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Precision calculation of charm baryon decay constants in lattice QCD

We present the first calculation of charmed baryon decay constants using 2+1 flavor gauge ensembles with lattice spacings ranging from 0.05 to 0.1 fm and pion masses between 136 and 310 MeV. Under SU(3) flavor symmetry, we construct the charmed baryon interpolating operators and compute the corresponding hadronic matrix elements to extract the bare decay constants for each ensemble. The non-perturbative renormalization is performed using the symmetric momentum-subtraction (SMOM) scheme. After performing systematic chiral and continuum extrapolations, we obtain the decay constants with 4-11% precision.

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