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Early LHC data preparations for beyond-the-standard-model searches at CMS

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Searches for supersymmetry (SUSY) and other phenomena beyond the standard model involve a broad range of signatures with jets, leptons, photons, and missing transverse momentum (MET). These searches require careful control over backgrounds from standard model processes. We present the current understanding of these issues both in SUSY searches and in other beyond-the-standard-model searches such as first and second generation leptoquarks. We present several methods for data-driven background determinations that have been tested on early LHC data collected by the CMS experiment at sqrt(s)=7 TeV. These data allow us to study QCD backgrounds, to evaluate methods to suppress the effects of jet-energy mis-measurement, to validate data-driven methods for predicting the MET distribution, and to measure background contributions from processes producing fake leptons.

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