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【341】 Model-independent measurement of charm-mixing parameters in $D^0 \rightarrow K_S^0 \pi^+ \pi^-$

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We present a measurement of charm-mixing parameters in $D^0 \rightarrow K_S^0 \pi^+ \pi^-$ decays with a model-independent method on data collected by the LHCb collaboration in 2011-2012 [arXiv:1903.03074], and the prospects for an improved analysis using the 2016-2018 data. The analysis measures the dimensionless parameter x related to the mass difference between the mass eigenstates of the D^0 meson, whose current world-average value is still zero within uncertainty. D^0 candidates are reconstructed from $D^{*-} \rightarrow D^0 \pi^-$ and $B^- \rightarrow D^0 \mu^- X$ decays. The statistical uncertainty on x in the new analysis is expected to reach $\mathcal{O}(10^{-4})$ when combining both samples. We present sensitivity studies using the 2016-2018 data and discuss approaches to improve the precision beyond the increased statistics.

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