



Contribution ID: 80

Type: Oral presentation using Zoom

The bottom quark mass and the Higgs boson

Wednesday, 27 October 2021 17:06 (20 minutes)

We present a new measurement of the bottom quark mass based on the determination of Higgs decay rates to bottom quarks. The current measurements by ATLAS and CMS yield a value for the bottom quark at the scale of the Higgs boson mass $m_b(m_H) = 2.6$ GeV, with an uncertainty of less than 15%. The theory uncertainty has been investigated in detail and is found to be a fraction of the current experimental uncertainty. The prospects for this measurement at the ILC are excellent, with the statistical uncertainty reaching several tens of MeV. Confronting this determination at high scale with the PDG world average for $m_b(m_b)$ based on low-energy measurement and the measurement of $m_b(m_Z)$ at LEP and using SLC data, we find strong evidence for the scale evolution of the bottom quark, as predicted by the renormalization group equations in QCD.

1st preferred time slot for your oral presentation

19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)

2nd preferred time slot for your oral presentation

15:30-17:30 JST (8:30-10:30 CEST, 2:30-4:30 EDT, 23:30-1:30 PDT)

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Session Classification: G: Top / Heavy flavour / QCD

Track Classification: Parallel sessions: Topical Groups: Session G: Top / Heavy flavour / QCD