

TLEP/LEP3 Physics

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The physics potential of these circular colliders at all energies will be presented and compared to that of other options, in particular to the International Linear Collider (ILC) and the Large Hadron Collider (LHC) prospects. With its unique instantaneous luminosity and the possibility of four interaction points operating simultaneously, the TLEP option will be able to reach the sub-percent precision for most Higgs boson couplings to gauge bosons and to fermions. This accuracy, needed for these measurements to become sensitive to new physics at and beyond the TeV scale, can be achieved with detector performance similar to those of the present LHC detectors. It will also allow unprecedented accuracies to be reached for all precision electroweak measurements, and will determine with great precision the top quark properties. The cost-effective LEP3 option, which would re-use the existing tunnel and detectors, would be a very interesting back-up, should the world financial situation stay at a critical level.

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