

## 1. US-Japan (Universities) Fusion Cooperation Program

From this fiscal year, the U.S.-JAPAN Executive Secretary Meeting (ESM) was merged to the U.S.-JAPAN Coordinating Committee for Fusion Energy (CCFE) to reduce the number of meetings. On the other hand, in order to keep the collaboration activity effective, the CCFE meeting was held on April 26, 2012, earlier than the previous case, via televideo conference system. At the meeting, current research status of both countries were reported together with presenting bilateral technical highlights on collaboration. The 2011 cooperative activities were reviewed, and the FY 2012-2013 proposal was approved. It was noted that both sides have developed a significant and mutually valuable collaboration involving all technical elements of the fusion energy sciences program, and also discussed about bilateral programs, multi-lateral activities. Thus, the both sides agreed the usefulness and necessity of the continuation of the Joint Activity.

NIFS as a member of "Inter-University Research Institute, National Institutes of Natural Sciences" conducted successfully the LHD experiments as well as theory, simulation and fusion technology together with collaborators from universities, JAEA and the international institutions.

One of the main activities of the Japanese university researchers participating in the US-Japan collaboration is the research in the major experimental facilities in US, while many US researchers participated in the LHD experiments, and also in the fields of theory, simulation and technology both at NIFS and universities in Japan. The US-Japan joint project: TITAN (Tritium, Irradiation and Thermofluid for America and Nippon) project is now in the final year. And, the new project will start from the next fiscal year.

### **Fusion Physics Planning Committee (FPPC)**

In the area of fusion physics, 2 committees, 7 workshops, and 17 personal exchanges were completed. The 8 proposals were not conducted partly due to the lack of funding. The workshops were successfully held, and the exchanges continue to be productive and beneficial to both sides. The annual meeting of the FPPC was held by an electrical communication during March 5/6, 2012 via

televideo conference system.. The participants were from NIFS, JAEA, and DOE to summarize the 2011 activities and formulate the 2012 activities. As a result, the proposed plan of 2 committees, 11 workshops, and 35 personal exchanges was agreed.

### **Joint Institute for Fusion Theory (JIFT)**

Almost all of the activities in the two categories – workshops and personal exchanges were carried out during the past year.

In addition to the JIFT Steering Committee meeting, five workshops were successfully held, one of which was moved from last year's JIFT program due to the earthquake disaster in Japan. In the category of personal exchanges, two Visiting Professors and six Visiting Scientists made exchange visits. The JIFT Steering Committee reviewed the status of JIFT activities for 2011-2012 and made the recommendation plans for 2012-2013 on November 29, 2011. The information of the JIFT program is released at both of the US and Japanese JIFT web sites.

### **Fusion Technology Planning Committee (FTPC)**

The TITAN project is being successfully conducted. The results will give a firm basis for comprehensive understanding on overall performance of DEMO-grade system including tritium transport, thermofluid and irradiation synergism. Of the planned cooperative items related to the TITAN, were completed in this fiscal year as follow: committee meeting, personnel exchanges, and workshops/technical meetings.

Personal exchange programs are continued in 6 research fields, namely, superconducting magnets, low-activation structure materials, plasma-heating technology, blanket engineering, high-heat flux components, reactor design & others. Of the 13 planned cooperative items related to the general technology joint planning categories, 9 were completed as follows: 3 workshops/technical meetings and 6 personnel exchanges.

General Secretary for US-Japan  
Collaboration Planning Committee  
Shigeru Sudo

STATISTICAL REVIEW OF FUY 2010 EXCHANGE PROGRAM (NIFS)

Grand Total

		US → J	J → US	Total
Proposed	Man	74	100	174
	Item	34	51	85
Performed	Man	80	81	161
	Item	29	39	68

Personal Exchange Program

(Including Overall Planning)

		US → J	J → US	Total
Proposed	Man	0	2	2
	Item	1	3	4
Performed	Man	0	2	2
	Item	0	3	3

Fusion Technology

(1) Superconducting Magnets

		US → J	J → US	Total
Proposed	Man	0	0	0
	Item	0	0	0
Performed	Man	0	0	0
	Item	0	0	0

(2) Structural Materials

		US → J	J → US	Total
Proposed	Man	0	0	0
	Item	0	0	0
Performed	Man	0	0	0
	Item	0	0	0

(3) Plasma Heating Related Technologies

		US → J	J → US	Total
Proposed	Man	2	5	7
	Item	2	2	4
Performed	Man	2	5	7
	Item	2	2	4

(4) Blankets

		US → J	J → US	Total
Proposed	Man	0	0	0
	Item	0	0	0
Performed	Man	0	0	0
	Item	0	0	0

(5) In-Vessel/High Flux Materials and Components

		US → J	J → US	Total
Proposed	Man	12	1	13
	Item	3	1	4
Performed	Man	8	1	9
	Item	2	1	3

(6) Others

		US → J	J → US	Total
Proposed	Man	0	5	5
	Item	0	1	1
Performed	Man	0	5	5
	Item	0	1	1

Fusion Physics

(1) Planning

		US → J	J → US	Total
Proposed	Man	0	4	4
	Item	0	1	1
Performed	Man	0	4	4
	Item	0	1	1

(2) Steady-state Operation

		US → J	J → US	Total
Proposed	Man	0	6	6
	Item	0	2	2
Performed	Man	0	6	6
	Item	0	2	2

(3) MHD and High Beta

		US → J	J → US	Total
Proposed	Man	12	7	19
	Item	4	3	7
Performed	Man	28	2	30
	Item	4	2	6

(4) Confinement

		US → J	J → US	Total
Proposed	Man	1	8	9
	Item	1	4	5
Performed	Man	1	7	8
	Item	1	3	4

(5) Diagnostics

		US → J	J → US	Total
Proposed	Man	6	5	11
	Item	6	5	11
Performed	Man	4	3	7
	Item	4	3	7

(6) High Energy of Fusion Science

		US → J	J → US	Total
Proposed	Man	5	8	13
	Item	1	4	5
Performed	Man	6	6	12
	Item	1	2	3

Joint Institute of Fusion Theory

		US → J	J → US	Total
Proposed	Man	18	16	34
	Item	6	8	14
Performed	Man	15	15	30
	Item	6	7	13

DOE/MEXT MATERIALS (ANNEX I , TITAN Project)

		US → J	J → US	Total
Proposed	Man	18	33	51
	Item	10	17	27
Performed	Man	16	25	41
	Item	9	12	21