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Charm in Lattice QCD with Domain-Wall Fermion

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We study the charm physics in two-flavors lattice QCD with optimal domain-wall fermion. The gauge ensembles are generated on the $24^3 \times 48$ lattice with the extent in the fifth dimension $N_s = 16$, and the plaquette gauge action at $\beta = 6.10$,
for three sea-quark masses corresponding to the pion masses in the range 265-465 MeV. We determine the lattice spacing by the Wilson flow, and the strange and the charm quark masses
by the masses of the vector mesons $\phi(1020)$ and $J/\psi(3097)$ respectively. We compute the point-to-point quark propagators and measure the time-correlation functions of all 2-quark meson interpolators, and determine the lowest-lying mass spectra of charmed mesons with quark contents c-cbar, c-sbar and c-dbar. Moreover, we determine the pseudoscalar decay constants f_K, f_D and f_{D_s}, which are in good agreement with the experimental values.

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