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Testing composite Higgs models on the lattice

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Composite Higgs dynamics due to a new gauge sector has recently attracted renewed interest both phenomenologically and on the lattice. In fact, while a scalar particle consistent with the Standard Model Higgs has been discovered at the LHC, the detailed nature of this particle remains unknown. One popular description is that the Higgs is a result of a strongly coupled composite framework, such as models based on the $SU(4)/Sp(4)$ coset. One fundamental theory that yields this coset is an $SU(2)$ gauge theory with 2 flavors in the fundamental representation. We study the spectrum of this theory on the lattice and look at the flavor-singlet scalar channel, where the Higgs particle could emerge as an excitation of the fermion condensate.

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