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Precision measurements of direct CP violation in $D^0 \rightarrow \pi^+ \pi^-$ at CDF

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Using 6 fb⁻¹ of data, the CDF experiment presents a new measurement of CP-violating asymmetries in D^{*-} -tagged $D^0 \rightarrow \pi^+ \pi^-$ decays, where any enhancement from the standard model prediction (of the order of 10⁻³) would be unambiguous evidence for New Physics. A technique combining asymmetries of $\pi^+ \pi^-$, and $K^+ \pi^-$ D^0 decays highly suppresses systematic uncertainties due to detector charge-asymmetric efficiencies allowing a world-leading measurement limited only by statistical uncertainties.

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Session Classification: T, C, P, CP symmetries, accidental symmetries (B, L cons.) (10)

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