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$K^0 - \bar{K}^0$ mixing beyond the SM from $N_f = 2$ tmQCD

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We present preliminary results on the of neutral kaon oscillations in extensions of the Standard Model. Using $N_f = 2$ maximally twisted sea quarks and Osterwalder-Seiler valence quarks, we achieve both O(a)-improvement and continuum-like renormalization pattern for the relevant four-fermion operators. We perform simulations at three values of the lattice spacing and extrapolate/interpolate our results to the continuum limit and physical light/strange quark mass. The calculation of the renormalization constants of the complete operator basis is performed non-perturbatively in the RI-MOM scheme.

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