GDE R&D Board

Minutes of Meeting #50, 6 April 2007

Participants: Barry, Bill, Chris, Eckhard, Hitoshi, Marc, Lutz, Olivier, Tom and M Harrison.

FP7 Proposal draft: Eckhard

The RDB has received a draft of the proposal that is due in Brussels on May 2nd. The proposal consists of two major activities: governance etc. and technical. The non-technical part addresses the activities in the GDE. The European partners will attempt to fund major parts of their contributions to the GDE through the funds of this program. There are work packages that involve the other regions as well. The total volume of the program is 8 MEUR.

Comments are invited in particular for the inter-regional work packages 10-14. The role of the technical contribution will be seen in the S0/S1 presentation. As such the elements of the proposal should be presented at the MAC meeting.

The financing of the non-technical work will release the strain on the ILC budgets in the various laboratories. It should hence be foreseen that the budgets in urgent and topical activities for the ILC be increased respectively.

S0/S1: Lutz

Lutz presents the main outcome from their meeting earlier this week. The slides are available from the meeting page. A brief summary is following nevertheless.

There will be support from P Pfundt for project engineering and C Ginsburg as a scientific investigator. There combined effort should lead to a consolidated data base.

There are very promising results on single cells from KEK based on 20+3 µm EP with HF, HPR and bake. A EP 20µm +H2O2 + HPR + bake program is under way. Excellent results have been obtained on multi cells from JLAB. On the production-like tests new vendors have been explored. KEK has encouraging results. However, quality control with vendor still has to be improved.

Tight loop tests for ACCEL cavities ok. S0 results become available. Progress.

Module 6 (M6) degraded by the 2 cavities that do not provide the full gradient.

Distribution of cavities still difficult. M4 and M5 were easier (smaller difference between VTA and horizontal test). The distribution is the justification for S1. Plan for S1: Activities in all three regions. Could imagine cavities from other regions to be tested, e.g. at DESY.

If it were felt necessary to achieve the goal of a uniformly high gradient module a so called "Dream module" at 31.5 MV/m could be patched with the best cavities from all three regions in 2009. It still has to be worked out when these could be available for the gradient decision. One should also decide whether this goal from the original TRC report is still of sufficient priority.

On the required resources the main goal is to produce A*30 cavities with A≥1. They should originate from qualified vendors, a qualified infrastructure and as such could start only end 2009, i.e. post EDR.

The costing of the ILC may hence have to be based on the knowledge that exists prior to that point in time. With 28 MV/m average the cost increases by 7% due to change of linac length. The spread is not the driving element (as long as it is symmetric). The total project cost increases by ~500 MILC and thus justifies considerable research funds.

Three scenarios have been investigated: pessimistic case, realistic (FP7) and optimistic (FP7 and Hi gradient XFEL, Japanese program increases by 20% and US doubles the numbers in 2009). Infrastructure is not included. The manpower has not been included and the allocation of cost varies in the regions. The numbers vary between 18, 24 and 26 MILCU. The total cost including the tight loop tests will amount to 33 MILCU

This is the sample that will be available for discussion in 2009.

The benefits from this program are: a better knowledge of the gradient and will provide information for the final gradient decision. Cost benefit from assessment: gradient vs linac length increase.

In addition the program for alternatives will be mentioned. Major milestones: module 10 (dream module). To come: contact with S2

In the discussion the RDB wondered whether to attempt an cost benefit discussion for the other task forces as well, i.e. S0-3. It would be important to use the same unit and scales on cost and benefits. How to treat manpower which typically is high for R&D?

S2: Tom
The S2 report is ready and will go to the EC for final comments/approval.

The cost benefit for S2 is based on risk analysis. Recent experience in other areas shows that before embarking on a large scale production the full string better be tested reliably. A reasonable string length is 1% of the total. Evidently it is difficult to evaluate risk numbers in monetary units. A possible delay in conducting the test may however be quantifiable.

The S2 report has been changed to adapt to the timelines of S0S1 on cavities availability.

S4: Marc
There is a document on risk assessment. An extended task force meeting is planned for the April 11.

AOB: Tom
Tom reports that he has been asked to serve on the Fermilab committee to evaluate the future options for an intermediate HEP program at FNAL. The committee is chaired by YK Kim and the report should be ready in the fall.

Organizing the rehearsal April 20th:
Drafts of the talks should be in one day before the meeting. The salient points will be discussed during that RDB meeting. Critical passages can be reviewed in a "dry run" on the day before the MAC meeting. A Seryi will be invited for that presentation.

Organizational matters:
Next Meeting Apr 13, 2007, 13:00 UTC.

E Elsen