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J. J. Sakurai Prize for Theoretical Particle Physics Talk: Physics with Hadron colliders

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After many years of sustained effort, The LHC has started operation and physics results have started to be released. This marks the beginning of a new era in High Energy Physics during which the fundamental mechanism underlying the source of masses for the electroweak gauge bosons will be probed exhaustively. These results will, over the next decade, enable questions such as “Does the Higgs boson exist?” “Are there extra space time dimensions,” “Is there supersymmetry?” “can dark matter be produced at a particle accelerator?” to be addressed, and the large variety of theoretical ideas developed over the last 20 years to be “weighed in the balance.” My presentation will discuss some of the physics program of the ATLAS experiment, the discoveries that we expect to make in the next few years and their role in the “weighing” that will occur.