

Search for the rare decays of the Z and Higgs bosons to a J/Psi or Psi' meson and a photon at CMS

Thursday 18 July 2024 20:40 (20 minutes)

This contribution presents a search for rare decays of the Z and Higgs bosons to a photon and a charmed meson J/Ψ or Ψ' , which subsequently decays to a pair of muons. The employed data set corresponds to an integrated luminosity of 123 fb^{-1} of proton-proton collisions at center of mass energy $\sqrt{s} = 13 \text{ TeV}$, collected with the CMS detector during LHC Run-2. The analysis strategy relies on the presence of two resonances in the signal, unlike the other standard model background contributions. No significant discrepancies with respect to the standard model expectation are observed and upper limits at 95% confidence level are set on the branching fractions of these rare decay channels. The search significantly improves on the existing limits, thanks to innovative signal selection techniques. In addition, the limits are interpreted in the κ -framework to constrain the coupling of the Higgs boson to the charm quark.

Alternate track

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Session Classification: Poster Session 1

Track Classification: 01. Higgs Physics