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Progress in the lattice studies of Sp(4) gauge theory with antisymmetric fermions

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We report the progress in the lattice studies of Sp(4) gauge theory coupled to fermions in the antisymmetric representation. Such a theory containing three Dirac flavors has a direct relevance to the phenomenological model building for certain types of composite Higgs and top partial compositeness. We formulate the lattice action with the standard plaquette and the Wilson-Dirac fermions. Our primary interests are in the mass spectra and the decay constants of (flavored) spin-0 and spin-1 mesons. In the quenched setup we measure these quantities at several values of the lattice spacing and valence fermion mass, and extrapolate the results to the continuum and the massless limits. Towards the dynamical calculations we also present some preliminary results by focusing on the finite volume effects and the mass dependence at finite lattice spacing.

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