

13. Activities of Research Information Office (RIO)

1. Research Information Office (RIO)



The Research Information Office (RIO) was established aiming to consolidate research information of NIFS. The NIFS-Repository opens the research activities to the public through the Internet. The NIFS Article Information System

(NAIS) which has been developed by RIO accumulates research activity information related to the fusion science. The information disclosure of the latest study results is also an important function of RIO by publication of research reports such as an annual report, a NIFS report, etc.

2. NIFS-Repository



Nowadays Institutional Repository (IR) is recognized as one of the most important infrastructures for universities and institutes. For example, in a guide book of Japanese universities “Daigaku Ranking” published by Asahi Shimbun Publications Inc., IR is recognized as one of the evaluation indices of universities since 2009.

RIO is assigned as an operating organization for NIFS-Repository (<http://nifs-repository.nifs.ac.jp>). RIO organized a working group to implement this task. The system for NIFS-Repository was set up and started its operation at the end of Mar. 2009.

In general, a university-based IR is defined as; “A set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members”. In other words, for in the case of NIFS, the IR is required to meet the social accountability of the Institute that is carrying out a large-scale project of nuclear fusion research and development.

In 2011, the server for the NIFS-Repository was upgraded and the following enhancements of the system were performed for utilization in October.

- 1) Function to summarize and analyze the access log of the NIFS-Repository was installed. Using these functions, the detailed and various analyses such as hourly total of accesses may easily obtain (Fig. 1).
- 2) Also, the top 20 downloaded articles are listed in the NIFS-Repository. This page is opened for users so that everyone can see the list (Fig. 2).

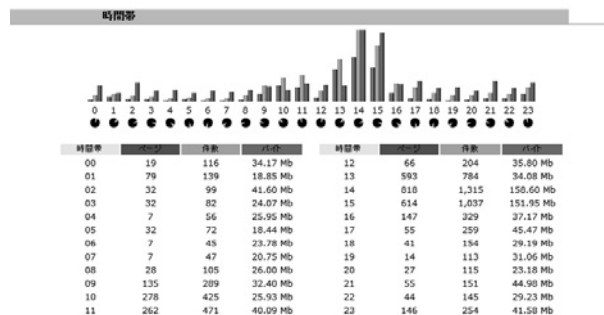


Fig. 1 An example of the access log summary (Hourly total of access is shown.)



Fig. 2 A screen shot showing the TOP 20 downloaded articles.

Since FY2009 NIFS-Repository was partly supported by a grant from Cyber Science Infrastructure (CSI) Project for “Further expanding IRs and creating content” operated by National Institute of Informatics (NII). In FY2011 our efforts under this grant were mainly concentrated onto enrichment of its contents in NIFS-Repository. Namely, the retroactive input of the papers from Annual report and published papers was continued. As a result, by the end of FY2011 number of contents in NIFS-Repository increased to 6,166 items, including scientific articles published in various journals, NIFS-reports and Annual Report of NIFS, and the download count of items was 36,624 in total during 2011 except October, when the server replace was done.

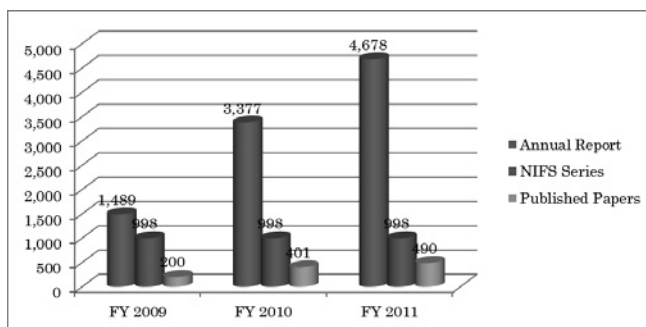


Fig. 3 Accumulated Numbers of Contents in NIFS-Repository (As of the end of each FY)

NIFS is an Inter-University Research Institute (IURI) and serves as Center of Excellence, organizing collaborative researches in the field of fusion science nationwide and abroad, as well. There are many IURIs in Japan and the communication between these institutes is useful for the operation of the IR. Therefore we held "Information exchange meeting for IR at IURI" on September 30th. 26 participants from 11 institutes such as KEK, NII joined this meeting and following presentations are done.

- 1) TAKAHASHI, Y. (National Museum of Ethnology : MINPAKU) "Outsourcing of IR Operation; In the case of MINPAKU"
- 2) FUJII, A. (Japan Aerospace Exploration Agency :JAXA) "On JAXA Repository"
- 3) KIKUTANI, E. (HIGH ENERGY ACCELERATOR RESEARCH ORGANIZATION: KEK), "Database of KEK Research Products"
- 4) MURAKAMI, M. (National Institute for Physiological Sciences: NIPS), "How is the IR at NIPS?"
- 5) NOGUCHI, Y. (The Graduate University for Advanced Studies : SOKENDAI), "Construction and Operation of the SOKENDAI-Repository using WEKO"
- 6) YAMAJI, K. (National Institute of Informatics : NII), "Development of WEKO and the Support Programs for IR by NII"
- 7) CHIKARAIHI, H. (National Institute for Fusion Science : NIFS), "Concept of NIFS-Repository"

The summaries of these presentations are available at http://www.nifs.ac.jp/ri/repository_activity.html.

This series of "Information exchange meeting for IR at IURI" is expected to be held annually at some IURI or at else where appropriate institute.



Fig. 4 A snap shot from Information Exchange Meeting.

3. NIFS Article Information System (NAIS)



Since 2006 the NIFS Article Information System (NAIS) has been operating for accumulating research activity information made by NIFS and collaborative organizations. The previous version got slower due

to the increase of registered records, so that we have upgraded both the software and server hardware to drastically improve system responses. In particular, search query for articles and the result download became seriously slow in retrieving annual achievement list typically having about 500 records.

For the software revision, the whole database and system structure have been redesigned to be definitely normalized as follow:

- i. Reunify unnecessarily separated tables into two primary ones; submitted articles and conference presentations.
- ii. Reduce too deeply cascaded relations and give proper indexes on primary tables to improve the speed of search queries
- iii. Show all attributes together with the object entities in maintenance menu so that operators can edit them within a single window

As the result of this system remodeling, a search query over the whole database finishes within 10 seconds and the result download for one thousand records is also completed within 20 seconds. These are 10 or 20 times faster than previous version and become quite comfortable even in heavy uses by power users and database maintainers.

The new NAIS software is much modified than previous so that we have given it a new version "2". Now, total submitted articles and conference presentations stored in "NAIS version 2" are 7567 and 631, respectively.

4. Publication of NIFS reports and Collection of Reports



Publication of the annual report and series of NIFS Research Report is also important task of RIO. NIFS series are the preprints for presenting promptly the results of

a collaboration research work of NIFS.

NIFS Research Report

Present the results of research work for nuclear fusion, plasma physics and theory & simulation and experiments in related fields.

NIFS-PROC

Present the proceedings of international conferences or symposia organized by NIFS and the reports of the meetings for the collaboration research work of NIFS.

NIFS-TECH

Present the results of technical research development related to nuclear fusion and plasma physics.

NIFS-DATA

Present the data series compiling the evaluated basic data for fusion science and related fields.

NIFS-MEMO

Technical data and reference for newly developed devices, databases, hardware and software of computer codes.

The office also collects laboratory reports and other literatures concerning nuclear fusion and related fields from foreign institutions. The total number was approximately

36,550.

Table 1 Number of published NIFS reports

	FY 1989-2010	FY 2011	TOTAL
NIFS	1,015	5	1,020
NIFS-DATA	112	2	114
NIFS-TECH	14	0	14
NIFS-PROC	86	4	90
NIFS-MEMO	59	1	60
Annual Report	22	1	23

In order to save the space for storage and safekeeping, we keep them in the form of microfiche.

Now they especially reports of early days of fusion research, have been constantly utilized by researchers not only in NIFS but also outside NIFS.

(Mito, T.)