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Measurement of time-integrated raw asymmetry in Dˆ{0}->Kˆ{+}Kˆ{-}

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The decay Dˆ{0}->K_{s}K_{s} is a singly Cabibbo-suppressed transition that involves the interference between cubar->ssbar and cubar->ddbar amplitudes, mediated by the exchange of a W boson at the tree level, that can generate CP asymmetries at the 1% level, even if the Cabibbo-Kobayashi-Maskawa phase is the only source of CP. Current experimental measurements of the CP asymmetry in Dˆ{0}->K_{s}K_{s} decays are still limited by the statistical precision, with the best measurement performed by Belle experiment using data at an integrated luminosity of 921 fbˆ{-1}: A_{CP}(Dˆ{0}->K_{s}K_{s}) = (-0.02+-1.53+-0.02+-0.17), where the first uncertainty is statistical, the second systematic and the third due to the CP asymmetry of the reference Dˆ{0}->K_{s}πˆ{0} mode.
A_{CP} in Dˆ{0}->Kˆ{+}Kˆ{-} is measured with 0.11% precision, Therefore, using Dˆ{0}->Kˆ{+}Kˆ{-}as the control mode reduces the uncertainty due to the control mode in addition to making the analysis simpler. In this work, we report the preliminary measurement of the raw asymmetry of the Dˆ{0}->Kˆ{+}Kˆ{-} decay using the Belle II Simulation. The final goal of this analysis is to measure the CP asymmetry in Dˆ{0}->K_{s}K_{s}, using Dˆ{0}->Kˆ{+}Kˆ{-} as the reference mode.

Session

Quark and Lepton Flavour Physics

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