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On the experimental status of Composite Higgs Models

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We provide the status of composite Higgs(CH) models by confronting them with Run 1 and the latest Run 2 Higgs measurements from both CMS and ATLAS experiments. In these models, Higgs being a composite pseudo-Nambu Goldstone boson of the coset group has modified couplings with the SM fermions and gauge bosons, as compared to the SM Higgs boson. We consider these effect in terms of modified fermion and gauge boson couplings with the Higgs and in the generic model framework. In non-minimal CH models, extra Higgs doublet or singlet mixes with the light Higgs boson. We also study the constraints from non-linear effects in the (non-minimal) extended Higgs sector models, and calculate a bound on mixing angles and compositeness scale allowed by the Higgs data. Additionally, we study the sensitivity of Higgs data to top partner (exotic states present in these models) masses and mixing.

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