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2-flavour $SU(2)$ gauge theory with exponential clover Wilson fermions

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Composite Higgs models are a class of models proposed to address the hierarchy and naturalness problems associated with the Standard Model fundamental scalar Higgs. $SU(2)$ with two fundamental flavours is a minimal model for the composite Higgs sector which is not yet ruled out by experimental data. We present lattice results for $SU(2)$ with two fundamental mass degenerate flavours. For the fermion action we use the new exponential clover Wilson fermion action, which offers $O(a)$ improvement via a parameter C_{SW} which must be tuned separately. We discuss tuning the C_{SW} parameter through Schrodinger functional simulations, the scale setting of the ensembles using the Wilson gauge flow, and the low energy spectroscopy of the theory including the masses of the π and the ρ.

Topical area

Particle Physics Beyond the Standard Model

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