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One loop matching factors for staggered four-fermion operators with improved glue

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We present results of one-loop perturbative matching factors for four-fermion operators constructed using HYP/FAT7 staggered fermions. We use both unimproved (Wilson) and improved (Symanzik) gluon actions. The latter choice of action is relevant to our ongoing project of calculating B_K and ϵ'/ϵ . To estimate the quantitative effect of using Symanzik improved gluon action, we compare the following four choices of actions: (1) unimproved staggered fermions with Wilson gluons (2) HYP/FAT7 staggered fermions with Wilson gluons, (3) unimproved staggered fermions with Symanzik gluons, and (4) HYP/FAT7 staggered fermions with Symanzik gluons. We discuss the effect of the improved glue on reducing the size of one-loop perturbative corrections to four-fermion operators.

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talk

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