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Search for excited leptons in CMS

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Compositeness models are a popular explanation for the observed three generations of standard model (SM) particles. One consequence of compositeness would be the observation of excited leptons, such as excited electrons, e*, or excited muons, mu.* At the LHC such particles could be produced in pp collisions under the assumption that leptons are composite objects. Produced excited leptons are expected to transition to their corresponding SM lepton partner via gauge or via contact interaction. CMS has performed a recent search for e*and mu* in the contact interaction decay channel leading to a two-lepton plus two-jets final state using the 2016 and 2017 $\sqrt{s} = 13$ TeV dataset. While no signal was observed, the exclusion results provide the best limits to date.The poster also compares to other complementary search channels and discusses the greater context of excited leptons searches.

Secondary track (number)

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