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Towards a composite Higgs and a partially composite top quark

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We have calculated quantities of interest to a theory of compositeness. The lattice model, approximating the candidate theory, is the $SU(4)$ gauge theory coupled to fermions in two color representations. For the composite Higgs, a current correlator gives one of the ingredients of the effective Higgs potential. For the partially composite top quark, we have hyperbaryon matrix elements that govern mixing of the fundamental quark with its heavy composite partner. The matrix elements turn out to be so small that the theory is disfavored as a source of a realistic top mass.

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