

FINAL STATE INTERACTION
EFFECTS IN $B^0 \rightarrow D^{0*} \bar{D}^0$ DECAY

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S u m m a r y

The exclusive decay of $B^0 \rightarrow D^{0*} \bar{D}^0$ is calculated by the QCD factorization (QCDF) method and a method involving the final state interaction (FSI). The result obtained by the QCDF method was less than the experimental value, which indicates the necessity to consider FSI. For the decay, the $D^+ D^{*-}$, $K^+ K^-$, $\rho^+ \pi^-$, $\rho^0 \pi^0$, $D_s^- D_s^+$, and $J/\psi \pi^0$ via the exchange of $\pi^- (\rho^-)$, $D_s^- (D_s^{*-})$, $D^- (D^{*-})$, $\bar{D}^0 (\bar{D}^{0*})$, and $K^- (K^{*-})$ mesons are chosen as intermediate states, which were calculated by the QCDF method. As for the FSI effects, the results of our calculations depend on η as the phenomenological parameter. The range of this parameter is selected to be from 0.8 to 1.6. If $\eta = 1.4$ is selected, the theoretical result fits the experimental branching ratio of the $B^0 \rightarrow D^{0*} \bar{D}^0$ decay that is less than 2.9×10^{-4} . Our results calculated by the QCDF and FSI methods are $(0.13 \pm 0.11) \times 10^{-4}$ and $(2.2 \pm 0.08) \times 10^{-4}$, respectively.