

Physics and Experiment Board Meeting

February 17, 2009 1400-1500 GMT

Minutes (prepared by J. Brau)

Present: Akiya Miyamoto, G.P. Yeh, Harry Weerts, Hitoshi Yamamoto, John Hauptman, John Jaros, Karsten Buesser, Marcel Demarteau, Michael Peskin, Sakue Yamada, Ties Behnke, Jim Brau.

Excused: Francois Richard, Catherine Clerc, Yasuhiro Sugimoto,

ILCSC Meeting (Sakue Yamada)

The ILCSC meeting was held February 12. The main topic of discussion was the proposal by Prof. Sugawara for a gamma-gamma collider to serve as the first step of the ILC. Sakue had been asked by the ILCSC to charge the Physics Common Task Working Group to investigate the physics arguments. The Physics Group, led by Michael Peskin, responded to this charge. The GDE enlisted the Accelerator Advisory Panel, chaired by Eckhard Elsen, to review the technical issues. A subgroup of M. Peskin, Tim Barklow, Jeff Gronberg and Andrei Seryi had then been formed to draft a report to AAP and RD. Eckhard reported on the investigation of AAP and GDE referring to this document. While the document is favorable toward the gamma-gamma collider, Eckhard raised a number of GDE concerns on the proposal, including the current status of the require laser technology. The conclusion of discussions of the ILCSC was to keep gamma-gamma as an option for the ILC, but not the first stage as proposed by Prof. Sugawara. The GDE should monitor progress on the laser technology development and other issues, but not devote direct effort in that direction. The physics argument was discussed briefly. The Physics Common Task Working Group will complete a physics report focusing on the scenario of a light Higgs.

In Sakue's report on the ILC Research Directorate activities, he covered the status of all of the Common Task Working Groups, and the LOIs. He reported that the IDAG plans to announce validation results at the September ALCPG meeting in Albuquerque. The ILCSC chair suggested IDAG might be wiser not to make this commitment of when to announce validation.

ALCPG09 (Jim Brau)

The next regional meeting of the Americas will be held at the University of New Mexico, in Albuquerque, USA, September 29 – October 3, 2009. The ALCPG meeting will be held jointly with the GDE.

2010 meetings (Hitoshi Yamamoto)

An earlier preference had been to hold the first meeting of 2010 at CERN, but consideration at CERN of the LHC activities have discouraged that proposal, and preferred a linear collider meeting at CERN in the fall of 2010. Given this, it is natural to consider a meeting in Asia in early 2010. It would be LCWS. China is the preferred location. It is uncertain whether this can be arranged. Discussions are underway. It will take a few months to clarify this situation.

MDI Common Task Working Group (Karsten Buesser)

There is an effort underway to finalize the IR Interface Document. It is a joint work of the machine and detector people, defining boundaries, space, alignment, vibrations, etc. Due to time constraints, members of the 4th detector concept were unable to attend the meeting to finalize this document, which was successful in producing a convergence from machine BDS, ILD, and SiD. Circulation of the final draft produced a very long list of comments from 4th, which has delayed circulation of the document. Resolution of the comments from 4th is nearing completion, and as soon as John Hauptman responded to the latest draft, it will be ready for circulation.

At the last Physics and Experiment Board meeting there was a request for a non-concept specific beam diagnostic document, to be referenced by each of the LOIs. The MDI Group asked the relevant people if they could produce such a document, and quickly prepared a very good technical note. It is currently being sent around to the key people.

R&D Common Task Working Group (Marcel Demarteau)

The US components of the LOI group are preparing proposals to submit to DOE and NSF. These are for support of university groups working on detector R&D needed for the R&D priorities of each of the LOI groups. The efforts would follow submission of the LOI, leading to a maturing of the concept, preparing for the technical design phase. The proposals are due February 18.

The R&D Common Task Working Group will soon organize a meeting to look at R&D in general, in order to prepare a report on R&D needs. There will be a talk related to this in the plenary session of the ACFA meeting.

Software Tools (Akiya Miyamoto)

All of the members are very busy preparing for the LOIs. The Group will meet at the ACFA meeting. CLIC people are interested in working on common software tools, and they have invited ILC people to join a workshop in the late spring. This will be discussed at the ACFA meeting, along with generally how to proceed following the LOIs.

Physics Panel (Michael Peskin)

The Physics Panel responded to the request to look into the first stage gamma-gamma collider proposal. Eckhard Elsen asked that a group be organized to look at the full set of issues, including machine. Tim Barlow and Michael worked with Andrei Seryi and Jeff Gronberg in doing a thorough study and writing it up (referred to above under ILCSC meeting). It took time, and a draft of the report was delivered to Eckhard, Barry and Sakue just before the ILCSC meeting. The full Physics Working Group only then reviewed the report. The full Group felt the report was unbalanced, emphasizing advocacy, and not properly weighing other issues.

The Physics Group will now step back, and try to prepare a more balanced, comprehensive report on ideas for staging the ILC. For example, there is a need to consider the physics case for a 230 GeV electron-positron collider for a light Higgs as another possible staging scenario. Other scenarios that will be considered include Giga-Z, WW threshold, etc.

The gamma-gamma physics report itself will be corrected and one more version will be put out. Tim Barklow will give a report on it in the plenary sessions at the ACFA meeting. Also, there will be a parallel session to discuss the topic.

John Jaros noted that the full assessment of staging should include much more than the physics case, including costs, etc. Michael said he had tried to get support from the GDE to help with issues like IR reconfiguration, and found there were no resources available to do it.

Sakue noted that the decision to stage is ultimately up to the ILCSC and ICFA. We must be careful how we deal with this. It is valuable and important to have the studies available, but dangerous to try to sell something different from the mainline approach of the ILCSC.

Michael also reported on the parameters study that the Physics Group is doing – looking into early discovery scenarios of the LHC and the implications for the ILC. There already have been meetings addressing this, such as the Fermilab Workshop, and the current Weiglein effort. Those have been focused, however, on the full LHC physics. What about the possible discoveries with low integrated luminosity? There are a number of possible early discoveries, such as SUSY with light superpartners, a relatively heavy Higgs (200 GeV), or a Z-prime at higher mass. What do we do in each case? The Physics Working Group will begin preparing the case for each of these and other possible low luminosity scenarios, working them up over the next few months. About mid-summer, they will come to the community to get broader engagement in looking into technical issues. Then a document is foreseen by the end of the summer, available in time for the Albuquerque meeting.

Ties asked how this is related to the CERN workshop with similar goals. Michael thought out community needed to formulate its own view of each case.

ILD LOI Report (Ties Behnke)

Currently the LOI group is holding workshop in Korea. There is good progress on many things, including the benchmarks.

SiD LOI Report (Harry Weerts)

SiD is making good progress, including benchmarks. Benchmark groups are meeting nearly every day. There will be a daylong meeting on February 24 on the benchmarks. The workshop at SLAC, March 2-4, will work to finalize the LOI.

4th (John Hauptman)

The 4th group is very busy. The plan is to converge at Fermilab during last two weeks. There are no showstoppers.

Next meeting

The next meeting is planned for March 17 (Tuesday) at 0600 GMT