

May 6, 2008

Dear Colleague,

The FESAC Toroidal Alternates Panel has been asked to “critically evaluate the status of, and scientific opportunities for, major alternate magnetic confinement configurations,” which are the stellarator, the spherical torus, the reversed field pinch, and compact tori (spheromak and field-reversed configurations).

Specifically, the panel has been asked to “identify and justify a long-term objective for each concept as a goal for the ITER era,” i.e., the next 15-20 years. Further, the panel has been asked to

1. “Critically evaluate the goal chosen for each concept, and its merits for fusion development;
2. Identify and prioritize scientific and technical questions that need to be answered to achieve the specified goal;
3. Assess available means to address these questions; and
4. Identify research gaps and how they may be addressed through existing or new facilities, theory and modeling/computation.”

Finally, the charge asks us to “identify and prioritize the unique toroidal fusion science and technology issues that an alternate concept can address, independent of its potential as a fusion energy concept.” The scope of the charge includes theory, computation, and any necessary supporting technology.

We have already requested that groups working on these concepts provide the panel with succinct reports (one 10-15 page report per concept ) in response to the key elements of the charge as outlined above. (The CT groups we given the opportunity to separate spheromaks and FRC concepts.) We expect to receive these papers by the end of May.

We also want to provide an opportunity for scientists in the broader fusion community to advise us, so we have created a new link on the Panel's website: <http://fusion.gat.com/tap/> . Please keep your comments as brief as possible. Avoid lengthy introductory remarks: the essential benefits proposed by concept proponents are well known. We are seeking the technical information on these concepts necessary to make the critical evaluation and prioritization called for in the charge.

We will make this information, as well as the 10-15 pg concept reports, available to the community. It would be best to post pdf or plain text files, or links to such, including a brief file descriptor. For the open forum, there will be a short delay between submission and posting to allow for spam filtering. If your input is related to a specific concept, please select the appropriate area for posting.

Dave Hill (panel chair)