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Bounding hadronic uncertainties in c to u decays

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Time-dependent CP asymmetry measurements in D to h^+h^- decays, where $h=\pi$ or ρ can be used to constrain the angle β_c of the cu unitarity triangle up to theoretical uncertainties. Here we discuss the theoretical uncertainty from penguin contributions that can be mitigated through the use of isospin analyses. We show that uncertainty from penguin pollution on a measurement of β_c in D^0 to $\pi^+\pi^-$ ($\rho^+\rho^-$) decays is 2.7 deg (4.6 deg). We also comment on the applicability of this method to $\rho\pi$ decays.

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