Wednesday, June 20, 2012

Session I (8:30 AM – 9:25) PFC Opening Session & MASCO Continuation Chair: J. Brooks

Welcome Remarks (10 min.) Dick Majeski (PPPL)

PFC Steering Committee Chair Report (15 min.) Jeff Brooks (Purdue)

DOE Report - Pete Pappano (DOE) (15 min)

VLT Report – Stan Milora/Richard Nygren (15 min)

Session 2: (9:25 – 12:00) Joint PFC/MASCO Special Topic Session on PFC needs for FNSF and the JET ILW. Chair: Dick Majeski

Overview 1 – The JET ITER-Like Wall Experiment (20 min) Guy Matthews, UKAEA

Overview 2 – Summary of the FESAC Materials Subcommittee Report (20 min) Steve Zinkle, ORNL

Break – 15 minutes (10:05 – 10:20)

Overview 3 - Fusion Nuclear Science Facility (FNSF): status & PFC-specific issues (20 min) C. Kessel, PPPL

Overview 4 – Recap of the MASCO meeting (15 min) Rick Kurtz, PNNL

Overview 5 – Tungsten Workshop Summary and Overview of Materials-related Tungsten Activities (25 min) Bob Odette

Overview 6 – Research Activities in the PSI Science Center (25 min) Dennis Whyte

Discussion – (15 min)

Lunch – 12:00 – 1:00

Afternoon

Session 3: Tokamak Experiments (1:00 – 2:50)(C. Wong/Dmitri Rudakov Chair)

1. Erosion/redeposition experiments on DIII-D and EAST (20 min.) W.R. Wampler, SNL

2. Discharge fueling with lithium wall operation of LTX (15 min) Dick Majeski, PPPL

3. Lithium research on NSTX - progress and plans (20 min) Charles Skinner, PPPL
4. **Overview of C-Mod PFC studies** (20 min.)  
   Graham Wright, MIT

5. **DIII-D SOL group report** (15 min.)  
   Tony Leonard, GA

6. **High-Z erosion and other recent DiMES experiments** (20 min.)  
   Dmitry Rudakov, GA

Break – 10 min (2:50 – 3:00)

**Session 4: Plasma Edge/PMI Modeling (T. Rognlien - Chair) (3:00– 5:15)**

1. *Analysis of PFC erosion experiments in DIII-D, and status of C-MOD and ITER analysis* (18 min)  
   J. Brooks, Purdue

2. *Lithium as a radiative edge plasma component, snowflake ELM heat-flux mitigation, and modeling blob wall fluxes* (18 min)  
   T. Rognlien, LLNL

3. *Modeling impurity reduction via divertor gas injection in NSTX* (18 min)  
   E. Meier, LLNL

4. *Detail Modeling of Melt Layer Splashing and Erosion losses of PFC* (18 min)  
   G. Milosheevsky, Purdue

5. *Comprehensive and Integrated modeling of plasma instability events* (18 min)  
   V. Sizyuk, Purdue

6. *Kinetic Plasma - Neutral Simulations with XGC0 - DEGAS2* (18 min)  
   D. Stotler, PPPL

7. *Computational Studies of Thermoelectric MHD in Molten Lithium* (18 min)  
   D. Curreli, UIUC

**Wed. PM-Meeting Banquet - Salt Creek Inn (note change of venue) (6:30 PM)**

**Thursday, June 21**

**Session 5: Discussion (8:30 – 10:00): Liquid Metal PFC Research (Dave Ruzic Chair)**

Break: 10:00 – 10:15

**Session 6: PMI Laboratory Experiments (10:15 – 12:00) (D. Buchenauer Chair)**

1. *TMAP modelling of D release from Be codeposits* (15 min)  
   Matt Baldwin, UCSD

2. *Isotope exchange work on W* (15 min)  
   Joe Barton, UCSD
4. *Hydrogen behavior in materials and on surfaces* (20 min)  
   Robert Kolasinski, SNL

5. *SNL/CA collaborations* (10 min)  
   Dean Buchenauer, SNL

6. *Flowing Lithium Divertors* (15 min)  
   David Ruzic, UIUC

7. *Lithium’s Effect on the Chemical Sputtering of Carbon* (15 min)  
   Daniel Andruczyk, UIUC

8. *PFC activities in STAR* (15 min)  
   Masa Shimada, INL

**Session 7. POSTER SESSION (1:30 PM – 3:30 PM): SBIR/STTR- Progress reports on funded projects & selected student research (D. Youchison Chair)**

*Luna Innovations, Inc.*
P1: Guoqing (Paul) Shen - “*Laser Vibrometer PFC Health Monitoring System*”  
   Phase II

*Mathematics and Systems Research, Inc.*
P2: Joon-Ho Kho “*Advanced Method of Joining RAFM/ODS Steels for Fusion Reactors*”  
   Phase-I

*Mesocoat, Inc.*
P3: Evelina Vogli – “*Fused Cu-based coatings for plasma facing components in fusion reactors*”  
   Phase-I

*Nanohmics, Inc.*
P4: Tim Raines – “*Laser Cladding Modeling and Operation Applied to Plasma Facing Components*”  
   Phase I STTR

*Plasma Processes, Inc.*
P5: Scott O’Dell - "*Tungsten Coatings for ICRF Antenna Materials*”  
   Phase I

P6: Scott O’Dell - “*Electrochemically Formed Tungsten and Tungsten Alloy Heat Sinks*”  
   Phase II

*Questek Innovations LLC*
P7: Art Counts – “*Computational Design of Tungsten Alloys with Improved Ductility and Fracture Toughness*”  
   Phase I

*TPL Inc.*
P8: Doug Taylor – “*Explosive Bonding of Plasma Facing Components*”  
   Phase I

*Ultramet, Inc.*
P9: Jim Selin – "Robust Cellular Solid Breeder Material for Enhanced Tritium Production" Phase I

P10: Jim Selin – "Textured Tungsten Armor Coating for Fusion Energy Applications" Phase I

P11: Jim Selin – "Innovative Surfaces for Controlled Flow of Molten Lithium" Phase II

P12: Jim Selin – "Optimization and Simulated Testing of Flow Channel Inserts for Dual-Coolant ITER Test Blanket Modules" Phase II

Student Posters

PPPL
P13: Matthew Lucia – “Testing of lithium-filled dendritic surfaces for PFCs in LTX”

P14: Dennis Boyle – “Varying the pre-discharge lithium wall coatings to alter the characteristics of the ELM-free H-mode pedestal in NSTX”

P15: John Rhoads – “Experimental apparatus for investigating thermal transport in free-surface, MHD flow”

P16: Angela Capece – “Uptake and Retention of Residual Vacuum Gases in Lithium and Lithium Films”

Session 8: Discussion 2 (3:30 – 5:00) -PFC Priorities, Planning, New Directions (Rob Goldston Chair)

Thursday PM PFC Steering Committee Dinner Meeting - Salt Creek Inn (7:05 PM) Note change in time

Friday, June 22

Session 9: PFC Steering Committee Report (J. Brooks et al.) 8:30-8:45 AM

Session 10: Heat Transfer and Fluid Flow (R. Nygren Chair) 8:45 – 9:30 AM

1. Status of PMTF (15 min.) R. Nygren, SNL

2. Lithium Safety Awareness (15 min.) R. Nygren, SNL

3. Lithium systems design for LTX (15 min.) R. Majeski, PPPL

4. Status of UCLA R&D in Heat Transfer (15 min.) N. Morley, UCLA

Session 11: ITER specific, and misc. presentations (Russ Doerner Chair) 9:45 – 11:05 AM
1. Development of Si-W transient tolerant PFM (15 min.)  
   Clement Wong, GA

2. Sheath power transmission and Divertor probe analysis (15 min.)  
   David Donovan, SNL

3. Beta backscattering and XRF (15 min.)  
   Chris Chrobak, GA

4. Update on PFC and PMI testing possibilities in a Plasma Material Test Stand (15 min.)  
   Juergen Rapp, ORNL

5. US PFC Test Facilities: List, Status, Capabilities (20 min)  
   Dean Buchenauer, SNL

**Session 12:** PFC All-topic Discussion/Wrap-Up (J.P. Allain Chair) 11:05 – noon

12 a) Summary (2 viewgraphs max – 5 minutes each summary):  
   Session Chairs

   *Summary of Session 2*
   Dick Majeski, PPPL

   *Summary of Session 3*
   Clement Wong, GA

   *Summary of Session 4*
   Tom Rognlien, LLNL

   *Summary of Session 5*
   David Ruzic, UIUC

   *Summary of Session 6*
   Dean Buchenauer, SNL

   *Summary of Session 7*
   Dennis Youchison, SNL

   *Summary of Session 8*
   Rob Goldston, PPPL

12 b) Discussions/Action-Items: All

12:00 Noon Adjourn

**Afternoon:** Tour of PPPL Facilities