Summary of Session V: The General Session
APEX Part II Electronic Meeting
August 24, 2000

1. The fusion budget for FY2001 is not fixed yet but it may be known by the end of September. Different scenarios for the anticipated level of efforts under reduced budget should be explored.

2. A proposal on initiating an integrated effort between plasma MHD activity and LM MHD activity was discussed. This integration is based on the similarities between theory/modeling/computation for free surface liquid MHD and plasma MHD. The goal is to strengthen the physics-technology partnership and make more visible some of the scientific content of the technology program. Defining the appropriate boundary conditions and bulk plasma-bulk LM interaction is the starting point of this integration. A group from both sides will be formed to address and implement this effort.

3. Exploring several options for the implementation of a conducting shell and its impact on improving plasma performance were discussed. The conducting shell needs not to be a free liquid surface but can be a liquid entrapped between solid boundaries. Participation of physicists and SBIR was recommended through invitation. A group will be formed to address and implement this proposed area of activity for next year.

4. The factors determining the appropriate surface wall loading to the FW and its poloidal distribution were discussed. Among these factors are the radiated fraction of alpha particles, plasma core parameters, low- and high-cycling regimes, radiation from high Z impurities in the mantle, and partitioning of particle radiation between the FW and divertor. A group was formed to define the most appropriate set of plasma core and edge parameters to be used in APEX for surface heat deposition and thermal analysis. Rognlien will distribute a memo to APEX group in this regard.

5. Other than giving more focus next year on plasma/LW MHD integration and conducting shell issues, the work of Task I (implementation of LW in NSTX), Task II (modeling and experiments), Task III (design issues for LWs), and Task IV (solid wall concepts) will continue. There have been arguments on the need for simple experiment on the MHD effects on natural convection and boiling of Li in the EVOLVE design in order to confirm the modeling effort. A proposed plan on this topic will be prepared between now and November meeting. Appropriate techniques for pumping lithium was also discussed and could be explored under Task III.

6. It was agreed to continue the effort on addressing the implementation and benefits of liquid walls in machines other than NSTX. A presentation by APEX management is scheduled during December of this year to explore LWs in C-mode. A similar effort is planned early next year for D-III-D.

7. The work on exploring LWs in alternate concepts will continue, especially for FRC.

8. A question was raised on whether under Task IV work should be continue on the EVOLVE concept and any associated proposed experimental work, or to move to exploring other concepts such as SiC/LiPb high power density concepts. There will be exchange of communications among concerned parties on this strategic option following this meeting.

9. The next APEX/ALPS meeting will be held at SNL, NM, during the period November 13-17. There will be a one-day overlap on the topic of bulk plasma-bulk LM interaction as well as on plasma edge interaction (Tuesday afternoon-Wednesday morning). Friday morning will be devoted to a general session. Since the meeting will be held at SNL, non-US participants were advised to submit the required documents on time in order to attend the meeting.

Mahmoud Z. Youssef
APEX Scientific Secretary
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