



Contribution ID: 353

Type: Oral Presentation

Predictions for the Higgs boson mass measurement precision as a function of its transverse momentum up to 1 TeV for LHC and high luminosity LHC

Wednesday 31 July 2019 17:36 (24 minutes)

The question of naturalness of the Standard Model has been a hot topic since the discovery of the Higgs boson with a relatively light mass. It has been pointed out in the past that the mass of a scalar boson can be destabilized by loop corrections.

Many Beyond the Standard Model theories have been proposed to address this problem. It is possible that such mechanisms contribute to the running of the Higgs mass with the energy scale.

We present predictions for the precision of the Higgs mass measurement up to a Higgs boson transverse momentum of 1 TeV for LHC Runs 2 and 3 with luminosity 150 fb^{-1} and 300 fb^{-1} , and high luminosity LHC with luminosity of 3000 fb^{-1} . Predictions are generated with Madgraph5, Pythia8 and Delphes based on the CMS detector resolution.

Authors: BARINGER, Philip Shively (The University of Kansas (US)); GOUZEVITCH, Maxime (Centre National de la Recherche Scientifique (FR)); KROPIVNITSKAYA, Anna (The University of Kansas (US))

Presenter: KROPIVNITSKAYA, Anna (The University of Kansas (US))

Session Classification: Higgs & Electroweak Physics

Track Classification: Higgs & Electroweak Physics