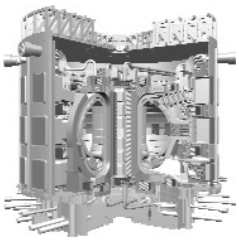


ITER CTA NEWSLETTER

No. 6, FEBRUARY-MARCH 2002

INTERNATIONAL ATOMIC ENERGY AGENCY, VIENNA, AUSTRIA
ISSN 1683–0555

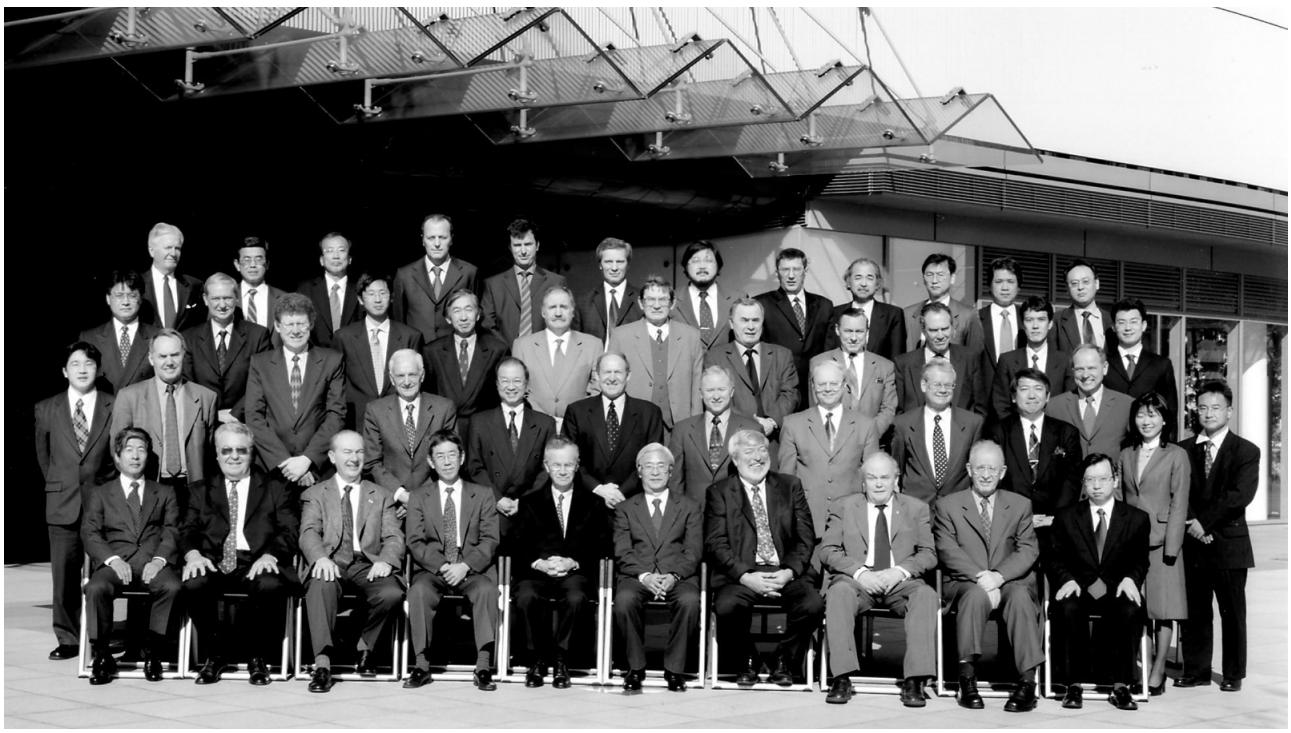
SECOND NEGOTIATION MEETING ON THE JOINT IMPLEMENTATION OF ITER

by Dr. Y. Okumura, Deputy Director, Office of ITER Project Promotion, JAERI

Delegations from Canada, the European Union, Japan and the Russian Federation met in Tokyo on 22-23 January to continue formal negotiations on the joint implementation of the ITER Project. This was the second Negotiation Meeting in a series that is expected to lead, by the end of 2002, to an international agreement, for submission to the Parties, on the joint implementation of ITER. Dr. M. Yoshikawa was nominated as moderator of the meeting and Dr. H. Takatsu as secretary.

In the participants' opening comments, Canada reported that the first formal review of the ITER Project by the Canadian Nuclear Safety Commission will take place in March as a part of the formal licensing process initiated for possible siting of ITER at Clarington, Ontario. The European Union reported that the French Minister for Research had requested the EU to define the conditions under which a European site could be proposed for ITER construction and asked that the French proposal to realize ITER in Cadarache be taken into account. A study to analyse the possibility of proposing Spain as a possible site is also being conducted.

Japan reported on the discussion at the Council on Science and Technology Policy (CSTP). The Minister for Science and Technology Policy and non-cabinet members of the CSTP reported on 25 December 2001 that



Participants in the Meeting

Japanese participation in the ITER Project is desirable and, moreover, that hosting ITER is meaningful. The decision of the Japanese Government on the ITER Project will be taken following the final conclusions of the CSTP.

Russia reported that ITER is considered as one of its highest priorities, according to the federal programme "ITER International Project".

The first meeting of the Negotiators' Standing Sub-Group (NSSG) was held in Tokyo on 18-20 December 2001. The progress made at the NSSG meeting was reported by Dr. S. Matsuda, who was the moderator of the meeting.

The Delegations noted with appreciation the first draft of the Joint Implementation Agreement (JIA) elaborated by the NSSG. Following an exchange of views, the Delegations reached common understanding on some of the JIA related issues. The Delegations requested the NSSG to further elaborate the draft JIA and to submit second draft at the third Negotiation Meeting (N3).

The Delegations noted the progress report on the framework for Joint Assessment of a Specific Site (JASS) and the outline structure of scenarios submitted by the NSSG, and accepted it as the basis for further development. The NSSG is asked to narrow down the definition of the structure of scenarios and the framework for JASS with a view to making a practical JASS system for early comparative assessment of sites.

The Delegations took note of each Party's intention with respect to the procurement allocation tabulated by the NSSG. Further clarification of reference to non-common (i.e. financed by the host) and common items and prioritization on a non-committal basis of each Party's intentions with respect to the procurement allocation should be made as practicable as possible.

The Delegations endorsed the recommendations of the NSSG on the management structure of the ITER Legal Entity. The NSSG was requested to consider and propose management structures and exchange views on approaches to identifying senior management. The NSSG was also requested to make a list of actions required for the smooth transition into the ITER construction phase and to develop suggestions on appropriate arrangements for the transition phase.

The Delegations also took note of the record of the Project Board meeting of 21 January that reported the progress and the work plan of the CTA. The Delegations recognized that participants in the Negotiations support the ITER International Team (IT) by providing funding for communication, office and computation equipment, and for the travel expenses of IT members, support staff, etc. Consistent with that practice, the Russian Federation will provide Support Funds (SF) during 2002 through IPP Garching or the IAEA to make SF available to the IT. These funds will be used under the same rules and procedures as previously applied to the EDA Joint Fund. The IT Leader will report on the use of the SF to the Project Board, which will act as was previously done by MAC and will advise the Project Board on the amount of expenditures to be financed from the Support Fund.

The Delegations accepted the revised Work Plan and Milestones for the Negotiation Process. The meeting schedule for 2002 was foreseen as follows (with a possibility of holding an extraordinary Negotiations Meeting at the end of July 2002, to be confirmed at N4):

NSSG-2	Moscow	26 - 28 February
N3	Moscow	19 - 20 March
NSSG-3	Cadarache	13 - 15 May
N4	Cadarache	4 - 6 June
NSSG4	Toronto	9 - 11 July
N5	Toronto	10 - 11 September

Later on, the date of the N3 meeting was rescheduled to April 19-20. Therefore, the date of NSSG-2 has also been changed.

ITER SYMPOSIUM ON BURNING PLASMA SCIENCE AND TECHNOLOGY

An international symposium entitled "Burning Plasma Science and Technology on ITER" was held in Tokyo on 24 January 2002, the day after the second Negotiation Meeting (N2). About 200 people, including participants from the Japanese Government, universities, companies and related organizations outside the country, took part in the symposium.

Presentations were made by scientists of the four Parties that participated in the N2 meeting and by the director of the Princeton Plasma Physics Laboratory, Prof. R. Goldston. The titles of the presentations were:

"Spirit and Prospects of ITER" by Academician E. Velikhov,
"The Benefits of ITER to the Portfolio of Fusion Configurations" by Prof. R. Goldston,
"Tritium Technology" by Dr. R. Hemmings,
"Fast Track Concept in the European Fusion Programme" by Prof. H. Bolt,
"Burning Plasmas in ITER as an Energy Source" by Prof. N. Inoue.

Abstracts of these presentations are given below. The presentations are available on the JAERI web site http://www.naka.jaeri.go.jp/NAKA-HP.html.

Academician Evgeny P. Velikhov
President, Kurchatov Institute of Atomic Energy

ITER is the unique and the most straightforward way to study burning plasma science in the immediate future. ITER has a firm physics foundation based on the results from the world's tokamaks in terms of confinement, stability, heating, current drive, divertor and energetic particle confinement to the extent required in ITER. The flexibility of ITER will allow the exploration of a broad operation space of fusion power, beta, pulse length and Q values in various operational scenarios. The success of the engineering R&D programmes has demonstrated that the Parties have enough capability to produce all the necessary equipment in agreement with the specifications of ITER. The acquired knowledge and technologies in the ITER project allow us to demonstrate the scientific and technical feasibility of a fusion reactor. It can be concluded that ITER must be constructed as soon as possible.

Professor Robert J. Goldston
Director, Princeton Plasma Physics Laboratory

Recent plasma science challenges are:

1. What limits the pressure in plasmas? (Macroscopic stability)
2. How do hot particles and plasma waves interact in the non-linear regime? (Wave-particle interactions)
3. What causes plasma transport? (Microscopic turbulence and transport)
4. How can high-temperature plasmas and material surfaces co-exist? (Plasma-material interactions).

This fusion plasma science is addressed using a "Portfolio" of configurations, such as the stellarator, tokamak, spherical torus, reversed field pinch (RFP), spheromak and field reversed configuration. The scientific results from one configuration benefit progress in others. Examples of this effect can be found in the design of the compact stellarator and the spherical torus, as well as the impact of RFP feedback control results on tokamak experiments. ITER will provide very significant benefits to the development of the full fusion portfolio of configurations, as well as addressing the key scientific issues: macroscopic stability, wave-particle interactions, microturbulence and transport, plasma-material interactions, and technical demonstration of an integrated fusion system.

Dr. Robert L. Hemmings
Technical Expert of ITER Canada, Canatom NPM

An overview of the various tritium research and operational activities in Canada is presented. These activities encompass tritium processing and recovery, tritium interactions with materials, and tritium health and safety issues. Many of these ongoing activities form a sound basis for the tritium use and handling aspects of the ITER project.Tritium management within the CANDU heavy water reactor, associated detritiation facilities, research and development facilities, and commercial industry, along with improving the understanding of tritium behaviour in humans and the environment, remain the focus of a long-standing Canadian interest in tritium. While there have been changes in the application of this knowledge and experience over time, the operating experience and the supporting research and development continue to provide improved plant and facility operations, an improved understanding of tritium safety issues, and improved products and tools that facilitate tritium management.

Professor Harald Bolt
Director, Materials Research Division, Max Planck Institute for Plasma Physics

Recently an expert meeting regarding a possible acceleration of the fusion programme with a view to energy production ("fast track") was held on the initiative of the EU Research Council. In the course of the discussions about the fast track programme, it has turned out that successful extraction of reactor grade heat and tritium from the blanket modules is essential in the ITER operation. In parallel with ITER, material development using a high intensity neutron source is essential to establishing a database for licensing. The operation of a reactor combining DEMO and PROTO generations into a single step could be realized around 2030.

Professor Nubuyuki Inoue
Former Chair, Fusion Council, Atomic Energy Commission of Japan

Fusion research and development has two aspects. One is academic research on science and technology, i.e. discovery and understanding of unexpected phenomena, and development of innovative technology. The other is energy source development to realize fusion as a viable energy source for the future. Fusion research has made remarkable progress in the past several decades, and ITER will soon realize a burning plasma which is essential for both academic research and energy development. With ITER, scientific research on unknown phenomena such as self-organization of the plasma in a burning state will become possible, and ITER will contribute to creating a variety of academic results. Fusion researchers will have the responsibility to generate actual energy, and electricity generation immediately after the success of the burning plasma control experiment in ITER is the next important step that has to be discussed seriously.

In general, it was recognized that the development of fusion energy is taking a new step and that major progress in comprehensive research on burning plasma physics is expected in ITER.

A panel discussion was held with the presenters and Dr. D. Campbell as panelists. Dr. Shimomura, co-leader of the ITER International Team, served as co-ordinator. There was an opinion that it is necessary to accelerate the development of fusion energy in a context of social understanding and support. Another opinion expressed was that research of the burning plasma physics will bring the added benefit of yielding new science. The participants shared the view that the early construction of ITER is desirable for the development of fusion energy.

At the Symposium

Corrigendum: Please note that the December 2001 Newsletter issue was erroneously numbered 10 instead of 4.

Items to be considered for inclusion in the ITER CTA Newsletter should be submitted to B. Kuvshinnikov, ITER Office, IAEA, Wagramer Strasse 5, P.O. Box 100, A-1400 Vienna, Austria, or Facsimile: +43 1 2633832, or e-mail: c.basaldella@iaea.org (phone +43 1 260026392).

Printed by the IAEA in Austria
May 2002

02-00780