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Pion and kaon distribution amplitudes and SU(3) flavor breaking effect from lattice QCD

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We present the state-of-the-art lattice QCD calculation of the light-cone distribution amplitudes (DAs) of pion and kaon using large-momentum effective theory. The calculation is done at three lattice spacings $a \approx \{0.06, 0.09, 0.12\}$˜fm and physical pion and kaon masses, with the meson momenta $P_z = \{1.29, 1.72, 2.15\}$ GeV. The result is non-perturbatively renormalized in a recently proposed hybrid scheme, and extrapolated to the continuum as well as the infinite momentum limit. We find {a significant deviation of the pion and kaon DAs from the asymptotic form, and make a prediction for the $SU(3)$ flavor breaking effect in the kaon DA.

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