



**International Workshop on Requirements for Next Generation  
PMI Test Stands in Fusion Research**  
August 31 - September 2, 2010  
Oak Ridge, TN, USA

*Fusion Energy Division*



**OAK RIDGE NATIONAL LABORATORY**

Managed by UT-Battelle for the Department of Energy

<http://www.ornl.gov/sci/fed/PMTS10/>

### Agenda

Note: All talks are scheduled for 25-30 minutes (20 min. for presentation & 5-10 min. discussion,) and will be held in the ORNL Conference Center (Bldg 5200), Tennessee Room (202-B).

Time	Title	Speaker
<b>Tuesday</b>	<b>August 31, 2010</b>	
7:30 AM	Bus Pick-up at Double Tree Hotel	
8:00 AM	Registration, Badging, and Coffee at ORNL	
	<b>Session I: Workshop Charge and Research Needs Review</b>	<b>Chair: D. Hillis</b>
8:30 AM	<a href="#">Welcome Remarks</a> (10 min.)	J. Roberto (ORNL)
8:45 AM	<a href="#">Workshop Organizational Information</a> (15 min.)	D. Hillis (ORNL)
9:00 AM	<a href="#">Summary of USA ReNew Themes 9-11</a> (20 min.)	R. Maingi (ORNL)
9:30 AM	<a href="#">Summary of European Workshop on PMI and Linear Device Issues</a> (20 min.)	B. Unterberg (Jülich)
10:00 AM	Break (15 min.)	
	<b>Session II: Reports from Existing Facilities</b>	<b>Chair: R. Nygren</b>
10:15 AM	<a href="#">The PISCES Perspective on PMI Test Stand Needs</a> (20 min)	M. Baldwin (UCSD)
10:45 AM	<a href="#">Design Criteria and Status of Magnum-PSI</a> (20 min.)	J. Rapp (FOM)
11:15 AM	<a href="#">High Heat Flux Facility GLADIS at IPP Garching</a> (20 min.)	H. Greuner (IPP)
11:45 AM	<a href="#">Overview of Recent Tritium and Neutron-Irradiated Material Experiments in Tritium Plasma Experiment (TPE)</a>	M. Shimada (INL)
12:15 PM	Lunch (45 min.)	
	<b>Session III: Continue Reports from Existing Facilities</b>	<b>Chair: J. Rapp</b>
1:00 PM	<a href="#">DIONISOS: Upgrading to the High Temperature Regime</a>	G. Wright (MIT)
1:25 PM	<a href="#">Plasma Facing Material Research Program in NFRI and Preliminary Experiments on Molten Salt and Plasma Interactions</a> (20 min.)	T. Lho (NFRI-Korea)
1:50 PM	<a href="#">Perspective on Future PMI-PFC Test Stands</a> (20 min.)	R. Nygren (Sandia)
2:15 PM	<a href="#">Plasma-Wall Interaction Studies at Forschungszentrum Jülich</a> (20 min.)	U. Samm (Juelich)
2:40 PM	<a href="#">Recent Results of High Heat-Flux Plasma Flow Generation Experiments for Divertor Simulation Studies Using a Large Tandem Mirror Device</a> (20 min.)	Y. Nakashima (Univ. Tsukuba)
3:05 PM	<a href="#">Availability of Installing a Large Area Linear Plasma Divertor Simulator in China</a> (20 min.)	C. Ge (UST-Beijing)
3:25 PM	Break (5 min.)	
3:30 PM	Group Discussion of Existing Facilities (20 min.)	
3:50 PM	Load Bus for SNS Tour	
4:00 PM	<a href="#">Spallation Neutron Source</a> Tour (~60 min.)	
5:00 PM	Adjourn - Return to Hotel	



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Time	Title	Speaker
<b>Wednesday</b>	<b>September 1, 2010</b>	
7:30 AM	Bus Pick-up at Double Tree Hotel	
8:00 AM	Coffee and pastries at ORNL	
8:20 AM	Workshop Organizational Information (10 min.)	D. Hillis (ORNL)
	<b>Session IV: New PMI Test Stand Initiatives</b>	<b>Chair: R. Doerner</b>
8:30 AM	<a href="#">A New ORNL Initiative for a Plasma Material Test Stand Using an Intense RF Plasma Source</a> (20 min.)	D. Hillis (ORNL)
9:00 AM	<a href="#">Linear Plasma Parameters of Interest to Intense RF Plasma Source Research</a> (20 min.)	M. Peng (ORNL)
9:30 AM	<a href="#">ORNL Intense RF Plasma Source Research</a> (20 min.)	R. Goulding (ORNL)
10:00 AM	<a href="#">Plasma Neutrals Modeling for ORNL Intense RF Plasma Source Research</a> (20 min.)	L. Owen (ORNL)
10:30 AM	Break (10 min.)	
	<b>Session V: New PMI Test Stand Initiatives</b>	<b>Chair: U. Samm</b>
10:40 AM	<a href="#">JULE-PSI Project in Forschungszentrum Jülich</a> (20 min.)	B. Unterberg (FZJ)
11:10 AM	<a href="#">Adapting the Current ITER 2D Edge Plasma Code for Linear Plasma Devices: What Can We Learn?</a> (20 min.)	D. Reiter (FZJ)
11:40 AM	<a href="#">Surface Analysis Techniques and Equipment Envisaged for the JULE-PSI Project in Forschungszentrum Jülich</a> (20 min.)	A. Kreter (FZJ)
12:10 PM	Group Discussion of New Test Stand Initiatives (20 min)	
12:30 PM	Lunch (45 min)	
	<b>Session VI: PMI Diagnostic Needs, Li, and Model Validation</b>	<b>Chair: C. Skinner</b>
1:15 PM	<a href="#">Challenges and Innovation of In-situ Plasma-Material Interface Diagnosis in Fusion Research</a> (20 min.)	J.P. Allain (Purdue)
1:45 PM	<a href="#">Impact of a PMTS on ORNL Material Research</a> (20 min.)	R. Stoller (ORNL)
2:15 PM	<a href="#">Desirable Functional and Diagnostic Capabilities for Studies of Chemical Sputtering on a PMI-Focused Test Stand</a> (20 min.)	A. McLean (ORNL)
2:40	<a href="#">Considerations for a Li test stand at PPPL</a> (20 min)	C. Skinner (PPPL)
3:00 PM	Group Discussion of Diagnostic Needs, Li, etc. (20 min)	
3:20 PM	Break (10 min.)	
3:30 PM	<a href="#">PMI Research on Li at U. of Illinois</a> (20 min.) <a href="#">Movie</a> – Remote	D. Ruzic (Illinois)
4:00 PM	Leave for Tour of Fusion Facilities Bldg 7625	
4:15 PM	Tour of <a href="#">Fusion Facilities Bldg 7625</a> (~75 min.)	Goulding/Caughman
5:30 PM	Adjourn Meeting – Travel to Flatwater Grill	
6:00 PM	Banquet – <a href="#">Flatwater Grill</a> @ Oak Ridge Marina	
8:00 PM	Presentation: <i>A Glimpse at PMI Research for the Future</i>	D. Hillis (ORNL)
9:00 PM	Bus Return to Oak Ridge Hotels	



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### Agenda

Time	Title	Speaker
<b>Thursday</b>	<b>September 2, 2010</b>	
7:30 AM	Bus Pick-up at Double Tree Hotel	
8:00 AM	Coffee and pastries at ORNL	
8:20 AM	Workshop Organizational Information (10 min.)	D. Hillis (ORNL)
	<b>Session VII: PMI Theory and Modeling</b>	<b>Chair: J.P. Allain</b>
8:30 AM	<a href="#">Bottom-up Science at the Plasma Material Interface Movie</a>	P. Krstic (ORNL)
9:00 AM	<a href="#">PMI Experiments and Model Validation</a> (20 min.)	<i>J.P. Allain for:</i> J. Brooks (Purdue)
9:30 AM	<a href="#">Modeling of Impurity Transport and Plasma Wall Interaction with Linear Devices Using the ERO Code</a> (20 min.)	D. Borodin (Jülich)
10:00 AM	<a href="#">New Diagnostic Needs for Future PMI Research</a> (20 min.)	R. Doerner (UCSD)
10:30 AM	Group Discussion of PMI Theory and Modeling (20 min.)	
10:50 AM	Break (10 min.)	
	<b>Session VIII: Breakout Session for Preparation of Summary Reports</b>	
11:00AM –12:30PM	Prepare Report and Discussion of PMI Research Needs for Existing Facilities (Session II & III)	Nygren/Rapp
11:00AM –12:30PM	Prepare Report and Discussion of Needs for New PMI Test Stand Initiatives to Address Research Needs for PMI in DEMO and Future Fusion Devices (Session IV & V)	Doerner/Samm Hillis/Unterberg
11:00AM –12:30PM	Prepare Report and Discussion on Diagnostic Needs for PMI Research Including Li Research (Session VI)	Skinner/McLean
11:00AM –12:30PM	Prepare Report and Discussion on How New PMI Test Stands Could Help Extend and Validate Current PMI Theory and Modeling (Session VII)	Allain/Krstic
12:30 PM	Lunch (45 min)	
	<b>Session IX: Summary and Discussion Session</b>	<b>Chair: Unterberg</b>
1:15 PM	<a href="#">Sessions II &amp; III: Report</a> (10 min.) and Discussion (20 min.)	Nygren/Rapp
1:45 PM	<a href="#">Sessions IV &amp; V: Report</a> (10 min.) and Discussion (20 min.)	Doerner/Samm Hillis/Unterberg
2:15 PM	<a href="#">Session VI: Report</a> (10 min.) and Group Discussion (20 min.)	Skinner/McLean
2:45 PM	<a href="#">Session VII: Report</a> (10 min.) and Group Discussion (20 min.)	Allain/Krstic
3:15 PM	Break (15 min.)	
3:30 PM	Workshop Wrap-up Discussion Writing Assignments for <a href="#">Workshop Report</a>	D. Hillis (ORNL)
4:00 PM	Adjourn Workshop – Bus Return to Hotel	