

Director's Corner

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Barry Barish

Developing a roadmap for ILC detectors

In about three years, we expect to have an engineering design (EDR) with costs and a plan for building the ILC that can serve as the basis of proposals to our funding agencies. We will also have to come forward at the same time with an associated plan for the research programme, so that it can also be assessed for funding. The timescale to build, assemble and test an ILC detector is not much shorter than for the machine, therefore funding will be required at nearly the same time. With that in mind, I have advocated for a long time to get the detector timescale onto a similar track as the machine. This is not an easy task as it involves many subtleties. At the LCWS and ILC 07 meetings at DESY a few weeks ago, the World Wide Study (WWS) co-leaders (Jim Brau, François Richard and Hitoshi Yamamoto) presented such a plan to the International Linear Collider Steering Committee (ILCSC) and the ILC community for discussion.

During the common plenary, a sort of "town meeting" took place where François Richard presented elements of the roadmap to a large audience. Shin-ichi Kurakowa (KEK), representing the ILCSC, Albrecht Wagner (DESY), representing the International Committee for Future Accelerators (ICFA) and myself, representing the GDE, participated in a lively give and take with the audience, following [François' presentation](#).

Keeping in mind that the presented plan is still a work in progress and is likely to evolve considerably, the key goal is that a detector timeline be adopted that is compatible with the accelerator timeline. This implies developing engineering design reports (EDR) for two detectors by the end of 2010, which means that two detector groups must be chosen in 2008 to carry out the engineering designs. They propose that the ILCSC appoint an ILC Research Director to provide central coordination of this programme and that they form an International Detector Advisory Group to advise on detector R&D and the selection of EDR groups. Finally, they propose that the ILCSC make a call for Letters of Intent for the two detector EDRs soon with due dates in about a year.

This is quite an ambitious plan, but one that has the promise of developing detector proto-collaborations and proposals consistent with the machine timeframe of producing the EDR in 2010. This plan raises many issues, for example how the new Research Director will interact with the GDE. I said during the discussion that the GDE would welcome such a "single point of contact" for the detectors, which would facilitate the many decisions that will need prompt and clear detector input during the EDR phase. In the plan as presented, the Research Director would be independent of the GDE and would report to the ILCSC or possibly a revised oversight body.

A second, more difficult question is how the detector community will be able to keep technology and detector options open with ongoing R&D, especially considering the uncertain timescale for the ILC. This is an even more difficult challenge than for the machine where we are pursuing technical alternatives, some of which we expect will be incorporated at a later time. For the detectors, more fundamentally different detector strategies or technologies could be chosen depending on the ILC timescale.

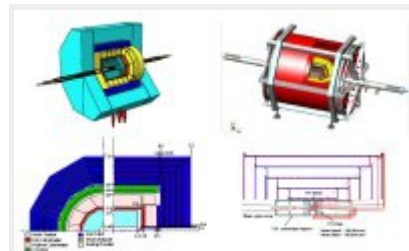
Lastly, there will be the decision that is likely to be difficult of reducing the detector R&D projects from four to two groups to develop detector EDRs. Perhaps there will be some natural coalescence, but this selection will set out the path for detectors for the ILC, and the community needs to be comfortable with the mechanism for making these choices.

I don't know how much of this plan will come to pass in its present form, but I applaud my detector colleagues for grappling with the difficult issues involved in developing collaborations and proposals for ILC detectors. Detectors and detector collaborations have traditionally developed through bottom-up processes and we need to be very careful not to tamper too much with such a tried and true mechanism for carrying out particle physics research. Nevertheless, if we really want the ILC, we need to prepare ourselves to come forward with the strongest and best worked out plan we can for both the machine and associated research programmes.

-- Barry Barish



François Richard presented a detector roadmap to the ILC community at LCWS07



The detector community is presently developing four detector concepts. In the proposed roadmap, two Letters of Intent will be selected for developing detector engineering design reports.