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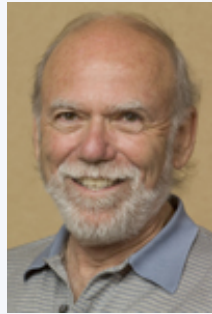
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Director's Corner

8 February 2007



Barry Barish

Report from Beijing: The ILC Reference Design Report

The GDE's first major goal was to define the basic parameters and layout for the ILC and document them in a Baseline Configuration Document (BCD). We achieved this at the first GDE meeting held at INFN, Frascati, Italy, in December 2005. During the next 14 months, the BCD was used as the basis for the detailed design work and value estimate, culminating in the completion of the second major milestone, the publication of the draft [ILC Reference Design Report](#). We also accomplished this goal and [presented the RDR](#) this week in Beijing first at a joint session of the ACFA / GDE meeting and then to the International Linear Collider Steering Committee (ILCSC) and the International Committee for Future Accelerators (ICFA).

The ILC design has been developed to achieve the physics performance goals, summarised in an ILCSC parameters report and established by international consensus through workshops. We have developed our technical requirements directly from these science goals and they have guided our design. The technical design for the ILC is strongly based on nearly two decades of world-wide Linear Collider R&D, beginning with the construction and operation of the SLAC Linear Collider (SLC). A very strong result of the reference design is that we have produced a concept that is feasible and can meet the technical requirements and physics goals.

We have produced a Reference Design Report that describes all the major technical systems in the ILC. It also covers all areas where considerable optimisation of cost to performance has been carried out over the past six months. I have discussed many of those studies in previous columns and reported how our design has evolved.

As part of the Reference Design Report, the Global Design Effort produced a preliminary value estimate of the cost for the ILC in its present design and at the present level of engineering and industrialisation. The estimate contains three elements:



Dr. Hesheng Chen, Director of IHEP, greeting the participants and describing the high-energy physics programme of IHEP

- 1.78 Billion (ILC Units) for site-dependent costs, such as the costs for tunnelling in a specific region,;
- 4.87 Billion (ILC Units) for shared value of the high technology and conventional components;
- 13,000 person-years for the required supporting manpower (= 22 million person-hours)

For this value estimate: 1 ILC Unit = 1 US Dollar (2007) = .83 Euro = 117 Yen

This estimate is comparable to the cost for the Large Hadron Collider (LHC) at CERN when costs for pre-existing facilities are included.

The value cost estimate will provide guidance for optimisation of both the design and the R&D to be done during the engineering phase, which will start in the fall of 2007, after the final Reference Design Report is presented to ICFA. Based on what has been learned so far, the GDE is confident that the value can be maintained at this level, as the design is optimised during the engineering design phase.

Many very talented physicists and engineers did a tremendous amount of dedicated work in producing the reference design and report. They should all feel very proud of this important accomplishment, and I want to thank my colleagues for a job very well done!

-- *Barry Barish*



Nan Phinney, smiling RDR chief editor upon completing her task.



Wilhelm Bialowons, GDE European Cost Engineer, presenting the Value Estimates for the Reference Design