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RADPyC2024

Thursday 06 June 2024

Short Plenary 4 - (10:30-11:00)

A search has been performed for heavy resonances decaying to ZZ or ZW and for axion-like particles (ALPs) mediating nonresonant ZZ or ZH production, in final states with two charged leptons ($ll=$ e, μ) produced by the decay of a Z boson, and two quarks produced by the decay of a Z, PW, or Higgs boson H. The analysis is sensitive to resonances with masses in the range 450 to 2000\GeV. The search is based on data collected during 2016--2018 by the CMS experiment at the LHC in proton-proton collisions at a center-of-mass energy of 13 TeV, corresponding to an integrated luminosity of 138 fb$^-1$. No significant excess is observed in the data above the standard model background expectation. Upper limits on the production cross section of heavy, narrow spin-2 and spin-1 resonances are derived as functions of the resonance mass, and exclusion limits on the production of bulk graviton particles and W' bosons are calculated in the framework of the warped extra dimensions and heavy vector triplet models, respectively. In addition, upper limits on the ALP-mediated diboson production cross section and ALP couplings to standard model particles are obtained in the framework of linear and chiral effective field theories. These are the first limits on nonresonant ALP-mediated ZZ and ZH production obtained by the LHC experiments.

time	title	presenter
10:30	Search for heavy resonances decaying to ZZ or ZW and axion-like particles mediating nonresonant ZZ or ZH production at sqrt(s) = 13 TeV	REYES ALMANZA, Rogelio