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A minimally tuned composite Higgs model from an extra dimension

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I present the 5D realization of a composite Higgs model with minimal tuning. The Higgs is a (pseudo-)Goldstone boson from the spontaneous breaking of a global SO(5) symmetry to an SO(4) subgroup. The peculiarity of our construction lies in the specific choice of the SO(5) representations of the 5D fermions which reduces the tuning to the minimal model-independent value allowed by electroweak precision tests. I analyse the main differences between our 5D construction and other descriptions in terms of purely 4D field theories. 5D models show a generic difficulty in accommodating a light Higgs without reintroducing large corrections to the S parameter. I propose a specific construction in which this tension can be relaxed. I discuss the spectrum of the top partners in the viable regions of parameter space and predict the existence of light exotic quarks, Y, of charge 8/3 whose striking decay channel $Y \longrightarrow W + W + W + b$ can lead to either exclusion or confirmation of the model in the near future.

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