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Searches for new phenomena in events with two opposite-sign same-flavour leptons, jets and missing transverse momentum recorded by the CMS detector in pp collisions at $\sqrt{s} = 13$ TeV

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A search is presented for physics beyond the standard model in final states with two opposite-sign, same-flavor leptons, jets, and missing transverse momentum. The data sample corresponds to dataset of proton-proton collisions at $\sqrt{s} = 13$ TeV collected with the CMS detector at the LHC in 2016. The analysis uses the invariant mass of the lepton pair, searching for a kinematic edge or a resonant-like excess compatible with the Z boson mass. The search for a kinematic edge targets strong production while the resonance search targets both strongly and electroweakly produced new physics. Both search modes use several event categories in order to increase the sensitivity to new physics. These categories are based on several observables related to the lepton pair and the hadronic system in order to optimize signal efficiency and background rejection. A fit is employed to search for a possible kinematic edge position in the strong, non-resonant search. The observations in all signal regions are consistent with the expectations from the standard model, and the results are interpreted in the context of simplified models of supersymmetry.

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