

Research Director's Report

18 February 2010



Sakue Yamada

Detector groups work out their work plans

In my [report](#) of last December, I wrote about detector activities in the new phase after validation. One of them was the effort of the two detector groups, ILD and SiD, to make the work plans towards their detailed baseline design aimed to be ready in 2012. The groups handed me their first versions in October last year. However, they were given with a caveat that there were uncertainties that would need some time to solve. They have been trying to refine their work plans.

The main uncertainty comes from availability of future resources. Both groups made the first plans assuming that necessary resources would be obtained. This is not certain at all, and the very first step to realise the plan is to secure the required resources. The detector activity is carried out by the cooperation of many institutions widely spread in the world. Participating groups count more than two hundred institutions from about 40 countries, where the funding systems and financial environment are different. Similar situations have been experienced for many large experimental groups at the existing facilities. The difference is that detector and physics studies for the ILC are aimed to prepare a project proposal whereas for the others the goal is to build detectors for accelerators already running or under construction. Support for the ILC detector groups by funding agencies and laboratories varies depending on their prospects. There are already known difficulties in some countries, creating an undesirable imbalance among the participating institutions. Also, even where resources are already obtained, efforts are required to secure them for the coming years through 2012.

Young people are carrying much of the physics and detector activity. This is important and welcome. In many cases, however, their status is temporary. Reduction of resources closes chances for them, resulting in a serious slow-down of the activities. When the ILC will be built in the future, these young people will be the ones to pursue physics there. For them, getting good experience with the ILC detectors and physics is very valuable.

There is also complexity in the detector activity that the Letter-of-Intent (LOI) process is a new way of detector R&D. The validated groups work hard to integrate detector components and software into high-performance detector systems that fit together with the ILC accelerator. In the LOIs the groups made certain conceptual choices of subdetectors, which were scrutinised during the validation process. Yet, the chosen technologies must be verified for feasibility and some options remain so that we finally choose the best technology. Also it was made clear that doors would be open for new ideas and technologies in the future. These require further intensive R&D. When one looks at R&D for a particular component, there is also a generic feature that the technology can be applied for other experiments or even for medical uses. Typically, when the participating detector R&D subgroups file their application for budget to their funding agencies, advocating their ideas for ILC detector components, the generic scope is kept in the background. The ILC detector activity is a compilation of these efforts, possibly with wider scopes than the ILC, but bound by the attractiveness of physics possibility at the ILC. There is certain competition remaining among the collaborating groups.

These are challenges faced by the detector groups to complete their detailed baseline designs in 2012. They are making much effort to cut ways through. It is much appreciated and I hope making a refined work plan towards the goal by setting their own milestones, helps to strengthen the effort. The management wishes to join the effort by mitigating the difficulties wherever possible. The common task groups can function to moderate some problems by promoting cooperation of the two groups. The International Detector Advisory Group will continue to monitor the activities of the validated groups and will give advice from the viewpoint to help them realise the goal.

-- Sakue Yamada



ILD Detector group meeting in Paris last January. Image: Perrine Royole-Degieux