

Session 7: Heat Transfer & Fluid Flow Summary

New HHF Mockups - Youchison/Nygren (SNL)

- New W rod mockups, made by Plasma Processes, Inc., are being tested at Sandia. These mockups use a wire array (rather than a hex foil array) to hold the rods.
- EB1200 (large e-beam) can simulate the heat load from ELMS in pulses as short as 100 μ s. ELM tests with various heat loads and starting (surface) are in progress.
- EB1200 tests on W erosion are also in progress. Spectroscopic analysis of evaporated material is being performed to confirm the suspected release of volatile tungsten oxide as the primary erosion mechanism.

Be Plasma Spray Capability at LANL - Hollis (LANL)

- A beryllium plasma spray (PS) facility is now operating at Los Alamos. The equipment in the enclosed spray booth is operated remotely.
- LANL has prepared HHF mockups with PS beryllium armor for testing at Sandia. The design for the PS process begins with a castellated surface on the heat sink that forces a PS deposition morphology that has better adhesion and more resistance to lateral cracking of the armor.

High Z divertor target development for C-Mod – (Nygren for) Lipschultz et al.

- C-Mod's mission includes the development of high Z heat removal schemes. In collaboration with Sandia, the C-Mod team has been investigating designs for W rod armor that could be retrofit on to the existing Mo tile arrangement in C-Mod.

Session 7: Summary continued – future work

New HHF Mockups

- EB1200 tests on ELM heat flux simulation and W erosion will continue in May with hope that data from these tests can be reported at the PSI Meeting.
- Additional W rods mockups are available for testing. Also, testing of a lithium-cooled mockup is planned in EBTS using the LIMITs lithium loop.

Be Plasma Spray Capability at LANL

- LANL is preparing for possible collaborations with Sandia and with the EU for ITER-related work. LANL management has to evaluate the integration of fusion work into the overall workload for its new beryllium plasma spray facility.

High Z divertor target development for C-Mod

- More direct participation for the C-Mod Team would be welcome in the PFC Meetings. The PFC leadership will encourage their participation as well as that of others not represented at this meeting, e.g., Toronto group.

ITER PFC Efforts

- As the US rejoins ITER, progress on the additional design development and R&D for FW Module #18 will be reported.
- The US TBM Team is developing design concepts for the TBM and its FW in collaboration with other parties. The FW design work will be reported in the future.