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Search for high mass resonances decaying into W^+W^- in the dileptonic final state with 138 fb^{-1} of proton-proton collisions at $\sqrt{s} = 13 \text{ TeV}$

Monday 12 December 2022 14:00 (1 hour)

A search for high mass resonances decaying into a pair of W bosons is presented. The analysis is based on proton-proton collisions observed by the CMS experiment at the CERN LHC for full Run 2, corresponding to an integrated luminosity of 138 fb^{-1} at $\sqrt{s} = 13 \text{ TeV}$. The analysis considers the fully leptonic final state. New techniques are implemented in the analysis to improve the sensitivity of the search, especially in the very high mass range. The search is performed in a mass range from 115 GeV to 5 TeV, and for various width hypotheses. The effects of background and signal interference are also considered. The results are presented as 95% confidence level upper limits on the product of the cross section and branching ratio on the production of a high mass resonance, as well as exclusion limits are derived on various two-higgs-doublet models and minimal supersymmetric standard model benchmark scenarios.

Session

Higgs Physics

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