Charter of the International Tokamak Physics and Engineering Activity (ITPEA)

Agreed principles for conducting the International Tokamak Physics and Engineering Activity (ITPEA)

Approved by the ITPA Coordinating Committee October 18, 2006, Chengdu, China
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1.0 Preamble

The International Tokamak Physics and Engineering Activity (ITPEA) provides a framework for internationally coordinated fusion research activities. The ITPEA continues the tokamak physics and engineering R&D activities that have been conducted on an international level for many years resulting in the achievement of a broad engineering and physics basis essential for the ITER design and useful for all fusion programs and for progress toward fusion energy generally.

The ITPEA (under its former name ITPA) has been operating under the auspices of the IAEA International Fusion Research Council since its inception in July 2001. Since 25 February 2008, the ITPEA has been operating under the auspices of the ITER Organization in order to provide the framework for coordinated physics and engineering research activities proposed by the ITER Organization, as approved at the second meeting of the ITER Interim Council July, in 2007, and as invited by the ITER Director General in his letter of 20 November 2007 to the ITPEA Coordinating Committee. These coordinated physics and engineering research activities will help develop the physics and engineering basis for the operation of the ITER facility (hereinafter referred to as "ITER"), integrate the expertise of the international fusion community into ITER, provide a pathway to exploit the capabilities of existing fusion facilities and programmes in support of the ITER Project, and integrate results of the fusion programmes of the ITER Members into planning of ITER operation. The ITPEA has an advisory role with respect to the ITER Organization. The ITPEA will provide support to the ITER Organization in the fulfillment of its mission by helping to create a common international research programme organized around scientific issues and will facilitate the participation of the ITER Members in the ITER scientific programme. The integration of fusion researchers from the ITER Members into the ITER physics and engineering research programme will help ITER become a world-class scientific research facility for the benefit of the international fusion community.

2.0. Internationally Coordinated Physics and Engineering Research Activities.

Each Participant to the ITPEA agrees to support in the following ways the ITPEA's efforts to provide a framework for internationally coordinated physics and engineering research

activities and to provide support to the ITER Organization and international tokamak research generally:

- Provision of validated experimental data according to agreed formats;
- Presentation of analyzed experiments results to advance understanding of fusion plasma physics;
- Organization, management, and updating of qualified databases;
- Development of theoretical models and simulation results to explain and reproduce experimental findings;
- Fostering joint experiments among the world's tokamak devices;
- Demonstration of experimental techniques in such areas as wall conditioning/cleaning, plasma control, etc. which can be exploited to optimize ITER's performance;
- Investigation and documentation of plasma scenarios suitable for exploitation in ITER;
- Exploration of ITER's potential as a burning plasma experiment by modelling and simulation experiments in present devices;
- Identification and resolution of key heating and current drive, diagnostics, and fuelling issues which might arise in plasma control and analysis of ITER plasmas;
- Creating annually a list of High Priority R&D issues which can lead to definition of elements of a research programme and which meet the needs of ITER and advance international research in tokamaks generally;
- Undertaking scientific studies agreed with the ITER Organization as being of high importance for the pursuit of the ITER project goals;
- Supporting emerging research in new relevant areas of physics in the future;
- Advising the ITER Organization and sharing knowledge on the technical aspects of fusion device systems/components and plant systems including commissioning, operation, maintenance requirements and risk mitigation measures (fault, fault prevention, fault recovery);
- Performing evaluations for the ITER Organization on technical aspects of tokamak components/systems and plant systems individually and as integrated systems;
- Compiling and analyzing databases with engineering data related to operation, commissioning, maintenance requirements, fault, fault prevention and fault recovery of fusion devices systems/components and plant systems;
- Supporting the development and advising the ITER Organization on commissioning, integrated commissioning and operational plans and procedures, including the elaboration and execution of the associated training programs;
- Supporting the development and advising the ITER Organization on simulators for tokamak and plant systems including their validation on fusion devices/systems.

3.0 ITPEA Participants

The ITPEA operates under the auspices of the ITER Organization.

The Participants in the ITPEA are the Members of the ITER Organization. The Participants shall designate the fusion researchers participating in the ITPEA (hereinafter referred to as the "representatives"). The representatives[1] shall be affiliated with institutions or companies of the Participants and designated by them. The representatives shall be solely responsible to the ITER Council for the information and/or intellectual property provided to the representatives and used by them, in compliance with the provisions of the ITER Agreement and in particular its Annex on Information and Intellectual Property.

Privately funded companies participating in the International Energy Agency Implementing Agreement for Co-operation on Tokamak Programmes (IEA TCP-CTP) as Sponsor or Limited Sponsor may also participate in the ITPEA following approval by the ITPEA Coordinating Committee.

The Director General of the ITER Organization may invite additional Participants in the ITPEA[2] ,

Each Participant in the ITPEA is expected to:

- support the purposes, processes, and infrastructure of the ITPEA as described above;
- host the meetings of the Coordinating Committee and the Topical Physics and Engineering Groups as required. No participation fee shall be charged. The host Participant shall provide support of the meeting in terms of services such as conference room, computers with internet connection, secretarial support and other meeting arrangements.

4.0 Organizational Structure

The organizational structure of the ITPEA consists of a Coordinating Committee (CC), several Topical Physics Groups and Topical Engineering Groups.

4.1 The role of the ITPEA Coordinating Committee is to oversee the Topical Physics and Engineering Groups in conducting their tasks as described above and to interface the ITPEA to the ITER Organization. It is composed of three representatives from each Participant and the ITER Organization who shall not be representatives of privately funded companies. One representative from each Participant is designated as the Contact Person from that Participant. The ITER Organization also designates one of its three representatives as a Contact Person. The Chairman of the Coordinating Committee is selected from the Committee members by consensus of the Contact Persons. The Chairman will have a three-year term. The ITER Organization will provide a Co-Chair from among its three representatives, as well as general administrative support to the ITPEA. The Coordinating Committee holds at least one meeting per year.

[1] The different categories of representatives (representatives and limited representatives) are described in Article 4.4.

[2] Any cooperation with a non-ITER Member is subject to prior approval of the ITER Council.

4.2 The Coordinating Committee determines the number and subject of the Topical Physics and Engineering Groups, seeking to facilitate the most effective and efficient interaction with the ITER Organization directly at the Topical Group level. Each Group should coordinate tokamak physics and engineering research in its specific subject area, analyze the database, carry out modelling, develop materials for its report to the Coordinating Committee, and generally support the ITER Organization as needed.

4.3 Every three years, the Coordinating Committee selects the Deputy-Chairs of the Topical Physics and Engineering Groups from the Participants. The Deputy-Chairs are expected to automatically become Chairs three years later of their respective Group. Chairs will have a three-year term. Chairs and Deputy-Chairs should be acknowledged worldwide as research leaders in the field of their Topical Group. These provisions will ensure continuity of Topical Group activities and periodic change of Topical Group leadership and provide the opportunity for balance of Topical Group leadership across the ITPEA Participants. In addition to the Chair and Deputy-chair, each group will have an ITER Deputy-Chair representing the ITER Organization and appointed by the ITER Organization to facilitate a close working interface with the ITER Organization and the administrative support of the ITPEA by the ITER Organization. The ITPEA Coordinating Committee will deal with any necessary changes to this procedure. The representatives of privately funded companies may not be selected as Chairs or Deputy-Chairs of Topical Physics and Engineering Groups.

4.4 Each Topical Group consists of 2 to 7 representatives (Topical Group members) per Participant, designated by each Participant, which may not belong to limited sponsors of the IEA TCP-CTP agreement. One representative will be identified by the Participant as Lead for this Participant. The Groups may invite the participation of "limited representatives" (Topical Group experts) nominated by the Participants for privately funded companies.

4.5 The ITPEA Coordinating Committee and the Topical Groups (with the approval of the ITPEA Coordinating Committee) may form Working Groups that cross Topical Group boundaries and are for the performance of a specific task with a well-defined timescale and deliverables.

4.6 The ITPEA Coordinating Committee may also confer observer status on international fusion research communities that petition the ITPEA Coordinating Committee for such status. The stellarator community currently has such status and is entitled to place one representative on each ITPEA Topical Group.

5.0 Meetings and Reporting

Each Topical Group holds an average of two meetings a year. Meeting locations and dates must be submitted by the Topical Groups for approval by the Contact Persons of the Coordinating Committee., A decision should be made within two weeks of the proposal's submission by the Topical Group. Topical Group Chairs and Deputy Chairs

should inform the ITPEA Contact Persons approximately three months in advance of Topical Group meetings of the details of the meeting arrangements together with any specific requests for limited representatives from privately funded company staff to participate in the meetings. The Group should issue to the Coordinating Committee a succinct summary of each meeting promptly within two weeks after the Group meeting.

Group activities should be reported at each meeting of the Coordinating Committee and progress reports on key issues should be made in a timely manner. The annual reports of the Topical Groups will be submitted by the Coordinating Committee to the Director-General of the ITER Organization.

Groups are encouraged to make their work available to the broader fusion community in a timely manner.

6.0 Legal Basis

The legal basis for the ITPEA is the bilateral and multilateral agreements for collaboration in fusion research existing between the ITER Members.

The ITPEA has been invited by the ITER Director General to operate under the auspices of the ITER Organization. This arrangement will be reviewed every two years.

7.0 Data use policy and publication guidelines

In the course of the implementation of the ITPEA activities, unpublished material (e.g. experimental and technical data, plasma simulation results, etc.) may be shared among the representatives involved in the activities. This material is intended solely for internal discussion within the ITPEA and may be incorrect, incomplete, or subject to change since it is based on preliminary analysis. Therefore, any public use or dissemination of unpublished material shared within the implementation of ITPEA activities must be approved by the provider(s) of the data and the corresponding Chair of the Topical Group. Following approval, the material may be used for public use or dissemination; appropriate acknowledgement of the source should be given in such cases. More details can be found in the ITPEA publication guidelines (ITPEA Publication Guidelines).