

Applied Mathematics Committee of Visitors Report

Linda Petzold, COV Chair

Charge

- Assess the operations of the Applied Mathematics program during the fiscal years 2007, 2008 and 2009
- Provide evaluation of the following two major program elements:
 1. For both the DOE laboratory projects and the university projects, assess the efficacy and quality of the processes used to:
 - a) Solicit, review, recommend and document proposal actions
 - b) Monitor active projects and programs

Charge

2. Within the boundaries defined by DOE missions and available funding, comment on how the award process has effected:
 - a) The breadth and depth of portfolio elements, and
 - b) The national and international standing of the program with regard to other applied mathematics research programs that are also focused on the demands of high performance scientific computing and analysis of petascale datasets

COV Meeting

May 12-13, 2010

COV Members:

- Linda Petzold, UCSB (chair)
- Lee Jameson, NSF
- Dan Meiron, Caltech
- Michael Heath, UIUC
- Andrea Bertozzi, UCLA
- Tim Kelley, NC State

Information was Easy to Access

- COV web page available a month in advance of visit
- Presentations during visit
- Files were well-organized and available
- Information was available at our request



Charge 1a: Efficacy and quality of the processes used to solicit, review, recommend and document application and proposal actions

Finding: The solicitation and review processes appear to be effective and fairly administered. The program is to be commended for their work in streamlining the proposal review process. The documentation seems to be done very well but we were not given summary statistics. Delays in processing approved grants, which are outside of the control of the Applied Mathematics program office, affect the PIs ability to recruit students and postdocs, and also affect tenure decisions for junior faculty.

Charge 1a: Efficacy and quality of the processes used to solicit, review, recommend and document application and proposal actions

Recommendation: The committee recommends that further consideration be given to improving the level of outreach as regards to new funding opportunities. The COV is aware that the program usually has a very small window to accept proposals and that this is caused by rules concerning new starts during Continuing Resolutions, government fiscal years, etc. We would like to see the DOE explore a more flexible approach so that the proposal acceptance window could be broadened and thereby enhance the program's ability to attract proposals from a broader cross section of the scientific community.. Proposal project descriptions should be limited to 15 pages. The merit review criteria for large multi-investigator proposals should include an evaluation that ensures that the elements of the proposed research are appropriately integrated, coordinated and synergistic, as is the case with other DOE activities such as SciDAC and the EFRCs. Actions should be taken to accelerate the processing of approved grants.

Charge 1b: Efficacy and quality of the processes used to monitor active awards, projects and programs

Finding: The Applied Mathematics research program managers use generally effective mechanisms, including site visits, PI meetings and progress reports, to monitor ongoing projects and collect information about major awards and accomplishments. Overall these mechanisms are effective and maintain the high quality of the research.

Charge 1b: Efficacy and quality of the processes used to monitor active awards, projects and programs

Recommendation: Explicit guidelines should be instituted for progress reports, including length and a clear description of the information that should be in the report. For example, all PIs should list publications, presentations, awards, and patents attributable to the project. The metrics for impact (awards, impact on scientific community (not only on mathematics), DOE impact, publications, presentations, etc.) should also be clearly stated and explained.

Charge 2a: How has the award process affected the breadth and depth of portfolio elements?

Finding: The committee finds the portfolio to be exceptionally strong with regards to both depth and breadth. The balance of awards with respect to innovation, risk and interdisciplinary research appears to be appropriate. The committee was very impressed with the long-term perspective of the DOE applied mathematics program and its simultaneous agility at funding new program areas.

Recommendation: The committee is very impressed and has nothing to recommend in this area

Charge 2b: How has the award process affected the national and international standing of the program with regard to other applied mathematics research programs that are also focused on the demands of high performance scientific computing and analysis of petascale datasets?

Finding: The DOE Applied Mathematics program has been, and continues to be, of extremely high quality and standing, both nationally and internationally. A great strength of the program is the willingness it has demonstrated to invest in projects with a longer-term perspective than is possible at most U.S. agencies, enabling the support of breakthrough research and ensuring its success and eventual adoption.

Recommendation: The committee is very impressed. We recommend to continue along the current course.