10. Coordinated Research Center

A major reorganization of government-funded scientific research laboratories was executed in FY2004. As a result, the National Institutes for Natural Sciences (NINS) has been established as a new agency. Operated by the NINS are the National Astronomical Observatory, the Institute for Molecular Science, the National Institute for Basic Biology, the National Institute for Physiological Sciences, and the National Institute for Fusion Science. Along with the reorganization, the Coordinated Research Center (CRC) was formed at NIFS while the former Data and Planning Center was dissolved.

To promote coordinated research with external institutions in Japan as well as those in foreign countries, the CRC has two divisions to be described;

1) Division of Academic Research Coordination

This division is intended to bridge between NIFS and external academic institutions, including universities and national laboratories. Formed in this division are 5 groups with respective functions. These are:

1-1. International coordination group;
1-2. ITER coordination group;
1-3. Laser Fusion coordination group;
1-4. Inter-institutional coordination group; and
1-5. Atomic & molecular, and edge plasma data group.

The international coordination group overlooks at fusion research collaborations led by NIFS scientists and promote new initiatives.

The ITER coordination group has helped form an advisory committee on some of the selected areas of collaboration in the ITER-related physics and technology tasks. The idea behind this activity is to come up with new ideas, based on comprehensive understandings of toroidal plasmas confined in tokamaks and stellarators. To enhance direct interactions with ITER staff scientists, it has been promoted to attend the ITPA (International Tokamak Physics Activity) meetings. As a result, dozens of NIFS scientists attended ITPA meetings in FY2008.

The laser-fusion coordination group has been formed to establish a new link between the magnetic and inertial fusion research communities. This is so that scientists in these communities can learn from each other by exchanging information and experiences in the areas of common interest. In FY2008, particular efforts were made to pursuit the cryogenic target for laser fusion research.

The inter-institutional coordination group is to enhance interactions among the formally independent but now under the same management by NINS. In FY2008, a number of meetings were held to solicit inputs from interested scientists. As a result, a NINS symposium is decided to be held in FY2008.

The atomic & molecular and edge plasma data group is more research-oriented than other groups. This group is intended to conduct coordinated efforts on the databases of atomic and molecular reactions related to fusion, and the compilation of edge plasma data in connection with core plasma performance. As shown in the table below, these databases include: AMDIS for cross sections for electron collisions, CHART for heavy particle collisions, MOL for numerical data on molecular collision processes, SPUTY for numerical data on sputtering yields for mono-atomic solids and BACKS for numerical data on reflection coefficients. As one of the applications of these databases, spectroscopy data taken from LHD experiments have been analyzed. Also, a new initiative has been launched in collaboration with the National Astronomical Observatory, using the solar physics satellite: Hinode (Solar-B).

These A&M cross section databases used to require user's registration. To provide a more convenient access, this registration system has been removed in 2007, resulting in a complete open access via NIFS homepage, similar to the widely known atomic spectra database: NIST. In addition to this change the literature database INSPEC, which used to be linked only with A&M databases, has been extended to all other scientific fields as well and opened to all the NIFS faculty members.

DB-name	Records	Period
AMDIS	408,119	1961-2008
CHART	5,303	1957-2007
MOL	3,736	1956-2008
SPUTY	1,241	1931-2000
BACKS	396	1976-2002
ORNL	77,714	1959-2008

2) Division of Industry-Academia Research Coordination

This division is to attract attention from industries, so that new areas of applications of existing technologies, developed originally for the sake of fusion research, can be explored. These technologies include microwaves and cryogenics. In FY2007, a major collaboration to develop new applications of high-power microwaves was executed in collaboration with the Gifu Prefecture Institute of Ceramics and Pennsylvania State University and will be continued in FY2009.

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