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Search for HH or $X \to SH$ production in final states with one or two light leptons and a pair of τ-leptons with the ATLAS detector

Thursday 18 July 2024 20:40 (20 minutes)

A search for HH or $X \to SH$ production in final states with one or two light leptons and a pair of τ-leptons is presented. The search uses a pp collision data sample with an integrated luminosity of 140 fb^{-1}, recorded at a center-of-mass energy of $\sqrt{s} = 13$ TeV, with the ATLAS detector at the Large Hadron Collider. The search selects events with two hadronically decaying τ-lepton candidates from $H \to \tau^+\tau^-$ decays and one or two light leptons ($\ell = e,\ \mu$) from $S(H) \to VV$ ($V = W,\ Z$) decays while the remaining V boson decays hadronically or neutrinos. A multivariate discriminant based on event kinematics is used to separate the signal from the background. No excess is observed beyond the expected SM background and 95\% confidence level upper limits will be reported.

I read the instructions above

Yes

Alternate track

1. Beyond the Standard Model

Authors: ALI, Babar (Czech Technical University in Prague (CZ)); DELIOT, Frederic (Université Paris-Saclay (FR))

Presenter: ALI, Babar (Czech Technical University in Prague (CZ))

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