Physics interplay of the LHC and the ILC

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Abstract

Physics at the Large Hadron Collider (LHC) and the International e+e- Linear Collider (ILC) will be complementary in many respects, as has been demonstrated at previous generations of hadron and lepton colliders. This report addresses the possible interplay between the LHC and ILC in testing the Standard Model and in discovering and determining the origin of new physics. Mutual benefits for the physics programme at both machines can occur both at the level of a combined interpretation of Hadron Collider and Linear Collider data and at the level of combined analyses of the data, where results obtained at one machine can directly influence the way analyses are carried out at the other machine. Topics under study comprise the physics of weak and strong electroweak symmetry breaking, supersymmetric models, new gauge theories, models with extra dimensions, and electroweak and QCD precision physics. The status of the work that has been carried out within the LHC/ILC Study Group so far is summarized in this report. Possible topics for future studies are outlined.