

Search for Physics Beyond the Standard Model using Multileptonic Signatures with the CMS Detector

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Abstract

A search for physics beyond the standard model using events with at least three leptons is presented. The data sample corresponds to an integrated luminosity of 4.7fb^{-1} in pp collisions at $\sqrt{s}=7\text{TeV}$ collected by the CMS experiment at the LHC. Standard model backgrounds are categorized by missing transverse energy, invariant mass of lepton pairs inconsistent with that of the Z boson, and jet activity. Control samples in data are used to ascertain the robustness of data driven background evaluation techniques. The observations are consistent with expectations from standard model processes. These results are used to exclude previously unexplored regions of the supersymmetric parameter space assuming both R-parity conservation and violation.

