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Measurement of the ratio of branching fractions $\mathcal{B}(D^0 \to K^+\pi^-)/\mathcal{B}(D^0 \to K^-\pi^+)$ using the CDF II Detector ROBERT HARR, Wayne State, CDF COLLABORATION — We present a preliminary measurement of the ratio, R_D, of the branching fraction for the doubly Cabibbo-suppressed decay $D^0 \to K^+\pi^-$ to that for the Cabibbo-favored decay $D^0 \to K^-\pi^+$. Charge conjugate decays are implicitly included. A signal of 2005 ± 104 events for the decay $D^0 \to K^+\pi^-$ is obtained using the CDF II detector at the Fermilab Tevatron collider. The data set corresponds to an integrated luminosity of 0.35 fb^{-1} produced in $\bar{p}p$ collisions at $\sqrt{s} = 1.96$ TeV. Assuming no mixing and no CP violation, we find $R_D = 4.05 \pm 0.21(\text{stat.}) \pm 0.12(\text{syst.}) \times 10^{-3}$. This measurement is consistent with the world average, and comparable in accuracy with the best measurements from other experiments.

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