



Under Secretary for Science

Washington, DC 20585

October 17, 2007

Dr. Jill P. Dahlburg, Chair
Naval Research Laboratory, Code 1001
4555 Overlook Avenue
Washington, DC 20375

Dear Dr. Dahlburg:

This letter provides a charge to the Advanced Scientific Computing Advisory Committee (ASCAC) to consider a number of inputs and make recommendations as to the most beneficial role for the Advanced Scientific Computing Research (ASCR) program in an Office of Science computational initiative called the Fusion Simulation Project (FSP). The FSP will be led by the Office of Fusion Energy Sciences (FES) with collaborative support from ASCR. The primary objective of the FSP is to produce a world-leading predictive integrated plasma simulation capability that is important to ITER and relevant to major current and planned magnetic fusion devices. This will involve carrying out unprecedented simulations encompassing multi-scale physics as small as the electron gyro-radius to provide information vital to delivering a realistic integrated fusion simulation model with high physics fidelity.

An FSP workshop was convened between May 16th and May 18th, 2007, with participation by researchers from both the FES and ASCR programs, to develop a detailed roadmap with major scientific and computational milestones. Members of the FSP Workshop Panel (Co-chaired by Professor Arnold Kritz of Lehigh University and Professor David Keyes of Columbia University) have produced a completed FSP Workshop Report which was presented to the Fusion Energy Sciences Advisory Committee (FESAC) in June 2007. The FESAC reviewed the FSP Workshop Report, assessed its feasibility, and recommended a course of action at the October 2007 FESAC meeting. All of this should be useful inputs to ASCAC.

I would like ASCAC to consider what is being proposed with particular attention to the most critical challenges in Applied Mathematics, Computer Science, and Computational Science and to recommend an appropriate and mutually beneficial role for ASCR in the FSP. A preliminary report is expected at the February 2008 ASCAC meeting with a final report at the August 2008 meeting to ensure the recommendations can impact the FY 2010 Budget for ASCR.

I appreciate ASCAC's willingness to undertake this important activity.

Sincerely,

A handwritten signature in cursive script that reads "Raymond L. Orbach".

Raymond L. Orbach

