International Workshop on Future Linear Colliders 2025



Contribution ID: 10 Type: Talk

The bottom quark mass at high scale

Thursday 23 October 2025 10:20 (20 minutes)

Measurements at electron-positron colliders can probe the scale evolution of quark masses predicted by the Standard Model in several ways. LEP and SLD extracted mb(mZ) from three jet rates in Z->bbbar decay. A future Z-pole run can improve the precision considerably, while a measurement of mb at higher scale is possible from e+e--> bbbar production at 250 GeV and above. A very precise determination of mb(mH), with an uncertainty of 10s of MeV, can be achieved from measurements of Higgs decay rates in the Higgs factory runs at sqrt(s) = 250 GeV and 550 GeV. In this contribution, we improve the extraction of mb(mH) using LHC data and provide updated projections for the HL-LHC and future colliders, adopting the most recent scenarios.

Authors: RAMÍREZ ALFARO, Juan (IFIC (UV/CSIC)); VOS, Marcel (IFIC (UVEG/CSIC) Valencia); Dr MORENO

LLACER, Maria (IFIC, (CSIC - Univ. of Valencia))

Presenter: RAMÍREZ ALFARO, Juan (IFIC (UV/CSIC)) **Session Classification:** Flavour, Top and QCD

Track Classification: Physics: Flavour, Top and QCD