



Contribution ID: 356

Type: parallel talk

Search for Vector-like quarks at CMS

Tuesday 9 May 2017 14:00 (15 minutes)

We present results of searches for massive vector-like quark partners using proton-proton collision data collected with the CMS detector at the CERN LHC at a center-of-mass energy of 13 TeV. These fourth-generation quarks are postulated to solve the Hierarchy problem and stabilize the Higgs mass, while escaping constraints on the Higgs cross section measurement. The vector-like quark can be produced singly or in pairs and their decays result in a variety of final states containing top and bottom quarks, as well as gauge and Higgs bosons. We search using several categories of reconstructed objects from multi-leptonic to fully hadronic final states. We set exclusion limits on both the vector-like quark mass and cross sections for combinations of the vector-like quark branching ratios.

Summary

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Session Classification: BSM III