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Higgs boson-like high mass resonance search in the H ⟶ ZZ ⟶ 2l2q decay channel at =13TeV using CMS experiment data

Tuesday 13 December 2022 14:00 (1 hour)

The LHC physics program achieved a huge physics goal by discovering the most anticipated particle, the Higgs boson, at 2012. Although the Higgs mass was found to be 125 Gev, there are physics models predicting heavy Higgs bosons. In LHC Run 1 analysis, It has already been found that there is no standard model like heavy Higgs boson within the mass range between 200 GeV and 1000 GeV. With an increased center of mass energy in LHC run 2, it will be good to perform a similar test. In this analysis, full LHC Run 2 data recorded by CMS detector has been used to look for high mass resonance in two Z bosons production, where one of the Z bosons decays into two leptons, whereas the other Z boson decays into quarks. A matrix element based method has been used to calculate discriminants between the signal and backgrounds, using the complete kinematic information of the final state particles.

Session

Higgs Physics

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