

The large-mass regime of confining but nearly conformal gauge theories

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We apply a recently developed dilaton-pion effective field theory for asymptotically free gauge theories near the conformal window to the $SU(3)$ gauge theory with $N_f = 8$ fermions in the fundamental representation. Numerical data for this theory suggests the existence of a large-mass regime, where the fermion mass is not small but nevertheless the effective theory is applicable because of the parametric proximity of the conformal window. In this regime, we find that the mass dependence of hadronic quantities is similar to that of a mass-deformed conformal theory, so that distinguishing infrared conformality from confinement requires the study of subleading effects.

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