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Electroweak Symmetry Breaking by a Strongly Coupled Sector

Wednesday 28 May 2014 17:20 (20 minutes)

The LHC and other experiments show so far no sign of new physics and long-held believes about naturalness should be critically reexamined. I will discuss models with a combined breaking of conformal and electroweak symmetry by a strongly coupled sector, which serves as a new paradigm in solving the hierarchy problem. For the first model, a strongly coupled hidden sector undergoes spontaneous chiral symmetry breaking and a coupling via a real scalar field transmits the breaking scale to the Standard Model Higgs and triggers electroweak symmetry breaking. The model contains dark matter candidates in the form of dark pions, whose stability is being guaranteed by the flavor symmetry of hidden quark sector. In the second model we will discuss how electroweak symmetry breaking can be achieved within the framework of minimal extension of QCD, paving a new way for model building.

Summary

My talk will be based on arXiv:1310.4423 and arXiv:1403.4262.

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