

LINX test facility at SLAC

Message to the Worldwide Linear Collider Community

The high energy physics community worldwide is anticipating that the necessity to build the high energy linear collider will soon be acknowledged by the national governments, the consensus on the choice of technology and location will be achieved and an international collaboration to construct such a facility will be created.

Regardless of what country will eventually take the primary responsibility to host the first high energy linear collider, successful construction of such a major facility will to a great extent depend on an efficient use of test facilities created in various institutions worldwide to support linear collider R&D.

As proven in the past, test facilities can give, in many cases, much more confidence and significant savings in terms of time, resources and the ultimate performance of a machine. For a high energy linear collider, test facilities will be indispensable to prototype its various components and polish the technical solutions during both the stage of the final R&D and during its construction.

The NLC collaboration is proposing to create the LINX test facility at SLAC to prototype an important part of a linear collider – its interaction region, in particular to explore the problems of background reduction and to attack the challenge of nanometer position stability of colliding beams. These questions have not been properly addressed in any existing test facilities and it is certain that such tests may hardly be conducted by some other way, without a beam. It is also certain, that such a test facility may be eventually used to explore other ideas, beyond the list presented in the attached proposal.

SLAC, being the home of the very first linear collider, has a unique opportunity to host such a test facility. It should be stressed that one of the advantages of the proposed test facility is that valuable scientific results may be gained with rather small resources, because most of necessary hardware already exists at SLAC.

Effective design of an Interaction Region of a linear collider is a challenge, but the IR is also special because its problems are common in any incarnation of linear collider and the solutions that may be found will be applicable to any design, regardless of the choice of RF technology. ***The NLC collaboration is addressing the Worldwide Linear Collider community to consider participation in the LINX test facility. We believe that this test facility is of significant scientific importance and that such participation will be for our mutual benefit.***