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A search for new physics in events with Z bosons, jets, and missing transverse energy

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We present a search for new physics in the final state of a leptonically decaying Z boson and missing transverse energy (MET) utilizing the full 2011 dataset collected by the CMS detector. Two complementary search regions are investigated. The first requires a leptonic Z and two or more jets, and searches in the high MET tail. The second applies additional requirements to increase sensitivity to electroweak production of new physics. These requirements include a veto on b tagged jets and a cut on the dijet invariant mass to select jets from a W or Z decay, both of which highly suppress Standard Model (SM) backgrounds. These searches are sensitive to a variety of new physics scenarios involving Z bosons, including electroweak production of particles which decay to Zs. Fake MET from SM Z+Jets background is modeled using a data driven MET templates technique, and $t\bar{t}$ background is predicted using opposite flavor dilepton events.

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Collaboration Name
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