Newsletter, February 1994

Chairman's Message

The Fusion Energy Division is pleased to carry out one of its main functions which is to provide a forum for discussion and a place to publish fusion energy topics, by holding the 11th Topical Meeting on the Technology of Fusion Energy, June 19-24, 1994 in New Orleans with the papers published in the ANS journal Fusion Technology. The Third International Symposium on Fusion Nuclear Technology (ISFNT-3), June 27-July 1, 1994 at UCLA while not sponsored by the ANS because of its closeness to the Topical in New Orleans the week before should be of much interest to members. Plan ahead for participation in the 12th Topical Meeting on the Technology of Fusion Energy, June 16-20, 1996 in Reno. Both these topical meetings are embedded in the annual ANS meeting. We need ideas on how the Fusion Energy Division can better serve its members needs. Input is welcome. We particularly need ideas in two areas: how to get increased funding for fusion energy and how to make the energy embodiment of fusion more competitive with future alternatives. The impending construction of a new hydrogen tokamak (TPX) following the recent tritium burning success in TFTR, along with increasing commitments to ITER and the need to greatly increase funding for the energy application of inertial confinement fusion, will put a great strain on the anticipated funds dedicated to fusion energy research and development. Ideas on how to "grow the budget" are urgently needed. One idea, put forward by S. L. Bogart and R. P. Hora of General Dynamics is called the "Amortizing Fund" where a small fee of perhaps 1% added to the electricity bills across the country would go into a government sponsored corporation to fund electricity producing research and development. The idea is to gets much of the energy R & D off the federal budget and this 1% is estimated to result in $3B/year, enough to advance a number of fission, fusion and renewable energy options. For more information see the Spring 1993 issue of The Bent, the Tau Beta Pi journal or the reproduced article in J. Fusion Energy 11 no. 3/4 (1992) or for a copy call Bogart (619) 974-1122 and see the December 1993 issue of Fusion Power Associates newsletter. Ideas are welcome - send them in.

Fusion Power Associates newsletters are an excellent source of information on events in fusion, particularly from Washington, that are of vital interest to our members. Monthly newsletters are available to all members of the ANS Fusion Energy Division at a cost of $40 per year ($10 for students). In addition to its monthly newsletter, FPA testifies to Congress, interfaces with the national press, holds an annual meeting (the proceedings of which are published in the Journal of Fusion Energy) and gives several annual awards for technical and managerial leadership. For more information, contact Dr. Stephen O. Dean, Fusion Power Associates, tel (301)258-0545; fax (301)975-9869; e-mail 72570.707@compuserve.com.

Ralph Moir, Chairman

ANS Policy Statement on Fusion Energy.....

The FED membership is invited to comment (by April 1, 1994) on the attached Draft ANS Policy Statement on Fusion Energy, prior to its finalization. Comments and questions should be directed to: Dr. Ronald Miller/TSA-3 MS-F607/Los Alamos National Laboratory/Los Alamos, NM 87545 (or u504@f.nersc.gov).

Declassification of ICF.....

After a 3-year review, DOE announced on December 7 that many aspects of previously-classified work on inertial confinement fusion would be declassified. Declassification makes it possible for researchers to talk about aspects of laboratory inertial fusion experiments, including things such as target materials, configurations and dimensions, and experimental results. Still classified are data about inertial fusion experiments that took place outside the laboratory enviromnment (including underground nuclear explosions), and certain aspects of the calculational methods and data used in analyzing ICF experiments (including the LASNEX code).

This should greatly facilitate technical communication about ICF and should encourage publication of papers on a lot of very interesting work. It also should make international cooperation a lot easier. There remain data that

are still classified, and the National Labs will probably continue to do a lot of work in those areas. Energy applications of Inertial Fusion, however, should benefit a lot from the declassification.

DT Burned in TFTR.....

A major milestone for fusion was achieved at TFTR in Princeton, when the first set of high power D-T experiments was completed on December 10, 1993. The maximum fusion power was about 6 MW. As of Dec. 21, the number of D-T shots was:

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Trace tritium experiments (<2% mixtures)   59
Tritium gas puffing experiments            13
Tritium neutral beam experiments           27
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Experiments have been performed on the confinement of a D-T plasma, recycling of hydrogenic species from the walls, and checkout of diagnostics in a D-T environment. U.S. Department of Energy Secretary Hazel O'Leary called the recent result in TFTR the "most significant achievement in fusion energy" in 20 years.

ITER News.....

"Protocol 1" of the Engineering Design Phase of ITER has been in effect since July 1992, and is scheduled to end on March 21, 1994. (Protocol 1 includes initial design and R&D work, work assignments to the home teams, staffing of the joint central teams, etc.) The ITER Joint Central Team released a preliminary design report in December, in preparation for the TAC-4 (**T**echnical **A**dvisory **C**ommittee) meeting. The ITER Council also met in January and gave conditional acceptance of the design, which provides the basis for proceeding to Protocol 2. Protocol 2 is scheduled to begin in March (following official signing) and remain in force through the end of the project (July 1998).

Fusion Engineering Division of the Atomic Energy Society of Japan.....

The Fusion Engineering Division of the Atomic Energy Society of Japan was established on April 1, 1993. The ANS FED looks forward to joint activities with our Japanese counterparts in the future, including cosponsoring the 12th Topical Meeting in Reno in 1996.

11th Topical Meeting on Fusion Technology.....

The Division is sponsoring its next regular Topical Meeting, the eleventh since 1974, at the New Orleans meeting on 19-23 June. This will be embedded in the National ANS meeting, so there will be an opportunity to interact with people in many related nuclear technologies that are not part of the fusion program but are of interest to some of our members. It will also allow those involved in other fields to get a glimpse of what is happening in fusion. The recent success on the TFTR at Princeton, with its attendant publicity, should pique the interest of many of the National Meeting attendees.

Also, the recent declassification of much of inertial confinement fusion (ICF) research has allowed us to organize unprecedented sessions in this field. We anticipate new insights into ICF, during both the plenary session and invited sessions on inertial fusion experiments. A session on the inertial fusion National Ignition Facility, which is just now in the last stages of conceptual design, is also planned. It is possible that by the time of the meeting even more of the ICF physics and technology will be declassified, and thus further enrich the content of the technical sessions.

Two panel discussions will focus on the role of industry in fusion and an alternate view for the future of fusion development. Special sessions are planned for TPX, ICF results and the National Ignition Facility, and ITER in-vessel component design. Other sessions include: ICF and magnetic fusion reactor conceptual design, divertor design, plasma facing components, magnets, tritium and fuel cycles, alternate concepts, blanket and shield, and safety and environment.

Is there anybody out there?.....

We like to hear from our division members. If you have any newsworthy items, we will consider printing them in the next newsletter. If you have any comments or criticisms about the newsletter, its contents, the way the division is being run, or even if you just heard a funny story, let us hear from you. Contact the Newsletter editor, Mark Tillack, 44-136 E-IV, MANE Department, UCLA, Los Angeles, CA 90024-1597, FAX: (310) 825-2599, or INTERNET: mst@fusion.ucla.edu.

Calandar of Upcoming Conferences.....

1994

ANS Annual Meeting, New Orleans LA, June 19-23

11th Topical Meeting on the Technology of Fusion Energy, New Orleans LA, June 19-23

ISFNT-3, Los Angeles CA, June 27-July 1

18th Symposium on Fusion Technology, Karlsruhe Germany, Aug. 22-26

ANS Winter Meeting, Washington DC, Nov. 13-17

1995

ANS Annual Meeting, Philadelphia PA, June 25-29

NURETH-7, Saratoga Springs NY, Sept. 10-15

16th IEEE Symposium on Fusion Engineering, Urbana IL, Sept. 30-Oct. 5

1996

ANS Annual Meeting, Reno NV, June 16-20

12th Topical Meeting on the Technology of Fusion Energy, Reno NV, June 16-20