

US Burning Plasma Organization Meeting of the Council

**November 19, 2009, 11:00 EST
held by videoconference**

Council Members in attendance:

Lee Berry
Michael Bell
C.S. Chang
Martin Greenwald
Amanda Hubbard – *Chair*
Wayne Meier
Michael Mauel
Stan Milora – *US ITER Chief Technologist*
Phil Snyder
Tony Taylor
Mike Ulrickson
Mike Zarnstorff – *Vice Chair*

Ex-officio participants in attendance:

Erol Oktay – *OFES, ITER Science Officer*
Jim Van Dam – *USBPO Director and US ITER Chief Scientist*

Others in attendance:

Chuck Greenfield — *USBPO Deputy Director*
Rita Wilkinson — *USBPO Administrator*
Nermin Uckan — *USBPO Assistant Director for ITER Liaison*
Rich Hawryluk

Council members unable to attend:

John Sarff

MINUTES

1. Roll call; Introduction of new Council members

The meeting was called to order at 11:00 AM EST. Attendance was as noted above, with 12 of the current 13 Council members present (Chang and Snyder joined during the meeting).

2. Review of minutes from prior meeting

Draft minutes from the previous meeting, on September 8, 2009, were distributed shortly before the meeting and reviewed. No comments were made. Further comments may be made during the next week, after which time the minutes will be posted. (*Note: No comments were received*).

3. Update on recent and planned USBPO activities

USBPO Director Jim Van Dam gave a general update on recent activities. Topics covered included:

- *Rotation of USBPO leadership*
 - As noted at the last Council meeting, a new Deputy Leader was needed for the Modeling and Simulation Topical Group. The Topical Group, as well as Council and the Research Committee, were polled for suggestions. It was recommended to appoint Dylan Brennan of U. Tulsa. Council members, polled by email, concurred and Brennan has accepted. It was noted that this appointment also responds to prior Council concerns about declining university representation on the Research Committee.
 - USBPO was consulted by OFES about two replacements on the ITPA Topical Groups. After solicitations and discussion, Maxim Umansky (LLNL) was recommended for the Scrape-off-layer & Divertor Topical Group (replacing Mathias Groth) and Stefan Gerhardt (PPPL) for the Integrated Operation Scenarios TG (replacing David Gates).
 - A replacement is still pending for Ed Synakowski on the ITER Research Plan Working Group. This has been deferred until the plans and needs of the Working Group are clarified by ITER.
 - Tom Rognlien has accepted the job of editor of *e-News*, replacing Raffi Nazikian, who has done an excellent job since May 2007. The Council expressed its appreciation for Nazikian's efforts on behalf of the USBPO.

- *Test Blanket Module experiments and workshop.*
 - Chuck Greenfield reported that the Test Blanket Module simulation experiments on DIII-D, a major US technical contribution to ITER, are underway and going very well. This is a highly international effort, with scientists from five ITER parties participating. Results to date are quite positive for ITER, though completion and analysis is pending.
 - Nermin Uckan reported that a planned ITER TBM workshop has been postponed until March 2010. Richard Nygren will be a panelist.

- *ITER Developments*
 - An ITER Plasma Control workshop will be held December 8-11 in Cadarache, with several U.S. participants.
 - An ITER Council meeting has just ended; few details are available yet.
 - A number of Physics Task Agreement solicitations were recently received from ITER, and distributed to the US community by USBPO. Van Dam was asked to read the US proposals; he reported that the quality was excellent.

(Note: The US ITER Project Office later reported that the US had been awarded 8 contracts out of 16 solicitations to date in 2009.)

- The ITER International Summer School will be held in the US for the first time. It will be hosted by Univ. Texas at Austin, May 31-June 4, 2010, on the topic “*MHD and Plasma Control in Magnetic Fusion Devices*”. Suggestions for lecturers, and encouragement of students to attend, are welcomed.
Action: All to send suggestions for lecturers to Jim Van Dam.
- ITER recently made an urgent request for more research on ELM control and mitigation. Van Dam reported that he had distributed this to the USBPO community, but noted that the US is already doing considerable research both on ELM mitigation and on regimes without large ELMs. This research was already in the ITER Physics Work Programme. In discussion, Council members noted that the urgency arises partly from the high cost of proposed RMP coils and impacts on the vacuum vessel. There was concern raised about the process for these ‘urgent requests,’ which OFES felt should be weighed against other research priorities.
- *Communication and outreach.*
 - A dedicated oral session on “Research in Support of ITER”, sponsored by USBPO and organized by Chuck Greenfield, was held at the APS-DPP Annual Meeting in Atlanta, GA, during November and considered very successful. David Campbell, who presented the first talk, attended the APS-DPP Annual Meeting specifically for this session and commented on its usefulness. There was high interest in giving presentations in this session – including several international talks, and good attendance, about 150 people.
 - The USBPO report written by the Council panel led by Earl Marmor has been widely disseminated. This includes posting on the USBPO web site, a summary in *e-News*, and distribution to OFES program managers, US members of the ITER Research Plan working group, and others.
 - The US ITER Project Office continues to solicit videos on burning plasmas for outreach purposes.
 - The idea of holding USBPO videoconferences with US Program Leaders is still pending.
- *Upcoming activities*
 - Amanda Hubbard will present an overview of USBPO and US research in support of ITER at the Fusion Power Associates Annual Meeting in December in Washington, DC.
 - Van Dam will represent USBPO at the IEA/ITPA Joint Experiments Annual Program Leaders’ Meeting, to be held in Daejeon, Korea, Dec. 15-16. At the last ITPA Coordinating Committee meeting, the idea of expanding the joint experiments to include programmatic activities such as modeling was discussed. It was decided to start with a test activity from the DIV/SOL topical group. This was prepared by Bruce Lipschultz, but is awaiting feedback from the ITER Organization.

- There will be an ITER booth at the AAAS Meeting in San Diego, 18-22 February. Ned Sauthoff has asked USBPO to help with staffing it.
- *Recent feedback*
 - Van Dam noted that both OFES AD Ed Synakowski and USIPO Director Ned Sauthoff had been complimentary and appreciative of USBPO contributions during recent meetings. Sauthoff had commented that the USBPO is providing a model to other ITER Members for effective response on physics issues.

4. Update on coordination of international activities

Mike Zarnstorff and Erol Oktay reported on progress of the USBPO working group on international collaborations. The group is becoming more active following the completion of the Research Needs Workshop activity; a meeting was held during the APS-DPP Annual Meeting, and regular conference calls are planned. It is intended to progressively discuss international facilities, and then science topics. The time scales and opportunities for steady state research of the Asian tokamaks (EAST, KSTAR, JT60-SA) are of particular current interest, but the group will also look at other collaborations such as JET. OFES will need to reevaluate collaboration priorities.

It was noted that annual workshops on US-Korea and US-China collaborations are typically held. The next Korea workshop will be in Daejeon, and Vincent Chan is organizing the next China workshop. Several bilateral meetings are anticipated at the next IAEA Fusion Energy Conference.

It was noted that a replacement will be needed for Ed Synakowski, an original member of the collaborations working group; suggestions were welcomed.

5. Research Committee and USBPO Topical Group connections to ITPA

Chuck Greenfield led a discussion of Research Committee activities and plans. The Research Committee is now at a point when it can move beyond responding to urgent ITER requests. Since the last Council meeting, and partly in response to discussion there, the Research Committee has been considering its most appropriate role and activities. A strengthened emphasis on connection to the ITPA is proposed. In 2008, the USBPO and ITPA were officially 'merged' at the US level, and the ITPA groups reorganized. However, the links and communication have not always been clear to all in both organizations.

To address this, Greenfield proposed a streamlined connection to the new ITPA topical groups and other ITER working groups (diagram attached), with Research Committee members, several of whom are also ITPA members, clearly identified to be responsible for each communication link. It was emphasized that these links do not exclude others; the USBPO Modeling and Simulation topical group and Fusion Engineering Science topical group in particular are expertise-based, rather than issue-based, and connect to

many ITPA groups. A first in-person meeting of the Research Committee, to which US ITPA coordinators were also invited, was held during the recent APS-DPP Annual Meeting to discuss means of strengthening communications and providing better support to ITPA groups. Suggestions included advance circulation of ITPA meetings agendas to USBPO members, as well as distributing more detailed meeting summaries and priority tasks for US support. Video-conference meetings of USBPO topical groups are being considered.

Council members were generally very supportive of this mission. It was noted that ITPA connections and ITER support should not be the only role of the USBPO, but in the near term these will be key priorities. Other independent tasks should be initiated as appropriate.

It was noted that in the present Topical Group organization, one BPO group (Plasma-Boundary Interfaces) is connected to two ITPA topical groups (Scrape-off-layer & Divertor, and Pedestal). Some Council members, in particular, Phil Snyder, who is the US leader of the Pedestal ITPA group, felt that this scope was too broad and that better ITPA support would be achieved by splitting the USBPO topical group to correspond to the ITPA groups. A large number of critical ITER issues fall in the Boundary area, notably ELM control and materials issues, and there was a concern that this is too much for one group. Others noted that the physics of the pedestal and that of the scrape-off-layer are strongly linked, preferring a more integrated approach. The current USBPO Boundary Topical Group leaders, Tony Leonard and Tom Rognlien, each have strong expertise and experience in both areas and ITPA groups; however, this breadth may be difficult to maintain in future rotations. A possible compromise could be to rename the USBPO topical group to make its scope clearer, and monitor the interactions under the new communication guidelines in 2010.

It was agreed to consider this issue further at the next Council meeting; discussion by email was encouraged. The Research Committee and Directorate are discussing a recommended approach.

Action: Van Dam, Greenfield to report back at next Council meeting, with a recommendation for changes if appropriate.

6. Update on recent ITER meetings (MAC, STAC)

ITER Management Advisory Committee member Rich Hawryluk attended the meeting and reported to the Council about on the MAC meeting held October 26-28, 2009. The main issue discussed was the ITER project schedule. This currently takes a phased approach, with a minimal first plasma in 2018 and D-T operation in 2026. ITER Members had concerns and differing assessments of risks in meeting this schedule. An update has been requested by February 2010.

The Briscoe panel report and the MAC Technical Integration meeting were also discussed. Good progress has been made in cost assessments and documentation. Following the Briscoe report, some items of revised scope are being addressed as

“Additional Direct Investment” costs separate from the baseline; in-vessel coils are a key example.

Jim Van Dam, Erol Oktay, Tony Taylor and Stan Milora, who had all attended the STAC meeting held October 21-23, summarized key points. The major charge was to examine ITER project requirement and related documents and the linkages between them. Good consistency was generally found, though some issues remain, and a large number of changes were approved. STAC concluded that the project scope is acceptable to move forward. As noted by MAC, the next big issue is the project schedule. ITER Members have some differences regarding in-vessel coils.

7. Other business

The next USBPO Council meeting will likely be held in February 2010. One Council member has indicated that it would be useful to add his administrative assistant to the Council mailing list to aid in scheduling; please send any similar requests to Amanda Hubbard and Jim DeKock.

Action: Hubbard to ask Jim DeKock to add to Council mailing list.

It was requested that Amanda Hubbard distribute a draft of her USBPO talk in advance of the December FPA meeting.

Action: Hubbard to distribute to Council.

The meeting was adjourned at 1:15 PM EST.