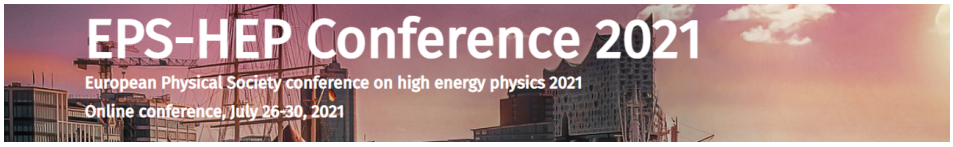

Contribution ID: **58** Type: **Parallel session talk**

mb(mH): extracting the bottom quark mass from Higgs precision measurements

Thursday, 29 July 2021 10:55 (17 minutes)

A new method is presented to extract the bottom quark mass from collider data on Higgs production and decay rates. We find a value for the bottom quark MSbar mass at the scale of the Higgs boson mass of mb(mh) = 2.6 +/- 0.3 GeV from recent measurements of Higgs coulings by the ATLAS and CMS experiments at the CERN LHC. This result is compatible with the prediction of mb(mh) from the evolution of the world average for mb(mb) and thus provides further evidence for the scale evolution, or "running" of the bottom quark mass. Future precision measurements of Higgs decay rates are expected to improve this result considerably. We assess, in particular, the potential of the complete HL-LHC program and of a future "Higgs factory" electron-positron collider.

First author

Marcel Vos

Email

marcel.vos@ific.uv.es

Collaboration / Activity

interpretation of LHC data

Primary authors: VOS, Marcel (IFIC (UVEG/CSIC) Valencia); SPIRA, Michael (Paul Scherrer Institut); HOANG, Andre (University of Vienna); IRLES, Adrian (DESY); FUSTER, Juan (IFIC-Valencia); RODRIGO, German (IFIC-S8a Valencia); TAIRAFUNE, Seidai (U. Tohoku); YONAMINE, Ryo (U. Tohoku); YAMAMOTO, Hitoshi (U. Tohoku/IFIC Valencia)

Presenter: VOS, Marcel (IFIC (UVEG/CSIC) Valencia)

Session Classification: T09: Higgs Physics

Track Classification: Higgs Physics