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Higgs-Precision Constraints on Colored Naturalness

Thursday 1 August 2019 14:22 (23 minutes)

The presence of weak-scale colored top partners is among the simplest solutions to the Higgs hierarchy problem. In this talk, I will examine the constraints on spin-0, spin-1/2, and spin-1 colored top partners coming solely from their effects on the production and decay rates of the observed Higgs with a mass of 125 GeV. Constraints will be derived based on the Higgs precision data from the LHC and the Tevatron. I will also investigate the expected sensitivity from the future LHC runs, as well from possible future electron-positron and proton-proton colliders. Finally, I will consider various model-building aspects beyond the simplest colored top-partner scenarios and evaluate how these weaken the current constraints and expected sensitivities.

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