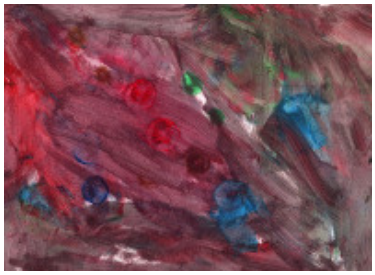

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Search strategies for composite top partners at LHC run II

jeudi 26 novembre 2015 11:20 (30 minutes)

Abstract: We discuss several new search strategies for heavy vector-like quark partners at the early stages of the LHC run-II. Run-II will have sensitivity to single- and pair-produced quark partners with masses beyond 1 TeV. Decays of such heavy particles yield highly boosted tops, Higgses, and weak gauge bosons, all of which decay dominantly hadroni- cally. At low boost, hadronic final states suffer from large Standard Model backgrounds, such that leptonic or semi-leptonic decay channels yielded better discovery potential at run-I. At high boost, the SM background of hadronic final states can be substantially sup- pressed when applying jet-substructure techniques. We present several case studies where the identification of hadronically decaying tops, Higgses, and/or electroweak gauge bosons allow to make new search channels competitive at run-II.

based on: arXiv:1507.06568 (and earlier works: 1409.0409, 1410.8131, 1501.07456)

Orateur: Dr FLACKE, Thomas

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