

# CP violation in D decays to two pseudoscalars: A SM-based calculation

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In 2019 the LHCb experiment discovered for the first time a clear signal of direct CP violation in the charm meson decays to  $\pi^+\pi^-$  and  $K^+K^-$ , a result which is expected to be further refined in the upcoming decade. However, the theoretical SM determination of the strong part of those amplitudes remains incomplete up to date. In this work, we make use of dispersion relations to properly treat final-state interactions in the 2-channel case, with the strong mixing matrix being extracted from data on pion and kaon rescattering. The results of our method are then inputted into a global fit to current experimental data on branching fractions and CP asymmetries in order to extract the magnitude of penguin diagrams.

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