

First ECFA WORKSHOP.

Contribution ID: 43

Type: **Parallel session talk**

Identification of charged leptons in jets at future Higgs factories.

Thursday 6 October 2022 14:45 (15 minutes)

An important goal at future Higgs factories are precise measurements of the 125 GeV Higgs boson properties. As the Higgs boson predominantly decays to $b\bar{b}$, the precise reconstruction of heavy flavor jets is crucial. A source of uncertainty for these jets is missing momentum from semi-leptonic decays $b \rightarrow \ell \nu X$. Recent work has shown the possibility of correcting this missing neutrino momentum. For this, the charged lepton from the decay needs to be successfully reconstructed and identified. While particle flow detector concepts with their high granularity offer ideal conditions to identify leptons inside jets, the excellent hardware needs to be matched with corresponding reconstruction algorithms. In this work, we use the detailed simulation of the ILD detector concept to investigate how to exploit the information provided by a particle flow detector to identify single electrons and muons in a dense environment and how this improves the reconstruction of $H \rightarrow b\bar{b}$ decays.

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Session Classification: WG 2: Physics Analysis Methods

Track Classification: WG2 - Physics Analysis Methods