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Quantum-correlation of neutral charmed mesons at BESIII

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BESIII has recently accumulated a large data sample at the $\psi(3770)$ energy point corresponding to an integrated luminosity of 20 fb^{-1} . The neutral $D\bar{D}$ pairs produced at $\psi(3770)$ are in a C-odd correlated state, providing a unique laboratory to measure the strong-phase differences between D^0 and \bar{D}^0 decays. These parameters are essential inputs to CP violation studies in heavy flavour physics, especially the determination of the CKM angle γ and charm mixing parameters, and the search for indirect CP violation in the charm sector. In this presentation, we will report the recent progress of new and improved measurements of the strong-phase differences in different neutral D decays at BESIII with the increased data set, along with the CP-even fraction of $D^0 \rightarrow \pi^+\pi^-\pi^0$, $K^+K^-\pi^0$, $K^+K^-\pi^+\pi^-$, and $\pi^+\pi^+\pi^-\pi^-$. We will also discuss the uncertainties contributed by the strong-phase inputs to CKM angle γ determination.

Secondary track

T05 - QCD and Hadronic Physics

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