

## §1. Activities on ITER Collaboration

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The ITER International Fusion Energy Organization (IO) has been officially established in October 2007. The IO is building up its organizational structure by recruiting professional staff and supporting staff. In Japan, Japan Atomic Energy Agency (JAEA) was designated as a Japanese Domestic Agency (JADA). The procurement activities have already started by the Japanese arrangement on TF conductor in November 2007. Our ITER Research Coordinating Group promotes research activities coordinated with the ITER project, cooperating with the ITER Collaboration Committee. Our activities on ITER collaboration would play an important role in making active researches for ITER project in fusion community.

The International Tokamak Physics Activity (ITPA) provides a framework for internationally coordinated fusion research activities. The ITPA continues the tokamak physics R&D activities that have been conducted on an international level for many years resulting in achievement of a broad physics basis useful for all fusion programs, for the ITER design, and for general tokamak research worldwide. This work from 2001 to 2007 was summarized in a large document and published as “Progress in the ITER Physics Basis” in Nuclear Fusion in June 2007. Several NIFS scientists contribute to make the documents as coauthors.

The ITPA meetings, which are divided into seven groups (MHD, Disruption and Control; Confinement Database and Modeling; Transport Physics; Pedestal and Edge; SOL and Divertor; Steady State Operation; Diagnostics), are organized under the auspices of the ITPA Coordinating Committee. Each topical group holds an average of two meeting a year. We consider the ITPA meetings workshops on physics issues related to ITER and on comprehensive understanding of toroidal plasmas. We are strongly promoting NIFS scientists’ participation and presentation in the ITPA meetings. The numbers of participants and presentations from NIFS in the 2007 fiscal year are summarized in Tables 1 and 2. The total participants amount to 18 persons and there were as many as 12 presentations. The travel expenses for five participants in the ITPA meetings held abroad were supported with the budget for ITER collaboration.

In 2008, the ITPA would operate under the auspices of ITER-IO. The ITPA charter would be modified to reflect its role as the framework for ITER co-ordinated physics research. The ITPA topical group structure would be reorganized to better reflect the preparation for ITER operation.

In order to discuss how to advance the ITPA activity, we held an informal meeting on ITPA collaboration of NIFS researchers in July 2007. It was pointed out that

experimental data on burning plasma were also of great importance in realizing a helical reactor. We should contribute to the systematization of academic research (science) in toroidal plasmas. In addition, it is very important to share information about the topics in each ITPA group meeting. We have decided to hold a report meeting just after ITPA meetings, in which our NIFS researchers participate.

We also held an informal talk with young researchers and students at NIFS, inviting a leader of ITER-JADA in August 2007. The information on the status of ITER project was presented and there were many questions on detailed items for ITER collaboration. The participants had much interest in taking part in the big project.

The ITER pellet injector workshop was held at Cadarache in July 2007 and Dr. R. Sakamoto was invited to present the results on pellet injection system in LHD. In 2007, ITER team has decided to take a pneumatic acceleration with pipe gun into ITER pellet injectors, which method is used in LHD.

Topical Group	Date (Place)	Participants (Presentations)
Transport Physics	7-10 May (Lausanne)	1 (1)
Confinement Database and Modelling	7-10 May (Lausanne)	1 (1)
Pedestal and Edge	7-10 May (Garching)	1 (1)
SOL and Divertor	7-10 May (Garching)	1 (1)
Coordinating Committee	18-20 May (Cadarache)	1
Transport Physics	1-3 Oct. (Naka)	1
Confinement Database and Modelling	1-3 Oct. (Naka)	1
Pedestal and Edge	1-3 Oct. (Naka)	1
MHD, Disruption and Control	10-12 Oct. (Garching)	3 (2)

Table 1. ITPA Meetings in 2007.

Topical Group	Date (Place)	Participants (Presentations)
SOL and Divertor	7-10 Jan. (Avila)	1 (1)
MHD, Disruption and Control	25-29 Feb. (Naka)	6 (5)

Table 2. ITPA Meetings in 2008.