

$Z \rightarrow \tau^+ \tau^-$ reconstruction and preliminary tau polarization studies at FCC-ee: ILD vs CLD

This contribution compares the ILD and CLD detector concepts for FCC-ee, based on full simulation of $e^+e^- \rightarrow Z \rightarrow \tau^+ \tau^-$ events (Pythia8, PandoraPFA). The study covers particle-level reconstruction performance (efficiency, purity, and resolution) as well as tau decay reconstruction across leptonic and hadronic channels. We further extend the comparison to a preliminary tau polarization analysis using an asymmetry-fit method, evaluating how detector-level differences propagate to the final physics observables.

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