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Prospects for New Physics at the LHC

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Both cosmological observations and the baffling structure of the Standard Model hint that in particle interactions with energies around a TeV, evidence of a more fundamental theory might emerge. These hints are still indirect in that they cannot select among a myriad of possibilities including supersymmetry, extra dimensions, and many others. More direct evidence of new physics may be obtained at the Large Hadron Collider (LHC), which can collide protons at energies up to 14 TeV to provide better possibilities for TeV-scale and rare interactions than previous accelerators. The ATLAS and CMS experiments analyze LHC collisions with the goal of detecting deviations from the Standard Model, and determining which new theories might explain them.