

Measuring the CP content of D decays to multibody self-conjugate final states

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Quantum-correlated $\psi(3770)$ to $D\bar{D}$ decays collected by the CLEO-c experiment are used to perform first measurements of F_+ , the fractional CP-even content of the self-conjugate decays $D \rightarrow \pi^+\pi^-\pi^0$ and $D \rightarrow K^+K^-\pi^0$. Values of $0.968 \pm 0.017 \pm 0.006$ and $0.731 \pm 0.058 \pm 0.021$ are obtained for $\pi^+\pi^-\pi^0$ and $K^+K^-\pi^0$, respectively. It is demonstrated how modes of this sort can be cleanly included in measurements of the unitarity triangle angle γ/ϕ_3 using $B^+ \rightarrow DK^+$ decays. The high CP-even content of $D \rightarrow \pi^+\pi^-\pi^0$, in particular, makes this a promising mode for improving the precision on γ/ϕ_3 . Prospects with other modes are also discussed.

Summary

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