Sandia National Laboratories

and the

Office of Fusion Energy Sciences (US Dept. of Energy)

are pleased to host the

2003 US-Japan Joint Workshop

on

High Heat Flux Components and Plasma Surface Interactions for Next Fusion Devices

&

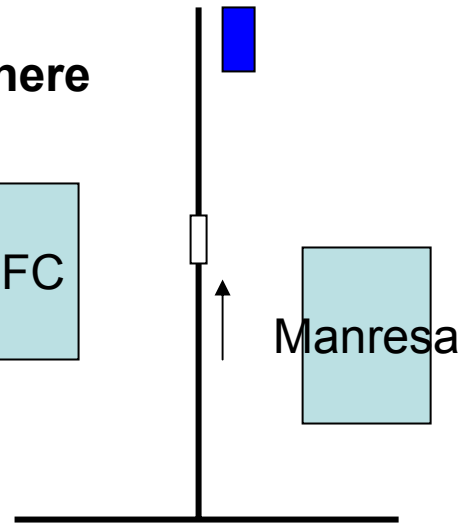
Fusion High Power Density Devices and Design

WELCOME

Workshop Agenda

About our location

- **Long way from airport**
- **Nice surroundings and casual atmosphere**
- **Shuttle bus**
  - **#3 bus runs into town**
  - **bus stop is above hotel**
  - **20 minute ride**
  - **pickups at XX:24 and XX:54**
  - **a map and schedule are posted**



About our location

I grew up near Seattle and also worked for several years at Hanford.

I have hiked and sailed and enjoyed the area.

Please feel free to ask me about sightseeing if you will be staying over the weekend.

A Brief History of our Workshops and Meetings

High Heat Flux Components & Plasma Surface Interactions for Next Fusion Devices

- (1st) "Plasma-Wall Interaction Data Needs Critical to a Burning Core Plasma Experiment," Livermore, June 1985
- Prof's. Miyahara, Hino, Yoshida, Motojima and Noda in Japan and Dr's. Gauster, Wilson, Whitley, Ulrickson and Nygren in the US, plus ministry and DOE sponsors, have promoted this workshop.
- Recent workshops: Nagoya University, Nagoya (Dec. 2002) and Asilomar Conf. Center, Monterey (Dec. 2001)
- Published initially as bound compilations of viewgraphs and more recently as website postings.

Fusion High Power Density Devices & Design

- (1st) "US-Japan Workshop on High Power Density Devices and Designs," San Diego, February 1997
- Prof. Toda in Japan and Dr. Wong in the US, plus ministry and DOE sponsors, have promoted this workshop.
- Recent workshop: UCLA, Los Angeles, (Oct. 2002) and Tokyo, Japan (Feb. 2000)
- Published initially as bound compilations of viewgraphs.

Int'l Workshop on Innovative Concepts for Plasma Interactive Components in Fusion Devices

- 1st workshop held in Osaka (May 2002), promoted by Prof. Hirooka, published in Fusion Eng. & Des. (Apr 2003).

IEA Working Group on Plasma Facing Components*

- IEA approval still ongoing, promoted by Dr. Berk (USDOE).

*Revised Annex II, Implementing Agreement on Nuclear Technology of Fusion Reactors

- PSI Conference
- ICFRM
- SOFT, ISFNT, SOFE, ANS
- EPS, APS, Toki Series
- IAEA Tech. Mtgs.
- ITER Project meetings
- and more

A Brief History of our Workshops and Meetings

In 2002, the US insisted (with Japanese objections) that the number of workshops be reduced to one per year.

High Heat Flux Components & Plasma Surface Interactions for Next Fusion Devices →

Fusion High Power Density Devices & Design →

Joint Workshop on

High Heat Flux Components & Plasma Surface Interactions for Next Fusion Devices &

Fusion High Power Density Devices and Design

- meetings in spring rather than fall
- US-hosted "transition workshop" in 2003 with special topic

IEA Working Group on Plasma Facing Components → Pending IEA approval and formation of Working Group
US will support Working Group Meetings when held.

Int'l Workshop on Innovative Concepts for Plasma Interactive Components in Fusion Devices → Future organization of IWIC-PIC determined by Japan
US participation will be limited if any.

Our New Joint Workshop

The “2003 transition workshop” is an opportunity to explore new themes; we (chair persons) have selected three themes.

1) edge issues and plasma surface interactions in non-tokamak devices
2) simulations of material damage in IFE chambers
3) high power density

Workshop Chair Persons:

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Our Workshop Environment

A casual format for discussion of recent and ongoing experimental work on high heat flux components, plasma surface interactions, etc.

Early workshops were issue oriented with time for discussions.

- 1985 HHFC/PSI workshop focused on component and PSI issues for a burning plasma.
- 1988 HHFC/PSI workshop focused on the data base for graphite PFCs and included reports from separate working groups.

Our present workshop has a broad potential scope that includes PFCs, plasma surface interactions and high power density.

We (chair persons) face a challenge in organizing future joint workshops.

VLT Brochure
Fusion Facilities Directory
US Japan Workshops
VLT Archives

We now "publish" our workshop on the web. (faster, cheaper, easier and permits color)

http://vlt.ucsd.edu/usjapan.html

http://www.nifs.ac.jp/usjp2002/index.html

Proceedings of Japan-US Workshop
TEXTOR Collaboration
JSPS-CAS Core-University Program
Japan/U.S Coordinating Committee on Fusion Energy
World Stellarator Reseach and Collaboration
LIME

Our Agenda

- *Interesting discussions*
- *Old and new friendships*
- *A generally pleasant time*

Our Technical Agenda

Monday	**Session 1**	**Welcome and Overviews**
	Session 2	**PFCs and Blankets for HPD Fusion Chambers**
	Session 3	**Thermal-Hydraulic Issues for HPD Fusion Chambers**
	Session 4	**Surface Responses in MFE and IFE Chambers**
	Reception 7-8PM, lounge	
Tuesday		***Edge Plasma Issues***
	Session 5	**stellerator/heliotron**
	Session 6	**spheromak experiments**
	Session 7	**spherical tokamaks & mirrors**
	Session 8	**tokamaks**
	Session 9	**Discussion**
Wednesday	**Session 10**	**Materials and Plasma Surface Interactions**
	Session 11	**Innovative PFC concepts**
	Session 10	**Closing remarks**

Monday Session 1 Welcome and Overviews

Session 1	*Welcome and Overviews*		
9:00AM	Welcome and information	Nygren*	SNL
9:15	Introduction of chairpersons	Nygren	
9:20	Introduction of Japanese participants	Ueda*	Osaka U
9:25	Overview of Japanese program	Ueda	
9:35	Introductory Comments	Noda**	NIFS
9:40	Introduction of US participants	Nygren	SNL
9:50	Overview of US program	Nygren	
10:00	coffee		
Session 2	*PFCs & Blankets for HPD Chambers*	Hashizume*	Tohoku U
Session 4	*Surface Response, MFE & IFE Chambers*	Wong*	GA

**workshop co-chairman **past co-chairperson*