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Higgs boson production through FCNC interactions

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Abstract

Since top quark has large Yukawa coupling, investigation the Higgs-top sector is highly interesting as it looks for any deviations from the standard model predictions. In this paper, we study the Higgs boson production in the gluon-gluon fusion channel and in the presence of top quark Flavor Changing Neutral Current (FCNC) interactions at the LHC. We utilize the standard model effective field theory framework to probe the new physics effects. The amplitude for Higgs boson production via FCNC interactions and the theoretical expression for its signal strength are calculated. Then, by comparing this theoretical expression with the experimental value reported by LHC collaborations, we find the allowed region for those FCNC couplings that play a role in Higgs boson production.

Keywords: Higgs boson, flavour changing neutral current, gluon-gluon fusion

For full article, refer to the Persian section