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【347】Model-independent measurement of charm-mixing parameters in $D^0 \to K^0_S\pi^+\pi^-$

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We present a measurement of charm mixing and CP-violation parameters using $D^0 \to K^0_S\pi^+\pi^-$ decays reconstructed in pp collisions collected by the LHCb experiment from years 2016 to 2018. In particular, the analysis measures the dimensionless parameter x related to the mass difference between the mass eigenstates of the D^0 meson. This was observed to be non-zero with a significance exceeding seven standard deviations in $D^{*+} \to \left(D^0 \to K^0_S\pi^+\pi^-\right)\pi^+$ decay [PRL 127, 111801 (2021)]. We present here an independent measurement where D^0 candidates are reconstructed from $B^- \to D^0\mu^- X$ decays as the sample covers wider D^0 decay time distribution. A combination of the two analyses is performed to maximise the sensitivity.

Primary author: EK-IN, Surapat (EPFL - Ecole Polytechnique Federale Lausanne (CH))

Presenter: EK-IN, Surapat (EPFL - Ecole Polytechnique Federale Lausanne (CH))

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