

Conclusions on the 250 GeV ILC as a Higgs Factory proposed by the Japanese HEP community - Short Summary -

Linear Collider Board

8 November 2017, Rev 1

Physics studies by the Linear Collider Collaboration Physics and Detector Group [1], and the Japanese Association of High Energy Physicists (JAHEP) [2] show a compelling physics case for constructing an ILC at 250 GeV centre of mass energy as a Higgs factory. The cost of such a machine is estimated to be lower by up to 40% compared to the originally proposed ILC at 500 GeV [3]. The acceleration technology of the ILC is now well established thanks to the experience gained from the successful construction of the European XFEL in Hamburg. One of the unique features of a linear collider is the capability to increase the operating energy by improving the acceleration technology and/or extending the tunnel length. For these reasons, the Linear Collider Board strongly supports the JAHEP proposal [4] to construct the ILC at 250 GeV in Japan and encourages the Japanese government to give the proposal serious consideration for a timely decision.

In recent examples of similar international projects¹, the host country made the majority contribution. A natural expectation would be that the cost for the civil construction and other infrastructure is the responsibility of the host country, while the accelerator construction should be shared appropriately. A clear expression of interest to host the machine under these principles would enable Japan to start negotiations with international partners. It would also allow members of the international community to initiate meaningful discussions with their own governments on possible contributions.

References

- [1] K. Fujii et. al. (Linear Collider Collaboration), “Physics Case for the 250 GeV Stage of the International Linear Collider”, DESY-17-155 / KEK Preprint 2017-31 / LAL 17-059 / SLAC-PUB-17161, arXiv:1710.07621 [hep-ex].

¹Recent examples in the field close to the ILC are European XFEL and FAIR in Germany.

- [2] S. Asai et al, “Report by the Committee on the Scientific Case of the ILC Operating at 250 GeV as a Higgs Factory”, arXiv:1710.08639 [hep-ex].
- [3] L. Evans and S. Michizono (Edit.) (Linear Collider Collaboration), “The International Linear Collider Machine Staging Report 2017, Addendum to the International Linear Collider Technical Design Report published in 2013”, DESY 17-180, CERN, KEK Report 2017-3, arXiv:1711.00568 [hep-ex].
- [4] JAHEP, “Scientific Significance of ILC and Proposal of its Early Realization in light of the Outcomes of LHC Run 2”, <http://www.jahep.org/files/JAHEP-ILCstatement-170816-EN.pdf>.