

§4. Activities on ITER Collaboration

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The ITER Research Coordinating Group (Division of Academic Research Coordination, Coordination Research Center) promotes research activities coordinated with the ITER project, cooperating with the ITER Collaboration Committee, which consists of NIFS specialists in various physics and technology fields including visiting professors from JAEA.

The International Tokamak Physics Activity (ITPA) aims at cooperation in development of the physics basis for burning tokamak plasmas. 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. 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 group meeting is scheduled to take place twice 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 ITPA meetings held in the 2005 fiscal year (including one meeting held in March 2005) are summarized in Tables 1 and 2. The total participants amount to 29 persons and there were as many as 21 presentations. For example, the presentations on the first experimental demonstration of zonal flow in toroidal plasmas, on heating power threshold on electron transport barrier formation, and on computer simulation of toroidal Alfvén eigemodes drew much attention and contributed to the progress in understanding of the toroidal plasmas. Comparison between tokamak and helical plasmas is very important for the comprehensive understanding of toroidal plasmas.

In the 2005 fiscal year, the activity on ITER collaboration was newly budgeted. The travel expenses for six participants in the ITPA meetings held at the domestic locations and four participants in the ITPA meetings held abroad were supported with the budget.

To build up a closer connection with the Japan Participant Team for ITER Transitional Arrangements is one of the important works in our group. We held the periodical meeting with the domestic ITER team in 2005. We have been discussing the collaboration items and how to execute, taking into account each situation before the establishment of ITER organization. We are also closely

connecting with the Fusion Forum, which is promoting the nuclear fusion research including the ITER project in Japan. For the coordination with the university researchers, we attended the coordinating meetings of Fusion Network including fusion engineering and plasma science.

The ITER international team requested the collaboration with Dr. M. Kobayashi (Research Operations Division, Department of LHD Project) on "Power load analysis on the limiter configurations of ITER start-up phase". He visited Garching ITER Joint Work Site from Sept. 25, 2005 through Mar. 25, 2006. He applied the three dimensional transport analysis code EMC3-EIRENE to the ITER start-up phase and analyzed heat and particle load to the limiter. It was demonstrated that the three dimensional analysis for helical plasmas can make a great contribution to the ITER physics design.

Topical Group	Date (Place)	Participants (Presentations)
Diagnostics	14-18 Mar. (Culham)	2 (2)
Pedestal and Edge	18-21 Apr. (Kyoto)	5 (3)
Confinement Database and Modelling	18-21 Apr. (Kyoto)	2 (1)
Transport Physics	18-21 Apr. (Kyoto)	8 (6)
Steady State Operation	4-6 May (Como)	1 (1)
Coordinating Committee	6-7 June (Moscow)	1
MHD, Disruption and Control	4-6 July (Tarragona)	1 (1)
SOL and Divertor	4-7 July (Tarragona)	1 (1)
Pedestal and Edge	3-6 Oct. (St. Petersburg)	1 (1)
Transport Physics	3-6 Oct. (St. Petersburg)	1 (1)
Diagnostics	10-14 Oct. (Taejon)	2 (0)

Table 1. ITPA Meetings in 2005.

Topical Group	Date (Place)	Participants (Presentations)
SOL and Divertor	9-12 Jan. (Shanghai)	1 (1)
MHD, Disruption and Control	6-9 Feb. (Naka)	3 (3)

Table 2. ITPA Meetings in 2006.