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The Status and Prospects of the CMS Experiment at the LHC

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The start-up of the Large Hadron Collider (LHC) this autumn opens a window onto physics at the TeV energy scale, allowing for studies on the nature of electroweak symmetry breaking and possibly the discovery of new particles and symmetries. A popular extension of the Standard Model of particle physics is Supersymmetry, which proposes an entire new family of particles with opposite spin statistics to the known particles; but other proposals to solve some of the fine-tuning and ad hoc ingredients to the Standard Model include new gauge interactions and extra spatial dimensions. The LHC will provide proton-proton collisions at a center-of-mass energy of 10 TeV in 2008, and 14 TeV thereafter. The Compact Muon Solenoid (CMS) experiment is a general-purpose experiment with excellent particle identification capability that is able to capitalize on the rich physics program of the LHC. The installation of all major detector components is complete, and an extensive commissioning program with cosmic ray muons has taken place over the last year and will continue with first LHC beams. This report will review the current status of the experiment, the performance of its detectors, and the status and prospects for measurements and discoveries in the first year of LHC operations.