

**Meeting of the Council**  
**US Burning Plasma Organization**  
**February 27, 2007**  
 Held by video conference

**Council Members in Attendance:**

Amanda Hubbard— Chair  
 Mike Zarnstorff— Vice Chair  
 Rich Hawryluk  
 Earl Marmar  
 Martin Peng  
 Craig Petty  
 George Tynan

**Ex Officio Members in Attendance**

Stan Milora—US ITER Chief Technologist  
 James Van Dam—US ITER Chief Scientist

**Others attending**

Steve Eckstrand—USDOE  
 Ray Fonck  
 Chuck Greenfield  
 John Mandrekas—USDOE  
 Gene Nardella—USDOE  
 Adam Rosenberg —USDOE  
 Tony Taylor—USBPO Deputy Director  
 Nermin Uckan—USBPO Asst. Director for  
 ITER Liaison

**Unable to Attend:**

Steve Allen  
 Steve Cowley  
 Jerry Navratil  
 Erol Oktay—USDOE  
 Bill Nevins  
 Dave Petti  
 John Sarff

**1. Roll call**

The meeting was called to order at 3:00 p.m. EST. Attendance was as noted above.

**2. Update on USBPO Leadership**

Dr. James Van Dam (Univ. Texas), who previously served as Council Chair, was appointed by the USDOE to assume the position of USBPO Director effective February 1, 2007, following the resignation of Ray Fonck. He was welcomed by the Council in his new role. He then announced several other changes in USBPO leadership, as follows:

Deputy Director: Dr. Charles Greenfield (GA) - Chuck Greenfield will take over as Deputy Director from Tony Taylor. There will be a transition period until May 1, during which the responsibilities for this position will be transferred from Tony to Chuck.

Assistant Director for ITER Liaison: Dr. Nermin Uckan (ORNL)

Nermin Uckan will assume the new position of Assistant Director for ITER Liaison. She also serves as leader of the Topical Group on Fusion Engineering Physics.

Council Chair: Dr. Amanda Hubbard (MIT)

Council Vice-Chair: Dr. Michael Zarnstorff (PPPL)

Amanda Hubbard and Mike Zarnstorff will assume their positions effective today. Amanda had been serving as the Council Vice-Chair. Mike has been a member of the Council.

The changes will leave a vacancy on the Council that will be filled by Tony Taylor after May 1.

USBPO Administrator: Emily Hooks (512-471-1485, ehooks@mail.utexas.edu)

The Council, on motion proposed by Amanda Hubbard and seconded by Rich Hawryluk, determined to express its appreciation to Tony Taylor by including in the minutes the following resolution:

*On motion, the Council of the US Burning Plasma Organization resolved to express its sincere gratitude to Dr. Tony Taylor for his outstanding service to the US fusion research community in serving as the USBPO Deputy Director during the past two years. His advice and involvement in the establishment of the Topical Groups and the Council, his leadership of the Research Committee, and his all-around wisdom and zeal for burning plasma research have been extremely valuable. The Council has appreciated most highly his excellent work.*

The Council, on motion proposed by Amanda Hubbard and seconded by Craig Petty, also determined to express its appreciation to Joan Welc-Lepain by including in the minutes the following resolution:

*On motion, the Council of the US Burning Plasma Organization resolved to express its sincere gratitude to Joan Welc-LePain for her outstanding service to the US fusion research community in serving as the USBPO Administrator during the past two years. Her performance in this position has been a model of excellence. The Council has appreciated most highly her valuable work.*

### **3. Review of Minutes from December 15, 2006, Council Video Conference**

Amanda Hubbard noted that the minutes from the December 15, 2006, Council video conference, prepared by past-chair James Van Dam, had been distributed electronically. No changes were requested by the Council.

### **4. USBPO and ITPA Coordination in the U.S.**

Ray Fonck reported on an ongoing effort, led by him during his tenure as Director, and by ITPA Coordinating Committee Chair Ron Stambaugh, to clarify the relationship between the USBPO and U.S. ITPA activities. The results of their discussions are contained in the 2-page draft document that was distributed for today's meeting (see Appendix 1). In general, the USBPO will be the national organization that provides structure for the U.S. ITPA activities. The document tries to identify ways in which the two organizations can help each other. The ITPA is another conduit for the USBPO to the international community, and the USBPO can communicate ITPA results/activities to the national community. USBPO needs to better publicize ITPA activities on the national front and will add a section for the U.S. ITPA to the USBPO web site. The USBPO is the managing structure for national activities, and the Research Committee needs to help make people available to assist the ITPA with activities, as well as disseminate information to the

national community. Although there is not a direct mapping between ITPA and BPO Topical Groups, leaders of both sets of topical groups will interact with each other.

This issue has been one of high interest in the community and remains so. Defining the relationship between the organizations is important and will be of benefit to both organizations. Ray Fonck suggested the document that has been developed be adopted by the Council as the philosophy on how the ITPA and BPO interact. However, it first needs to be reviewed by the Research Committee and ITPA leaders– this vetting process is in progress, with all groups asked to provide comments by March 9, 2007.

In open discussion, Council members were generally supportive of the approach outlined in the document. Petty and Peng suggested that wording be modified to clarify that USBPO will facilitate, but not dictate or approve, domestic ITPA activities. Marmar commented that the USBPO Modelling and Simulation group interacts with many ITPA groups; it was clarified in discussion that the links in the figure in the document are to clarify responsibilities for communication and in no way limit group interactions.

It was determined that Council will vote at a later date, either at its next meeting or by e-mail, on approval of this document, once input from all affected groups has been incorporated.

## **5. USBPO Bylaws**

George Tynan, chair of the Charter Subcommittee (whose other members are Amanda Hubbard, Martin Peng, Craig Petty, and John Sarff), reported on the progress on the USBPO Bylaws since the last Council meeting. The Subcommittee has included a number of suggestions made by Council members during and subsequent to that meeting. A revised version was circulated to Council on February 19 and no further comments were received. The Chair thanked the Subcommittee for its ongoing work. Jim Van Dam commented that, although the Bylaws are not yet adopted, he had followed the draft language in making recent leadership appointments.

Tynan then opened discussion of the Bylaws document. Several Council members had questions about particular clauses in the Bylaws and, in some cases, suggestions for clarification. It was pointed out that the initial Council has 14 members, all appointed at the same time, and that some process for rotating terms needs to be established. The subcommittee members responded that this issue was recognized but, as since it is a special circumstance, felt that it would be inappropriate to include in the Bylaws. Hubbard suggested that the process be discussed at the next Council meeting.

It was also clarified in discussion that:

- The ‘slate’ of recommended candidates for Topical Group leadership to be presented to Council will be chosen by the Director, with input from the Research Committee,
- Regarding Council elections, it is anticipated that the nominating committee will make some downselection from the nominations received, taking into account the desire for broad representation of the fusion community.
- For the purposes of maintaining institutional balance on the Council, institution of employment, as opposed to place of work, will be considered.

During discussion, it was realized that neither the Charter nor the Bylaws had covered the appointment or voting rights of Ex-Officio members. Since this was felt to be important, the Bylaws were referred back to the Charter Subcommittee for a final revision. It was decided that the revised text will be forwarded to the Council for a vote on approval by email.

## **6. Report on Research Committee Activities**

Tony Taylor, Chair of the USBPO Research Committee, reported that the two major activities since the last Council meeting have been development of Research Committee guidelines and input to the the ITER review. He focused on the first item here.

The Research Committee had a ‘retreat’ to develop operating guidelines. This retreat consisted of three 2-hour video workshops to define task definition (led by Dennis Whyte), task prioritization/approval (Raffi Nazikian), and task facilitation (Nermin Uckan and Richard Nygren). A working document was prepared for use during the retreat, and afterward a document was compiled that incorporated retreat discussions. It was decided that the initial document was too prescriptive and it was later rewritten. The document was reviewed and discussed by the Research Committee and the final document was distributed to the Council for comments. It was emphasized that these are operating guidelines, not Bylaws – they are intentionally not prescriptive. The Research Committee is asking the Council to approve posting of the document by the Research Committee for such use.

Response from the Council was generally positive. Some concern was raised about whether the Research Committee would be dictating use of facility resources and OFES funding. Taylor replied that that was not the intent, though it was expected that the USBPO would provide input to facility and budget planning processes. Council suggested that wording be amended to alleviate this concern.

It was clarified during discussion that ITER can suggest research activities, via the USBPO Director. Although the Research Committee is focusing on US activities, international collaborations are not excluded.

## **7. Update on ITER Design Review and USBPO involvement**

Jim Van Dam gave an update on the status of the ITER design review and the involvement of the USBPO, which has been quite active of late. Of the eight design working groups, the one with closest connection to the USBPO is the Design Requirements and Physics Objectives group, of which Rich Hawryluk and Ron Stambaugh are US members. This group sent a list of 12 urgent issues to the USIPO, which referred them to the BPO. The BPO Topical Group leaders were asked to recommend names to address these issues. Further information from Hawryluk and Stambaugh was used in a second round of input from the Topical Group leaders, who suggested names based on detailed subtasks, which were compiled by Nermin Uckan. A meeting including U.S. program leaders is planned soon which will prioritize US involvement in various subtasks and provide feedback on personnel availability. It was noted that the Virtual Laboratory for Technology and the ITPA are also engaged in the design review process.

In discussion of this process by Council, Hawryluk noted that the design review is currently focusing on high-level issues which need near-term decisions due to long-lead procurements. He also noted that the other working groups are less advanced in their planning. Amanda Hubbard noted that having the ITER team request help in physics activities from the USBPO is a very positive development and that similar engagement with other working groups would be desirable as they become more active.

## **8. BPO Long-Range Planning Activity**

Amanda Hubbard presented a brief update on the status and plans for a new USBPO Long-Range Planning Activity focused on further developing plans for US participation in ITER. As discussed at the December 2006 Council meeting, Congress has asked for additional information following the BPO-led report submitted by DOE in August 2006 in response to the Energy Policy Act. This plan will also be reviewed soon by the NRC. A document with further details on the background, motivation and rationale for the planning was prepared by Erol Oktay, in response to questions raised at the last Council meeting, and distributed to Council members in advance of this meeting.

As specified in the Charter, Council will take the lead in this USBPO planning activity. Earl Marmar has been asked to lead a new Council Subcommittee which will develop the plan. This will include several Council members, but also other experts in the US fusion community. Further details will be announced in coming weeks.

It was noted that while this activity will focus on ITER, other future burning plasma planning activities are expected, which will be broader in scope and may, for example, provide input to FESAC charges.

## **9. Adjournment**

The meeting was adjourned at 4:55 p.m. EST.

## **APPENDIX 1. Draft document discussed by Council regarding USBPO and ITPA Coordination in the U.S.**

The U.S. Burning Plasma Organization (USBPO) is a national organization with the mission to help define and coordinate Burning Plasma research activities in the U.S. The International Tokamak Physics Activity (ITPA) is an international organization, with a national U.S. component, that aims to identify issues in fusion plasma confinement, and to organize collaborations on large tokamaks in the world and between experiments and theory/modeling to address those issues. Both groups have as a primary goal the support of ITER and its mission to study burning plasmas at the reactor-scale in a large tokamak. They both also support research elements that look outside of and beyond the ITER mission.

The U.S. research community in particular and the international fusion community in general are in the process of defining and developing bridges of communication and cooperation with the ITER central team and researchers in the other ITER parties. Through the office of USBPO Director, who also is the USIPO Chief Scientist, the USIPO acts in that role for issues that impact the design and construction of the device. However, that role does not encompass the full range of forward-looking research activities that need to be pursued before ITER experiments. Additional bridges to the ITER Organization are beneficial. One proposal is that the ITPA evolve to provide a link between the national research communities and the ITER project. The ITPA can serve as a vehicle over the next ten years to nucleate international teams of researchers that can conduct burning plasma research on existing facilities and plan for research on ITER. As the relevant physics organization in the U.S., the USBPO will guide burning-plasma-relevant physics research pursued by the U.S. community and eventually act as the U.S. ITER physics team. In that role, the USBPO can support the involvement of U.S. researchers in ITPA activities and their interactions with the ITER team. The USBPO is also responsible for outreach to the fusion community, the broader research communities, and the general public for burning plasma research.

The ITER program is undergoing a transition itself and hence many issues have yet to be decided. Discussions are ongoing to redefine the relationship of ITER and the ITPA. It is timely to consider and define the relationship between the USBPO and the ITPA activities on the national scale. Some questions to answer include:

- How can the activities of the USBPO and U.S. members of the ITPA be defined and integrated to avoid overlap and/or duplication in the community?
- How can people know what is going on and how to get involved?
- How can these activities be defined to keep these organizations separate but interrelated, with the understanding that they have different forms of governance and methods of community participation?
- What is the role of the USBPO and ITPA U.S. participants in completing U.S. physics tasks in support of burning plasmas and in support of ITER?

To address these questions and clarify the scope of operations on the national level, this discussion presents the plan for integrating the research activities in the U.S. of the USBPO and U.S. participants in ITPA.

## **Responsibilities and Benefits of Coordination:**

*To support USBPO activities, the U.S. participants in the ITPA will:*

- Act as a critical conduit to the international tokamak and stellarator communities
- Provide a potential main conduit to ITER IO, as this role of the ITPA develops
- Brings results of ITPA activities back to BPO Topical Groups, thereby connecting USBPO groups to the international community
- Provide a conduit for USBPO members to cooperate on international experiments
- Execute BP-research of interest to the U.S. community in the international realm

*To support the activities of the ITPA in the U.S., the USBPO will:*

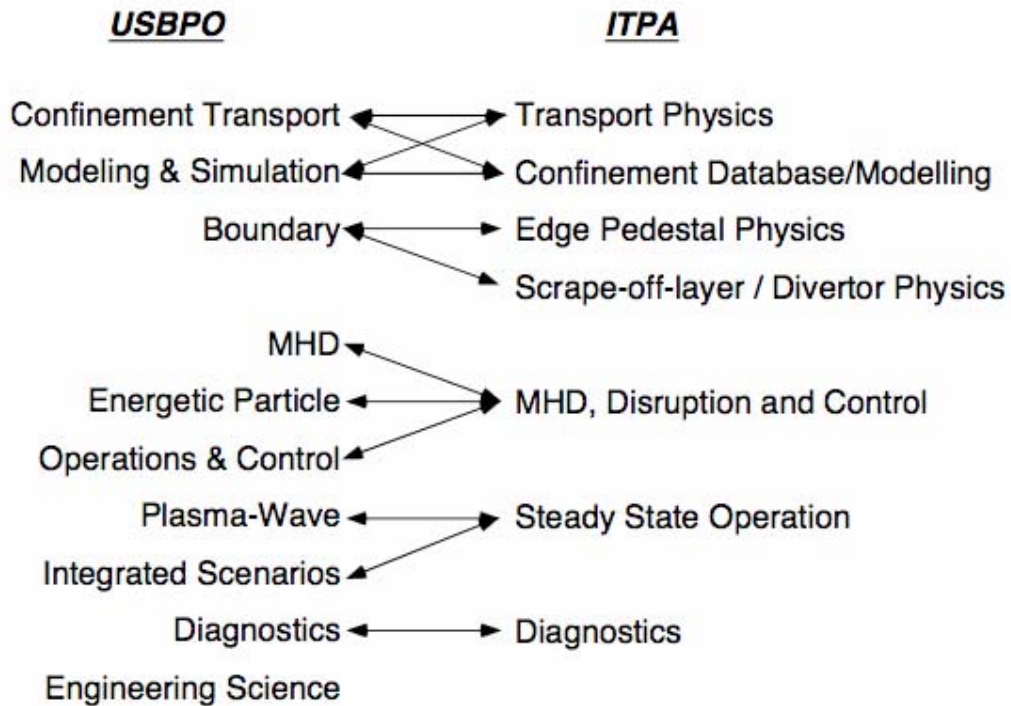
- Provide the national organizational structure for ITPA activities in the U.S.
- Help provide U.S. resources and participants to support ITPA participation
- Provide inputs from USBPO researchers to ITPA activities
- Act as the community entrée to ITPA participation
- Publicize ITPA activities and results to the wider U.S. community
  - Routinely communicate ITPA activities via BPO e-News, web site, etc.
- Support/facilitate execution of priority ITPA research in the U.S., as needed
- Engage broader U.S. community in suggesting new avenues for ITPA activities
- Help nucleate domestic BP research teams to contribute to international activities

## **Action: Integration of ITPA and USBPO activities at the national scale**

The USBPO will be responsible for managing U.S. participation in ITPA activities. It will support, coordinate, and facilitate participation in ITPA activities from the U.S. USBPO Topical Group leaders will work with their related ITPA Topical Group national coordinators to assure maximum benefit of U.S. participation in ITPA activities. Representative responsibilities include: publicizing and aiding preparations for upcoming ITPA meetings; working with the national ITPA coordinators to identify participants as needed; disseminating results from ITPA meetings to the broader fusion community; and acting as the point of contact between the ITPA and the U.S. fusion research community.

To clarify the responsibility for participation in each ITPA activity, the USBPO and national ITPA coordinators will assign responsibility for managing participation in an ITPA Topical Group to one or more related USBPO Topical Groups. The ITPA activities will be then be embedded in the designated USBPO Topical Groups. The ITPA participants will simultaneously be members of their respective Topical Groups of interest. In this role, ITPA activities and interests will be integrated into the BPO Topical Groups. Greatest efficiency of interaction of working level scientists is promoted by having good alignment of the BPO organizational structure, the ITPA organizational structure, and the ITER Science and Technology Directorate structure. The extent to which such alignment can be achieved at any given time will evolve and hence will need to be periodically reviewed. An initial mapping between the ITPA and USBPO Topical Groups is shown in the figure.

**USBPO - ITPA Topical Group Responsibilities:**



Note: There is currently no corresponding ITPA group for Engineering Science. This USBPO Topical Group serves as a crosscutting technical resource for all of the other USBPO groups as required.