

Questions from FESAC Theory Panel. 2.2.01.

A. To Steve Eckstrand.

1. How do NSF Centers of Excellence work?
 - How many years do they run? Range 3 to 5 years?
 - Is cost sharing essential? 1:1, .5:1?
 - What percent are cut before completion of original duration?
 - What percent are continued for a second term? e.g another 3 or 5 years.
 - What percent lead to an independent center at the end of the NSF program?

2. How do other parts of DOE handle program and proposal reviews, and the difference between Labs, Universities and the private sector? E.g. BES.
 - Please list the legal constraints.
 - For OFES, is the same kind of peer review process used for the different types of institution?
 - For OFES, is there a difference in the way in which programs of different types of institution can be terminated?

3. Please can you provide more information about the Theory/Computing program?
 - What is in it?
 - What do Knoxville FESAC report and IPPA say?
 - What is the balance of theory/computing/modeling?
 - What is the fraction in the science areas Transport, MHD, Heating/Fueling, Edge Physics/Divertors?
 - What is the balance between Tokamaks, Stellarators, Spheromaks, RFPS, FRCS, Dipoles, Basic physics,.. ? How does this map to the experimental budgets? What are the facts about T/C support for small facilities? Please give a few examples.
 - What is the theory budget by institution? And what are the main emphases of each institution's program? Roughly how many FTEs for each institution?
 - Roughly, what fraction of T/C is a service (code maintenance) compared to being basic physics? How is funding for basic science decided?
 - Is there any view that some areas are sub-critical?
 - What is the process for encouraging best practices? How are people rewarded for good work? T and C.

4. What are the facts about fragmentation of effort in T/C in various proposals?
 - Are some proposals made up of 20 x 0.1 FTE rather than 4 x 0.5 FTE solely to look more collaborative? Is there any information on this?

5. Please provide a list of the T/C/M codes in use for MFE (we probably only need the main ones that would have a more general applicability. We understand that such a list might have been prepared 2 or 3 years ago).
 - Information about each code is needed so that we do not assume duplication when it they are not duplicative.
 - Who uses each code? E.g., is NIMROD generally viewed as useful?

- Is there information about which new and upgraded codes are needed?

6. How is the overarching vision of theory set?

- FESAC.
- IPPA?
- Theory committee?
- TTF?
- Computing Coordination Committee?
- Successful proposals?
- Other?
- All of the above?

What is the OFES vision?

B. Speakers/Input for next meeting.

1. Ask Bill McCurdy to tell us about NERSC plans for handling different types of users and his views on the usefulness and role of local clusters, work stations and institutional computers.
2. Ask Bill McCurdy to interpret his E-mail. Also ask Malcolm Stocks (ORNL) his views on why fusion is faring poorly in grand computing (John Sheffield).
3. Ask Bill Tang to review SCIDAC. How did recent review go?
4. Ask Ed Synakowski*** to comment on relationship of T/C/M to experiments etc Also ask for the views of Tony Taylor, Michael Brown, Stewart Prager for small facilities.(not just fusion experiments).
5. Ask Per Peterson for copy of the CSAU method.
6. Ask *** Rosner to comment on NRC panel views on T/C; either come to PPPL meeting or send us a note.
7. Ned Sauthoff to review BRIEFLY what we do internationally in T/C.

C. Other questions.

1. What is the situation with respect to T/C graduate student numbers and fusion energy sciences faculty in universities (Martin Greenwald to check with Miklos Porkolab)?
 - Does OFES have any information (Steve Eckstrand)?
 - For recent years.
2. What are good examples of the need for basic theory in different areas. Electron transport is a good example what are the other key frontiers?