Physics and Experiment Board Meeting

April 24, 2012 (1230 local time, KST)
Meeting in Daegu at KILC12 (Linear Collider Workshop)
Minutes (prepared by J. Brau)

Present: Ties Behnke, Jim Brau, Karsten Buesser, Phil Burrows, Keisuke Fujii, Juan Fuster, Norman Graf, Wolfgang Lohmann, Akiya Miyamoto, Yasuhiro Sugimoto, Sakue Yamada, Hitoshi Yamamoto and Paul Grannis (acting IDAG chair).

Excused: Catherine Clerc, Marcel Demarteau, John Jaros, Michael Peskin, Andy White.

Comments by IDAG following interviews at KILC12

Paul Grannis (acting IDAG chair) described the comments of the IDAG resulting from the meeting on the previous. During the IDAG meeting Juan presented the plan for the DBD introduction, and each of the detector groups presented the outlines of their DBD reports.

The first suggestion of the IDAG regarding the introductory chapter was that the complementary approaches taken by ILD and SiD to the physics goals be stressed. Some tabular presentations of the differing choices by the two concepts in their response to the common goals could be useful.

They would like to see more of the detector content move to the common introductory session, where possible. Topics that might be covered include pulse powering, backgrounds, and FCAL. The editorial committee should draw up a plan and make it public soon. For example, the details for FCAL could be described in the introduction, and a shorter description with dimensions and differences could be given in each of the detector reports.

The IDAG suggests writing the introduction as soon as possible, to guide the detector groups as they write their reports.

All past benchmark studies for 500 GeV should be given adequate coverage not just the new 1 TeV studies. These might be summarized at the beginning of the benchmark sections, with reference to the LoIs or other write-ups, followed by a more detailed description of the new benchmark studies.

The detector groups should make explicit page allocations to each topic soon, to guide the individual contributing authors.

The IDAG suggests removing future R&D from the ILD and SiD chapters, in order to emphasize that the described detectors are what can be realized now. Reference to future R&D in a separate chapter, separate reports or appendices would be preferred. There the important R&D needed to certify technical implementations, to exploit new technology, or to improve the current designs could be presented to augment the basic designs of the primary detector sections.

The IDAG took note of the fact that physics simulations are close to being completed, and outside of some reconstruction code that ILD must complete, the benchmark simulations can proceed soon. It is recommended that comparisons of the analysis results of ILD and SiD be done early, before the Arlington workshop in October, to guard against unnecessary differences.

DBD Introduction

Sakue said the introduction will be discussed by the editorial group soon taking the suggestions of IDAG into account, and the writing will proceed as early as possible.

MDI - Karsten

Here at Daegu, the MDI group has discussed how to distribute content between the DBD and the TDR. There are five parts to the effort, three in the DBD and two in the TDR. It has been agreed that Tom Markiewicz, Yasuhiro Sugimoto, Phil Burrows, and Karsten will write the common section of the DBD. With ten pages allocated, this section will include installation schemes and timelines for each type of site, and for each detector the experimental hall layouts, details of common services, description of push-pull, and design of the QD0 magnet. In the individual detector sections the specifics on the QD0 and IR, including backgrounds, will be described. It was noted it could be difficult to combine the backgrounds descriptions since they are detector dependent.

The first TDR section summarizes the R&D since the RDR, including beam delivery, lattice, QDO magnet, the permanent QD0 option, feedback systems, work on the push-pull design, beam dumps, and QD0 alignment. The second part of the TDR will cover the IR layout, hall layout, cryogenic, and the push-pull system.

Detector R&D topics – Wolfgang

The R&D common task group is organizing what to cover in the common items of the DBD. As for the question of describing the Forward CAL in the common chapter, Wolfgang responded that the group would consider such a solution.

Benchmark descriptions

The benchmark reactions will be defined in the physics section of the introduction. Both the older 500 GeV benchmarks and the DBD specified benchmarks will be described. Keisuke noted this comment and expressed agreement for the Physics Common Task Group.

Simulation of benchmarks – Akiya Miyamoto

Event simulation and development of common simulation tools will be described in the DBD introduction by the Software Common Task Group.

Beamline instrumentation

It was suggested that Jenny List be invited to write the beam polarization description, and Eric Torrence and Mike Hildreth be invited to write about the beam energy measurement.

Executive Summary

An executive summary will be written in collaboration with the GDE. Sakue will consult each group and ask a few individuals to contribute to this effort.

Information

We will try to collect complete information on the web page that has been set up at linearcollider.org: http://www.linearcollider.org/physics-detectors/Detectors/Detailed-Baseline-Design

Author list

Following the PEB meeting, Sakue discussed the plan for author list with Nick Walker who is working on this for the GDE. It was agreed to be natural that one author list including accelerator physicists and particle physicists would be combined and listed as "contributors," as was done for the RDR. Some indication of affiliation with either ILD or SiD or both is under consideration.

Drafts

It would be helpful to make daily builds of the drafts available, perhaps on the DBD web page referred to above.

Next meeting

The next meeting will be scheduled in about one month.