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Direct Search Implications for a Custodially-Embedded Composite Top

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We assess current experimental constraints on the bi-doublet + singlet model of top compositeness previously proposed in the literature. This model extends the standard model's spectrum by adding a custodially-embedded vector-like electroweak bi-doublet of quarks and a vector-like electroweak singlet quark. While either of those states alone would make the model vulnerable to constraints from precision electroweak data, in combination they can produce a viable model. We show that current precision electroweak data, in the wake of the Higgs discovery, accommodate the model and we explore the impact of direct collider searches for the partners of the top quark.

Summary

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