

Abstract Submitted
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Search for New Non-Resonant Phenomena in high mass Dilepton Final States using 139 fb1 of pp Collision Data Collected at $\sqrt{s} = 13$ TeV with the ATLAS Detector AARON WHITE, Univ of Michigan - Ann Arbor, ATLAS COLLABORATION — A search for new physics with non-resonant signals in dielectron and dimuon final states in the mass range above 2 TeV is presented. The data, corresponding to an integrated luminosity of 139 fb^{-1} , were recorded by the ATLAS experiment in proton–proton collisions at a centre-of-mass energy of $\sqrt{s} = 13$ TeV during Run 2 of the Large Hadron Collider. The physics benchmark signature is $q\bar{q}\ell^+\ell^-$ contact-interactions, which would enhance the dilepton event rate at the TeV mass scale. To model the contribution from background processes a functional form is fit to the dilepton invariant-mass spectra in data. This is done in a low-mass control region, while the function is extrapolated to several high-mass signal regions where an enhancement of events is expected above the background processes. No significant deviation in data is observed above the background. A limit on the number of events in the signal regions is provided along with benchmark signal efficiencies. Upper limits are also placed on the visible cross-section times branching ratio in the signal regions. Lower limits on the contact-interaction scale, Λ , for several chirality hypotheses reach tens of TeV.

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