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The ATLAS Experiment at the CERN Large Hadron Collider

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This year marks the culmination of the two decades of design and construction required to bring the Large Hadron Colllider (LHC) and associated experiments into operation. The LHC will provide proton-proton collisions at energies far higher than other accelerators. Six experiments have been constructed to detect the particles produced from these proton-proton collisions, and these experiments will investigate the structure of matter at a new level of sensitivity. In this talk I will describe the detector referred to as ATLAS and summarize its measurement capabilities. I will then review the potential of the ATLAS experiment for discovering new types of matter and additional forces beyond those described by the Standard Model of elementary particle physics.