

**US Burning Plasma Organization
Meeting of the Council
November 13, 2007 (12:30-2:00 p.m. EDT)
at Rosen Center, Orlando, FL
(during APS Division of Plasma Physics Annual Meeting)**

Council Members in attendance:

Steve Allen
Steve Cowley
Rich Hawryluk
Amanda Hubbard – *Chair*
Earl Marmar
Stan Milora – *US ITER Chief
Technologist*
Martin Peng
Craig Petty
John Sarff
Tony Taylor
George Tynan
Mike Zarnstorff – *Vice-chair*

Ex-officio participants in attendance:

Erol Oktay – *USDOE*
Jim Van Dam – *USBPO Director and
US ITER Chief Scientist*

Others in attendance:

Chuck Greenfield — *USBPO Deputy
Director*
Nermin Uckan — *USBPO Asst. Director
for ITER Liaison*

Unable to attend:

Bill Nevins
Gerald Navratil
Gene Nardella
Dave Petti

MINUTES

1. Roll call

The meeting was called to order at 12:35 EST. Attendance was as noted above, with 12 of the current 15 voting members present for a quorum.

2. Review of minutes from February 27, 2007

Amanda Hubbard opened the meeting by requesting comments or corrections to minutes drafted from the June 13, 2007, Council Meeting. There were no changes suggested. Following up on a discussion at that meeting, it was agreed that these and prior minutes should be posted in a publicly accessible part of the USBPO website, with the proviso that minutes should then not contain sensitive information such as, for example, personnel discussions.

Action: Hubbard to work with Emily Hooks and Jim DeKock to post minutes.

3. Amendments to Charter and Bylaws re non-US members.

Mike Zarnstorff reported on behalf of a Council sub-committee, also including Stan Milora and Bill Nevins, which has worked since the previous Council meeting to resolve the issue of USBPO membership for non-US fusion researchers. Strictly speaking, this is

not permitted in the current charter, which states that a member's home institution must be in the U.S.

The sub-committee's sense of the Council discussions in June was that there should be a third category of membership, allowing foreign researchers to participate but without full privileges such as voting and leadership. The sub-committee had drafted and circulated to Council in advance of this meeting proposed changes to the Charter and Bylaws to reflect this.

The amendments are as follows:

Charter: In the Membership section, the first sentence is amended to refer to *Regular* membership. A new sentence is added: "Associate Membership in the USBPO is open to active fusion researchers whose home institution is outside the U.S."

Bylaws: In the section on Council Membership, the sentence on development of a slate of candidates is amended to add "drawn from the USBPO Regular Membership". The section also now states that "Voting will be open to the USBPO Regular Membership".

In discussion, it was stated that the intent of Council is that Associate Members will be able to fully participate in all technical activities of the USBPO. The only distinction is that they will not be able to vote for Council members or serve in USBPO leadership roles. Most felt that the proposal was a reasonable compromise.

A motion to accept the amendments to the Charter was proposed by Rich Hawryluk and seconded by Steve Allen, and passed unanimously. A motion to accept the amendments to the Bylaws was proposed by Rich Hawryluk and seconded by George Tynan, and also passed unanimously. The revised versions of both documents are appended to these minutes for future reference, and have been posted on the USBPO website.

Action: Jim Van Dam and Jim DeKock will now contact those foreign researchers who have enquired about USBPO membership and invite them to join as Associate Members. They will have access to the USBPO forum and receive mailings to the membership. The new membership category will also be publicized in the upcoming e-news.

4. Strategic Planning: Status report from Sub-committee on US-ITER Participation

Earl Marmar reported on the progress of the Council sub-committee, which has been working since summer 2007. The sub-committee has been divided into half a dozen subgroups to work on chapters based on scientific topical areas. Original panel members Cary Forest and Dennis Whyte have been asked to serve on the NRC "Committee to Review U.S. ITER Science Participation Planning Process", which will review the EPAct report, and have thus resigned from the panel to avoid a conflict of interest. Remaining members are Steven Allen, Michael Bell, Steve Knowlton, Farrokh Najmabadi, Hutch Neilson, Martin Peng, Philip Snyder, Ted Strait, George Tynan and Nermin Uckan. It

was noted that this leaves some gaps in expertise, and one or more new members may be added.

Marmar noted that the pace of this activity is increasing and the group is aiming at a report in a few months. They do not expect major departures from the 2005 EPAct report, but will add more detail and reflect the evolving integrated research program plan of ITER. This research plan is now under development by the ITER Team, with input from an international working group including US members Michael Bell, Ed Synakowski, and Mickey Wade. An issue is that this ITER document may not be available in time for use by the Council sub-committee.

Marmar, along with the USBPO Director, have been invited to give presentations at the December 14 meeting of the CRISPP committee of the National Research Council. Council Members Mike Zarnstorff and Tony Taylor are members of this review committee, and they stated that they would likely have to take a temporary leave of absence from Council activities from this time until the conclusion of the panel's work, which is expected to be in Spring 2008, to avoid a potential conflict of interest.

In discussion, Erol Oktay commented that he sees the report of the Council's sub-committee as a "living document", which will be regularly revised. Marmar and others agreed, but it was noted that the current Council sub-committee will not continue indefinitely.

4. Proposal for terms of current Council members

Amanda Hubbard noted that at the last Council meeting, it was agreed that the current Council members should have staggered terms, to bring the number and rotation of members in line with that defined in the Bylaws. She proposed a division of terms, as follows:

Terms ending:

<u>Spring 2008</u>	<u>2009</u>	<u>2010</u>
Steve Allen	Rich Hawryluk	Amanda Hubbard
Steve Cowley	Bill Nevins	John Sarff
Earl Marmar	Martin Peng	Tony Taylor
Gerald Navratil	George Tynan	Mike Zarnstorff
Dave Petti		
Craig Petty		

There was a brief discussion of this and general agreement, although it was noted that the terms of the Vice-Chair and Chair would end at the same time.

A motion to adopt these terms was made by George Tynan, seconded by Martin Peng, and passed unanimously.

Action: Hubbard will ask Emily Hooks and Jim DeKock to add these terms to the Council section of the website. She and the USBPO Directorate will also consider how best to hold the needed election for new members. This will be a subject for the next Council meeting.

5. Update on USBPO activities and plans

Deputy Director Chuck Greenfield and Director Jim Van Dam gave a summary of USBPO activities since the last Council meeting.

Main topics covered by Greenfield included:

- *Input to the NRC review.* Chuck was invited to give a talk to the NRC panel which is setting up the CRISPP review, at a meeting on September 29th. This focused on the contributions to ITER via the Design Review. Reaction from the committee was favorable.
- *Research Committee rotation.* It is planned to stagger the terms of the current Topical Group Leaders and Deputy Leaders, in a manner similar to that being done for the Council. About half of these terms will end in summer 2008, and the rest in summer 2009. A few RC members have expressed a preference for the shorter term.

Action: Greenfield and Van Dam will propose a division of terms, and later a slate of replacements for those leaving. These will be circulated to the Council for comment.

Topics covered by Van Dam included:

- *USBPO presence at this APS-DPP Meeting.* There will be a significant USBPO presence during the 2007 APS-DPP meeting. Guenter Janeschitz is the keynote speaker at a town meeting on the ITER Design review on Tuesday evening, to be followed by more details on US contributions by Rich Hawryluk and Ron Stambaugh. Van Dam will be giving a Tutorial on Burning Plasmas on Wednesday. A mini-conference on the 'First Microns of the First Wall' was organized by ECC with BPO support. In advance of the meeting, a list was compiled of burning plasma-related contributions (invited/contributed talks & posters). These included 8 invited talks (one by a BPO TG leader), 10 oral contributed, 58 posters, 1 review talk (by a BPO TG leader), 1 tutorial (BPO leader) and 22 talks at mini-conferences. Also, some of the USBPO Topical Groups are getting together during the meeting.
- *ITER Design Review* (with input from ITER liaison Nermin Uckan and ITER Design Review WG1 member Rich Hawryluk): This has remained the most active area for the USBPO in recent months, leading up to the nominal completion of the review this month. Following the guidance from USIPO in June regarding funding for Design Review work, BPO helped compile the list of experts for the activity. USBPO arranged numerous videoconferences on technical issues, as well as briefings for US members of the ITER Science and Technology Advisory Committee on these issues in advance of the STAC meetings. Van Dam is a member of the STAC. Dennis Whyte attended the first meeting on Sept. 5-6 in his stead. Many of the recent Research Committee

meetings have also focused on preparation for, and reports from, Design Review and STAC meetings. It is expected that there will be calls for follow-up activity in coming months.

- *Outreach Activities:* Ned Sauthoff and Ray Fonck have requested that USBPO help prepare burning plasma outreach and promotional materials, to be used, for example, at the AAAS meeting in February 2008. A small working group has formed, including Don Batchelor and Nermin Uckan. Council members had some ideas about people and resources. Further suggestions, and members of the working group, from Council would be valuable.

Action: Interested Council members to volunteer to Jim Van Dam to participate in outreach activities and/or provide useful materials.

- *BPO communications:* It was noted with approval that the USBPO e-News has been published more regularly each month. This newsletter, which is being edited by Raffi Nazikian, is an important means of communication with BPO members and other interested members of the fusion community.
- *Other recent activities:* Van Dam and others have represented USBPO at numerous fusion community meetings, including the June ITPA Coordinating Committee meeting and the July FESAC meeting, as well as a NIFS symposium on high performance computing initiatives and the US-Japan Coordinating Committee for Fusion Energy annual meeting, both in September. USBPO Topical Leaders were also strongly represented, by design, at the National Tokamak Planning Workshop held at MIT in September.
- *Planned Activities.* After discussion with organizers Bill Dorland and Steve Cowley of the Center for Multi-Scale Plasma Dynamics (CMPD) about a burning plasma winter school, it has been decided that a few BPO lectures will be included in the January 2008 winter school. CMPD is also considering a separate spring school on burning plasmas. Nermin Uckan will present the USBPO talk at the Fusion Power Association annual meeting at ORNL (Dec. 4-5).

6. Update and discussion re ITPA

Erol Oktay gave a brief presentation of recent developments regarding ITPA and its relationship to ITER. At its June 2007 meeting the International Fusion Research Council of IAEA extended its sponsorship of the ITPA for another year in order to allow for deliberations about ITER Organization (IO) sponsorship of ITPA in the future. The status of defining the ITPA interactions with the IO is pending an invitation from the IO to the ITPA Chair to adopt its charter for this purpose.

At its July meeting, the ITER Interim Council approved the IO request to establish a 'Framework' for interaction between the IO and the fusion scientific communities of ITER Members. This Framework might include ITPA. The ITPA Coordinating Committee will start deliberations on the adoption of its charter as soon as the IO

requests ITPA to do so. This process is expected to be completed in the next few months. It is anticipated that the structure of the ITPA Topical Groups might be modified to respond to the current physics needs of ITER and that the ITPA Topical Group membership might be updated accordingly. The USBPO will be expected to make recommendations for the U.S. membership on the ITPA Topical Groups.

Oktay commented that, based on the anecdotal experience of the recent ITPA meetings, the flow of information between the U.S. members of ITPA and the USBPO appears to be occurring through their dual membership in ITPA and USBPO, rather than through an organized process, and felt that this interaction needs to be improved.

Lack of time at the meeting, which was constrained by the schedule of the APS-DPP Meeting, prevented much discussion by Council of this important topic, which will be taken up at the next Council meeting.

(Note: The expected request from IO to the ITPA CC did occur soon after the Council meeting, and as of late December the revised ITPA Charter is near completion. A discussion of its implications for USBPO will thus be timely.)

7. Any other business

Amanda Hubbard opened the floor to other business. None was brought up.

The meeting was adjourned at 2:00 p.m. EDT.

Charter for the U.S. Burning Plasma Organization

As amended November 13, 2007

Introduction

The US Department of Energy (DOE) Office of Fusion Energy Sciences (OFES), in consultation with the Magnetic Fusion Energy (MFE) research community, created¹ the U.S. Burning Plasma Organization (USBPO) to achieve the following mission:

Advance the scientific understanding of burning plasmas and ensure the greatest benefit from a burning plasma experiment by coordinating relevant U.S. fusion research with broad community participation.

To accomplish this objective, the USBPO serves the community as the principal organizing body for burning plasma (BP) research activities. It works with other domestic and international fusion R&D bodies to promote, coordinate, prioritize and facilitate the execution of these activities in the U.S., within programmatic and budgetary guidance from OFES. These activities include research in support of the ITER project during construction, and experiments on ITER during operations, research using existing experimental facilities to address BP-relevant issues, development and support of new or upgraded domestic and international experimental facilities, and associated theory and computation that are relevant to BP science and technology. The USBPO also promotes interest and participation in burning plasma research to the broader science and technology communities.

The USBPO is structured to carry out these multiple roles in coordination with the ITER Project and other major MFE program elements. This Charter describes the scope of activities and the overall structure of the USBPO.

Organization and Functions of USBPO Components

The USBPO is composed of a Membership that is distributed into Topical Groups (TGs), a Council, and a Directorate.

Membership

Regular Membership in the USBPO is open to researchers and graduate students who are active in burning plasma science and technology research, and whose home institution lies within the U.S.. Associate Membership in the USBPO is open to active fusion researchers whose home institution is outside the U.S.. Membership in the USBPO is established by joining one or more Topical Groups and participating in the research activities of those groups. As such, members are expected to join and participate in one

¹ OFES charge letter to form USBPO.

or more Topical Groups. Membership renewal may be requested periodically. Other interested parties may register to receive published information from the USBPO.

Topical Groups and Task Groups

The Topical Groups represent the resources and expertise of the USBPO. They exist to address the science issues of burning plasmas and provide a venue for community-based burning plasma research. The Topical Groups are the main organizational components of the USBPO, and the center of activity for members of the USBPO. Each group is comprised of fusion community researchers with common interests and expertise in fusion science and technology (e.g., Confinement and Transport, Plasma-Wave Interactions, etc.). These groups provide the knowledge base and research capabilities for the BPO for addressing specific burning-plasma related issues. The Topical Groups stimulate, support, organize, define, and execute burning plasma-related research tasks in the U.S. fusion program. Topical Groups can pursue research tasks within each given group and develop crosscutting research tasks that involve expertise from two or more groups. Topical Groups are the entry point and main focus of activity for U.S. fusion community participants in USBPO research activities.

A Leader and one or two Deputy Leaders lead each Topical Group. They organize, plan, and coordinate the group's efforts to address priority technical issues. These leaders and deputies represent the U.S. Topical Group's activities to the USBPO and to international burning plasma research activities associated with the ITER organization and other international organizations, including the International Tokamak Physics Activity (ITPA).

Task Groups focused on very specific BP issues that cut across the Topical Group boundaries may be formed to carry out work to address those issues.

Directorate

The USBPO Directorate is composed of the Director, Deputy Director, Research Committee, and support staff. The Director of the USBPO has overall executive responsibility of the USBPO, and is assisted in this role by a Deputy Director. At his/her discretion, the Director can delegate tasks and responsibilities to the Deputy Director. With the review and approval of the Council, the Director proposes, reviews, and updates the Topical Group subject areas.

The leadership of the Topical Groups together with the Director and Deputy Director forms the Research Committee, which coordinates, prioritizes, and manages the Topical Group activities. The Research Committee is led by the Director or his/her designate., The Research Committee will generally focus on nearer-term burning plasma research activities, but will also contribute to long-term strategic planning of burning plasma research in collaboration with the Council.

Council

The Council represents the U.S. MFE research community in providing oversight of the USBPO activities, and, working with the Directorate, is the primary USBPO element responsible for long-term strategic planning of burning plasma research. The Council is responsible for setting the policies and procedures of the USBPO, including establishing the by-laws governing USBPO operations. It will receive regular reports on USBPO activities from the Director, and will provide feedback and assessment on those activities to the Director regarding progress, issues, priorities, and opportunities. When required, a simple majority vote of the Council shall serve to designate Council approval of a decision. When Council comment and recommendations are required, the Council Chair and/or Vice-Chair will work to convey the sense of the Council to the Director and the OFES.

Amendments and Bylaws

Amendments to the USBPO Charter may be proposed by the Director or by the Council Chair, in consultation with OFES, and presented to the Council for approval. A two-thirds majority vote of the Council is required for their acceptance. These approved changes shall then be submitted to the OFES for final approval before implementation.

Additions and changes to the bylaws governing the routine operation of the USBPO can be proposed by the Directorate or the Council, and shall be enacted upon a simple majority vote of the Council and approval of the Director and OFES.

Bylaws for the US Burning Plasma Organization

As amended November 13, 2007

1. Directorate

The USBPO Director is appointed by and serves at the pleasure of the Associate Director of the OFES. The Director does not have a fixed term, but will be periodically reviewed by the OFES. The USBPO Council will be called upon to develop a slate of candidates to aid in the selection of the person to serve in this position.

The Deputy Director is chosen by the Director and OFES, with input from the Council, and serves at the pleasure of the USBPO Director. The Deputy Director nominally serves a three-year term and can be reappointed.

The USBPO Director and Deputy Director are expected to be accomplished leaders well versed in the science and technology of burning plasma research.

2. Research Committee

Each Topical Group in the USBPO shall have a Leader and no more than two Deputy Leaders. The Leaders and Deputy Leaders of the Topical Groups are members of the Research Committee.

Normally these individuals shall not concurrently be members of the Council. They shall serve two-year terms, renewable once. After serving two full two-year terms as Topical Group Leader or Deputy Leader, a person is ineligible for two years to become the Leader or Deputy Leader of the same Topical Group.

The Director is responsible for appointing the Topical Group Leader and Deputy-Leader(s) for each Topical Group, with the advice of the Council and in consultation with the OFES program manager for the USBPO. The candidates for these positions will be developed on the basis of nominations by the membership of the respective Topical Group, discussion with the Research Committee members, and community input as appropriate.

3. Council

Council Membership

The Council has 12 regular members who shall serve staggered terms of three years each. Council members shall not serve consecutive terms.

Elections for Council members from the USBPO community shall be held annually to replace half of the members whose terms are ending. The remainder of the open Council seats shall be filled by appointment, as described below. At least one month prior to the

election, a small nominating committee with members from both the Council and Research Committee, appointed by the Director and Council Chair, will solicit nominations for the Council from all USBPO members. This committee will put forward a slate of candidates, drawn from the USBPO Regular Membership, to the Council Chair and Vice-Chair, who will then work with the Director's staff to hold an election for the open Council seats. Voting will be open to the USBPO Regular Membership, and open seats filled by those candidates who receive the most votes. In order to maintain institutional balance on the Council, no more than two Council members may be from the same home institution. In the event that the election results would otherwise violate this criterion, the third and subsequent people from a given institution will not be elected.

Following the Council election, the Director, in consultation with the OFES and the continuing or incoming Council Chair and Vice-Chair, shall appoint the balance of the new Council membership, normally two members, in order to ensure broad community representation.

In addition to the members already described, two people will be ex-officio members of the Council with voting privileges: the Chief Technologist and Chief Scientist (if different from the USBPO Director) of the U.S. ITER Project Office. The ITER Science Officer and the ITER Technology Officer at OFES, and the USBPO Director, will be ex-officio participants in Council meetings without voting privileges. At the discretion of the Council Chair other individuals may be invited to participate in Council meetings, but will not be voting members.

Council Leadership

The Council is led by a Council Chair, who is selected from the continuing and incoming Council members by the Director and OFES. A Council Vice-Chair, who is chosen by the Director, OFES, and the Council Chair from among the continuing and incoming Council members, assists the Council Chair. The Chair and Vice-Chair each serve a three-year term, continuing their service on the Council, from the time they assume these positions; thus these Chair and Vice-Chair service periods may supersede the nominal Council member term limit. A serving Vice-Chair can become the new Council Chair.

Council Decision-Making

A quorum of the Council is defined as at least 60% of the total Council membership, including voting ex-officio members. A quorum must be available, either in person or remotely, for discussion and debate when a Council vote is required on issues that are discussed in formal Council meetings. Council approval shall consist of a simple majority of those participating in the Council meetings. On specific issues identified in advance by the Council Chair, voting by e-mail may be permitted. In such cases a quorum of the Council must respond with a vote in order to render a decision; a simple majority of this quorum shall suffice to approve a matter being considered by e-mail voting. For changes to the USBPO Charter, a quorum of the Council members must be available to participate in the discussion and to vote. E-mail voting will not be permitted in decisions to change the Charter.