for improving their proposals.

The research topics which Kakenhi supports are mainly in the basic sciences, such as mathematics, physics, medical sciences, and the humanities. Japanese scientists also have other research support programs for the engineering and applied sciences provided by the Japan Science and Technology Agency (JST). Since NIFS is the institute oriented to basic researches related to fusion science, more efforts have been made for receiving financial support from Kakenhi to date. However, the research subjects in fusion science in NIFS are very broad, and there are many research topics which are suitable for financial support from JST. RESO encouraged scientists in NIFS to apply for JSP programs as well as for Kakenhi for receiving financial support and helped them prepare the proposals. Information regarding the various financial programs in JSP were collected and made available to the scientists interested in applying to a JST program.

In addition to enhancing the research activities in the institute, it is necessary for the institute to complete the documentation of the research activities. This is becoming increasingly more important because the research institutes in Japan are requested to assert their contributions to society by showing definite data. The efforts of the "institutional research" (IR) are strongly requested by the government and society. For this purpose, NIFS has developed its own system, NAIS (NIFS Article Information System), for compiling records of research documents. NAIS compiles not only the research documents of scientists in NIFS but also the documents of collaborating scientists outside of NIFS. Based upon many years of experience, we upgraded NAIS from version 2 to version 3. Since the users of NAIS have become very familiar with the procedures of using the system, NAIS version 3 maintains the human interface similar to that of version 2, and the internal software structure was upgraded in order to improve the performance of the system.

For the evaluation of the research and educational activities of universities and research institutes, we use several services provided by private companies around the world. The data offered by these companies have been widely used by the Japanese government in its review processes for universities and institutes. These data are also used by the universities in the evaluation processes of professionals, and similar processes are being undertaken in the research institutes. We entered into contracts with these companies to introduce their databases for the comprehensive analysis of our research documentation together with our own NAIS database. One of sources of research publication data is SCOPUS, which is offered by the Elsevier publishing company. Another source is WoS (Web of Science), which is offered by the Thomson Reuters company. We utilize also the software package InCites offered by Thomson Reuters for the comparative analysis of the research activities of institutes around the world.