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## Charmed and strange pseudoscalar meson decay constants from HISQ simulations

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We present final results for decay constants of charmed and strange pseudoscalar mesons, calculated on MILC ensembles with four dynamical quarks. The HISQ action is used for both the valence and sea quarks.

A straightforward analysis on the ensembles with physical quark masses, which avoids the need for chiral perturbation theory, is performed first.

We report the resulting values for quark mass ratios, as well as an update of our previous result for  $f_{K^+}/f_{\pi^+}$ . We then fit the lattice data for heavy-light decay constants to expressions derived in staggered chiral perturbation theory.

The chiral analysis allows us to use all our data, including ensembles with unphysical sea-quark masses, as well as those with physical masses.

This approach makes it possible to achieve small statistical errors and good control of the systematic errors, with final errors at the sub-percent level.

A comparison with the results of the straightforward analysis on the physical-mass ensembles is included in the systematic error estimates.

We also present continuum-extrapolated results for the decay constants of charmed pseudoscalar mesons evaluated at various values

of the light sea-quark mass, which may be useful for normalizing other calculations performed at unphysical mass values.

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