

# 11. Research and Education Innovation Office

The Research and Education Innovation Office comprises six committees, as shown in Figure 1. The three crucial activities of this office for the 2024 fiscal year are reported below.

## <Fusion Science Seminar and NIFS Colloquium> (Academic Planning Committee)

The Fusion Science Seminar (FSS) is a scientific seminar with distinguished lecturers from a wide scientific research field. The NIFS Colloquium is an opportunity to learn about topics in which the communities are interested. Three FSSs and four NIFS Colloquiums were held in a hybrid format, and many scientists, students and staff (almost 100 participants on average) participated and discussed their themes deeply and widely. (Figs. 2 and 3). The information of these seminars and colloquiums can be seen in NIFS webpage (<https://www.nifs.ac.jp/about/reio/all/index.html>).

FSS-4 “Current Status and Future Prospects of Quantum Information Processing”, Nobuyasu Ito (Team Leader, Discrete Event Simulation Research Team, RIKEN Center for Computational Science)

FSS-5 “Quantum High-Temperature Superconductivity: Realizing the Dream”, Setsuko Tajima (Professor Emeritus, Osaka University)

FSS-6 “The Science of Traffic Jams: Types and Solutions”, Katsuhiko Nishinari (Professor, University of Tokyo)

NIFS-Coll-5 “Collective Fusion”, Toshiki Tajima (TAE Technologies, Inc., Distinguished Rostoker Professor at University of California, Irvine)

## <13th ITER International School>

NIFS held the 13th ITER International School (IIS2024) in Nagoya, Japan, from December 9 to December 13, 2024.

The topic ‘Magnetic Fusion Diagnostics and Data Science’ was picked as the theme of this school. A total of 199 participants gathered from 21 different countries (Fig. 4). Sixteen splendid lectures widely covered the fields of diagnostics and data science, including cutting-edge contents. Most of the participants showed their own works in the poster sessions, of which the best posters were awarded the ‘13th ITER International School Outstanding Student Poster Award’. Networking among the participants was encouraged in the special sessions and the banquet. The participants also enjoyed a NIFS tour and were excited to see the facilities, such as LHD. Thus, NIFS strongly contributed to worldwide human resources development through holding IIS2024.



Fig. 1 Composition of the Research and Education Improvement Office and the committees positioned within it.



Fig. 2 Picture at FSS-4.



Fig. 3 Picture at FSS-6.



Fig. 4 Group photo of IIS2024.

<1st Asian School on Advanced Plasma Diagnostics for Magnetic Fusion Experiments (APDS) 1st NIFS College>

In fiscal year 2024, the Academic Program Committee initiated a new support scheme for hosting international research meetings. This program continuously accepts applications under three categories: the *NIFS Conference*, *NIFS Workshop*, and *NIFS College*.

The **NIFS Conference** category supports large-scale international meetings aimed at disseminating research outcomes and facilitating broad scientific exchange. These conferences typically focus on specific research themes and encourage distinctive and impactful academic discussions.

The **NIFS Workshop** category is designed for more specialized topics, promoting in-depth discussions among a limited number of participants in an international setting.

The **NIFS College** category targets graduate students and early-career researchers, supporting the organization of international schools that provide educational and research training opportunities.

Under this new program, the **1st Asian School on Advanced Plasma Diagnostics for Magnetic Fusion Experiments (APDS)**, designated as the **1st NIFS College**, was successfully hosted on February 19–21, 2025, by Prof. Byron Peterson at the National Institute for Fusion Science. The school lasted three days and consisted of 20 lectures on plasma diagnostic techniques by scientists from Japan (7), Korea (7) and China (6), 37 posters in two poster sessions for young researchers and a tour of NIFS including LHD. Young researchers in attendance totaled 38, including from Japan (12), the Republic of Korea (9), China (10), Taiwan (5) and Thailand (2). We hope to hold the 2nd APDS in China in 2026. An image of the attendees is shown in Figure 5. In addition to educating the young researchers regarding plasma diagnostics, this school provided an invaluable opportunity for researchers and students to meet each other and form friendships as a basis for future scientific collaborations.



Fig. 5 Picture at 1st APDS.

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