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Search for a W' boson decaying to a τ lepton and a neutrino in proton-proton collisions at $\sqrt{s}=13\text{TeV}$ (Article) [Open Access](#)

Sirunyan, A.M.^a, Tumasyan, A.^a, Adam, W.^b, Ambrogio, F.^b, Asilar, E.^b, Bergauer, T.^b, Brandstetter, J.^b, Dragicevic, M.^b, Erö, J.^b, Escalante Del Valle, A.^b, Flechl, M.^b, Frühwirth, R.^b, Ghete, V.M.^b, Hrubec, J.^b, Jeitler, M.^b, Krammer, N.^b, Krätschmer, I.^b, Liko, D.^b, Madlener, T.^b, Mikulec, I.^b, Rad, N.^b, Rohringer, H.^b

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Abstract

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A search for a new high-mass resonance decaying to a τ lepton and a neutrino is reported. The analysis uses proton-proton collision data collected by the CMS experiment at the LHC at $\sqrt{s}=13\text{TeV}$, corresponding to an integrated luminosity of 35.9fb^{-1} . The search utilizes hadronically decaying τ leptons. No excess in the event yield is observed at high transverse masses of the τ and missing transverse momentum. An interpretation of results within the sequential standard model excludes W' boson masses below 4.0 TeV at 95% confidence level. Existing limits are also improved on models in which the W' boson decays preferentially to fermions of the third generation. Heavy W' bosons with masses less than 1.7–3.9 TeV, depending on the coupling in the non-universal G(221) model, are excluded at 95% confidence level. These are the most stringent limits on this model to date. © 2019 The Author(s)

SciVal Topic Prominence

Topic: Collisions | Jets | Proton-proton collisions

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CMS MET Physics Tau

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Funding text #1

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