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Studying the Low Energy Effective Theory of Eight Flavor QCD

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In recent years, lattice studies of multi-flavor gauge theories near and inside the conformal window have provided strong evidence for the existence of light 0^{++} states in their spectra, which has led to a renewed interest in strong dynamics as a solution to the Higgs hierarchy problem. An additional requirement to realize a UV complete composite Higgs sector is that observables of low energy scattering be in close agreement with the linear sigma model. We will compute the momentum dependence of the scalar form factor of the pion and of the scattering phase shift of $I=2$ π - π scattering. These quantities will be compared to the linear sigma model and other low energy effective theories. We will also study the vector form factor to test the ansatz of vector meson dominance and to compare to $I=1$ scattering in a future study. This talk reports on the current progress.

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