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*Dear Burning Plasma Aficionados:*

This newsletter provides a short update on U.S. Burning Plasma Organization activities. E-News is also available online at <http://burningplasma.org/enews.html> Comments on articles in the newsletter may be sent to the editor (R. Nazikian [rnazikian@pppl.gov](mailto:rnazikian@pppl.gov)) or assistant editor (Emily Hooks [ehooks@mail.utexas.edu](mailto:ehooks@mail.utexas.edu)).

Thank you for your interest in Burning Plasma research in the U.S.!

## **Director's Corner** by J. Van Dam

### **On the Way to the IAEA**

This month's column is being written in the airport while I wait for my plane to Geneva, Switzerland, bound for the 2008 IAEA Fusion Energy Conference—as I suspect many of you may be, also. The biennial IAEA Conference is the Big Kahuna of international fusion science meetings. For months, US scientists, including many from the USBPO, have been preparing talks, posters, and papers for this meeting. Now the time has come. The conference begins Monday, October 13, with a special session devoted to commemorating the birth of the modern fusion era of open international collaboration, which occurred at the 2nd Conference on the Peaceful Uses of Atomic Energy (“Atoms for Peace”) exactly 50 years ago. ITER, the flagship of burning plasma R&D, will be represented with a dedicated session of invited talks and posters. I'd like to note that two of the nine oral ITER talks will be given by US scientists: Rich Hawryluk (USBPO Council member) will describe the overall status of the ITER design review and STAC issues work activities, and Chuck Kessel (USBPO topical group leader for integrated scenarios) will describe ITER scenario modeling results. In the ITER poster session, US scientists will present five out of the 40 posters from the ITER Organization and its seven international Partners, as well as three of the 11 posters about ITPA results for ITER. I'm definitely looking forward to this conference, to be held in Geneva, which advertises itself as the “world's biggest small city.”

### **CRISPPP Report**

The pre-publication version of the CRISPPP (count the p's) report, from the NRC Committee to Review the US ITER Science Planning Participation Process, dated July 29, is available online at <http://www7.nationalacademies.org/bpa/CRISPPP.html>. A week ago, on October 6, a briefing about the report was held at DOE Germantown for Dr. Pat Dehmer, Deputy Director of the Office of Science. The presenter was Mike Zarnstorff, a member of the CRISPPP committee. In addition to OFES program managers, others in attendance were Don Shapero and David Lang, both from the National Research Council, and yours truly, on behalf of the USBPO. The report is fairly complimentary about the US ITER planning process to date. It recommends several further considerations, such as informing the non-fusion scientific community about ITER, workforce training, planning for DEMO, and enabling broad academic and industrial participation. The report also encourages the regular use of metrics to evaluate future progress. The final version of the report, in normal NRC glossy binding, should be published in 4-6 weeks.

### **Burning Plasmas at the APS-DPP Meeting**

Next month, November 17-21, will be the 50th Annual Meeting of the Division of Plasma Physics, to be held in Dallas, TX. Congratulations to the DPP on its semi-centenary! As noted in previous *eNews*, the USBPO will sponsor several events during this meeting.

One such event is a special "Town Meeting on ITER" (Session LE2), to be held Tuesday evening, 7:30-9:30 p.m. in the Landmark A ballroom. The speakers for this evening session are Dr. David Campbell (ITER Organization), who will review the scientific status of ITER; Dr. Charlie Baker, a US member of the ITER Council's Management Advisory Committee and also chair of the Technical Advisory Committee for the US ITER Project Office, who will comment on the programmatic, management, and organizational aspects of ITER; and myself, to briefly describe aspects of the US involvement in ITER R&D issues. Amanda Hubbard, chair of the USBPO Council, will chair this Town Meeting.

Another event is a contributed oral session (Session GO3) entitled "Research in Support of ITER," to be held Tuesday morning, 9:45 a.m.–12:33 p.m., in the Reunion A room.

<http://meetings.aps.org/Meeting/DPP08/SessionIndex2/?SessionEventID=92210>

The session will consist of 14 ten-minute talks, including several from international groups. Chuck Greenfield, USBPO deputy director, will chair this session. (Thanks to him and Mickey Wade, who organized this session with the DPP Program Committee.)

Also on Tuesday, the USBPO Council will hold a lunchtime meeting.

Please mark Tuesday, November 18, during the DPP Meeting as Burning Plasma Day on your calendars.

### **STAC-5 Meeting**

The fifth meeting of the ITER Council's Science and Technology Advisory Committee will meet in Cadarache October 20-22, the week after the IAEA Fusion Energy

Conference. One of the items on the agenda is a discussion of Work Plans proposed by the ITER Organization. These work plan draft documents are intended to be descriptions of how the ITER Research Plan could be implemented, in particular the urgent R&D that is needed during the next 2-3 years. An international teleconference of scientific representatives from the seven ITER Partners (in which I participated) was held early in the morning (US time) on October 1 in order to review these documents with ITER scientific officers. A week later, for the benefit of the five US members of the STAC, the USBPO organized a marathon five-hour videoconference briefing, with about 20 US technical experts providing background information and updates. We very much appreciate their participation in this briefing.

### **New Logo for the USBPO**

Our esteemed founding director, Ray Fonck, had humorously noted to me last year that the original USBPO logo (a catchy depiction of colliding deuterium and tritium nuclei) was problematic due to its non-conservation of momentum. Our USBPO administrator, Emily Hooks, initiated a quest to come up with a new logo, working closely with a professional graphics designer. After several rounds of ideas and iteration, with helpful input at each step from the Executive Committee members, we are happy to unveil a new logo. In my humble opinion, it conveys both physics and aesthetics. Emily has now started on a design for a banner, for use on the USBPO web site. We are grateful for her work.



## **🔔 Announcements**

*Submit BPO-related announcements for next month's eNews to Raffi Nazikian at [rnazikian@pppl.gov](mailto:rnazikian@pppl.gov).*

## **Reports**

### **Report on ITER Heating and Current Drive Capability**

by C. Kessel

An effort to examine in detail the heating and current drive capability from the various ITER sources (ICRF, EC, NNBI, LH), planned for Day-1 and in the upgrade contingent, is beginning. This is intended to improve the development of the ITER research and operational planning. The effort has some basic elements; 1) identify source characteristics, 2) identify issues and risk associated with the sources, 3) gather existing

analysis of the sources' capabilities, 4) establish a set of reference plasmas (for example, 15 MA ELMy H-mode, Hybrid, Steady State, rampup, hydrogen, deuterium, and lower Bt) for new analysis, 5) perform new analysis of sources with varying levels of physics fidelity as appropriate for a given source.

Within the BPO the Integrated Scenarios, Wave-Particle Interactions, and the Modeling and Simulations groups will coordinate the US contribution. In addition, it is expected that much of this work will be done within the existing ITPA - Integrated Operation Scenarios group, which would involve experimentalists and modelers outside the US as well. Ultimately, the ITER Organization would also play a critical role in providing appropriate guidelines and boundary conditions for the analysis.

## **2008 BPO-Related Meetings**

Oct 12-18

[22<sup>nd</sup> IAEA Fusion Energy Conf - 50th Anniversary of Controlled Nuclear Fusion Research](#)

Geneva, Switzerland

Oct 20-25

[11<sup>th</sup> Int'l Conf on Electrostatic Precipitation \(ICESP-XI\)](#)

Hangzhou, China

Oct 20-22

[ITPA Transport & Confinement and Pedestal & Edge Topical Group Mtg](#)

Milan, Italy

Oct 20-22

ITPA MHD Stability, Energetic Particles, & Integrated Operation Scenarios Topical Group Mtgs

Lausanne, Switzerland

Nov 9-13

[ANS Winter Meeting](#)

Reno, NV

Nov 17-21

[50<sup>th</sup> APS-DPP](#)

Dallas, TX

Nov 17-21

ITPA Diagnostics Topical Group Mtg

IPR, India

Nov 23-25

MHD Control Wksp

Austin, TX

Dec 3-4

[Fusion Power Associates](#) Annual Meeting and Symposium, "Fusion Energy: Countdown to Ignition and Gain"

Livermore, CA

Dec 9-12

18<sup>th</sup> International Toki Conference

Toki-City, Japan

Dec 10-12

[Int'l HHFC Wksp on Readiness to Proceed from Near Term Fusion Systems to Power Plants](#)

UCSD, La Jolla, CA

Dec 11-13

ITPA/IEA Joint Experiment Coordination Mtg

MIT

*Begin submitting your **2009** events **now** to Emily Hooks at [hooks@burningplasma.org](mailto:hooks@burningplasma.org).*

For more Fusion Research-related events, visit the USBPO Upcoming Events page online at

<http://burningplasma.org/events.html>.