

Director's Corner

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Barry Barish

What's in a Schedule?

On 22 February, I reported on our Reference Design Report to HEPAP, High Energy Physics Advisory Panel in the US. The committee responded very positively to what we have achieved, and the chair, Mel Shochet, wrote to me after the meeting on behalf of HEPAP. He said, "*HEPAP congratulates the GDE on the outstanding accomplishment of completing the Reference Design Report for the ILC. This is a major step towards achieving the primary long-term goal of the international high-energy physics community: the approval and construction of the International Linear Collider.*" We should feel very pleased and proud to receive this strong affirmation.

Just before I presented at HEPAP, Dr. Raymond Orbach, Under Secretary for Science at the DOE, gave a presentation where he hypothesised a timescale for completion of the ILC of "*the mid-2020s, if not later.*" Today I discuss the meaning and significance of that statement, as well as give

my own views of what will determine the schedule of the ILC.

In Ray's presentation, he addressed what he described as the need to "*make the right choices on the right timescales to ensure the vitality and continuity of the field for the next several decades and to maximize the potential for major discovery throughout the period.*" Ray is responsible for developing realistic plans and commitments for DOE high energy physics, and he is particularly concerned about the impact of ILC scheduling on the non-ILC part of the programme. On the other hand, it is our goal in the GDE to develop plans that will move the ILC project forward aggressively, yet on a realistic timeline. As a result, our timeline and Ray's schedule do not agree, and they don't necessarily need to at this stage of the project. What is more important for us is whether we will be granted the needed resources from our governments to carry out the engineering design and accompanying R&D programme over the next few years. I am optimistic that with continued progress and success from us, the necessary resources will be there.



Raymond Orbach, Under Secretary for Science at the DOE

We don't yet have a schedule that we can propose and defend for the ILC, but we do have a plan to complete the engineering design in 2010, motivated by the goal of being ready when the LHC achieves its first significant look at the Terascale. With that in mind, we might optimistically expect initial funding to begin construction by about 2012. If so, and assuming a seven year construction schedule, the earliest date to complete the ILC would be 2019. This is what we might consider a first cut at a technically driven schedule. It is noteworthy that there is a discrepancy of 5 to 10 years between this and Ray's schedule and this raises the question which of the two is more accurate.

The difference between our technically driven schedule and Ray's planning schedule is not due to stretched out engineering and R&D efforts. This is a crucial point! Instead, the difference comes primarily from his estimate of how much time it will take to make government agreements, to determine the division of responsibilities and resources, to obtain funding, and finally to agree where to site the project. This could clearly take a long time, so it is hard to argue with Ray's logic.

In fact, we should consider the conservative schedule presented by Ray to be effectively a good "kick in the pants." If we really want to complete the ILC on a timescale around the end of the next decade, we must begin a major effort to put together the collaboration, responsibilities and government commitments, and in parallel continue with our work toward an engineering design. With the help of FALC, ILCSC and ICFA, we must approach this part of the problem with the same vigour and determination that we have been applying to the technical design. It is essential that we make progress on the non-technical part of the ILC as well as with the design and R&D efforts. If we succeed at both, we will be able to come forward with both a sound construction proposal, and one that includes a solid implementation plan with a timescale that is far more attractive than Ray's. However, it is sobering that we cannot point to very much progress on the non-technical front so far during the GDE era. Therefore, the burden of proof is on us!

On that note, I leave you with a thought from *Don Quixote* by my favourite Spanish writer, Miguel de Cervantes Saavedra: "*Delay always breeds danger and to protract a great design is often to ruin it.*" The time for action is now!

-- Barry Barish