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Experimental prospects for indirect BSM searches in $e e \rightarrow q\bar{q}$ ($q = c, b$) processes at Higgs Factories.

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Future Higgs Factories will allow the precise study of $e e \rightarrow q\bar{q}$ with $q = s, c, b, t$ interactions at different energies, from the Z-pole to high energies never reached before.

In this contribution, we will discuss the experimental prospects for the measurement of differential observables in $e e \rightarrow b\bar{b}$ and $e e \rightarrow c\bar{c}$ processes at high energies, 250 and 500 GeV, with polarised beams, using full simulation samples and the reconstruction chain from the ILD concept group.

These processes call for superb primary and secondary vertex measurements, a high tracking efficiency to correctly measure the vertex charge and excellent hadron identification capabilities using dE/dx . This latter aspect will be discussed in detail together with its implementation within the standard flavour tagging tools developed for ILD (LCFIPlus). In addition, prospects associated with potential improvements of the dE/dx reconstruction using cluster counting techniques will also be discussed. Finally, we will briefly discuss the potential of the discovery of BSM models such as Randall-Sundrum models with warped extra dimensions, profiting from measurements of b/c quark-related observables at different beam energies and polarisations.

Collaboration / Activity

Higgs Factories, ILD

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