Department of Energy
Washington, DC 20585

May 27, 2010

MEMORANDUM FOR: MICHAEL PROCARIO, DIRECTOR
FACILITIES OPERATIONS DIVISION
HIGH ENERGY PHYSICS

FROM: DENNIS KOVAR
ASSOCIATE DIRECTOR OF SCIENCE
For HIGH ENERGY PHYSICS

SUBJECT: Request to conduct a Review of the Muon Accelerator R&D Proposal.

A collaboration of national laboratories, universities, and small businesses has submitted a proposal to carry out a program of R&D to demonstrate the feasibility of a muon collider. I request that you organize a merit review of this proposal to determine if it is suitable for funding. This proposal is a response to the recommendation made by Particle Physics Project Prioritization Panel (P5) in its ten-year roadmap submitted in 2008. The relevant recommendation is:

The panel also recommends R&D for alternative accelerator technologies, to permit an informed choice when the lepton collider energy is established.

And in the detailed discussion before this recommendation the muon collider was explicitly mentioned as one of the alternatives.

Finally, a muon collider may be an effective means to reach multi-TeV energies... Recent studies using a jet of mercury in a strong magnetic field have demonstrated that such a target is capable of surviving a four-megawatt proton beam. This first step toward providing muons is very encouraging. The next step is the demonstration of cooling using a combination of ionization energy loss and dispersion in a low-energy, low-frequency acceleration system. Support for R&D for this program has been very limited. Demonstrating its feasibility or understanding its limitations will require a higher level of support.

The required criteria for all DOE merit reviews are:

- Its scientific and technical merit;
- Appropriateness of the proposed method or approach;
- Competency of applicant's personnel and adequacy of proposed resources;
- Reasonableness and appropriateness of the proposed budget;

In addition, you should seek the evaluations of the merit reviewers on these questions.

- Does the proposal devote appropriate effort to demonstrating that the most critical technical issues to building a muon collider or neutrino factory can be solved?
- Are there clear milestones that can be used to track progress of the R&D?
- Is there a management structure in place capable of evaluating progress, setting priorities, and making changes in response to unexpected results and new discoveries?

Please conduct this review by August 2010 and deliver a report to me by September 30, 2010.

cc: LK Len
Bruce Strauss