Contribution ID: **21** Type: **not specified**

$\rho-\omega$ mixing contribution to the measured CP asymmetry of $B^{\pm}\to\omega K^{\pm}$

We study the CP asymmetry of $B^{\pm}\to\omega K^{\pm}$ with the inclusion of the $\rho-\omega$ mixing mechanism. It is shown that the CP asymmetry of $B^{\pm}\to\omega K^{\pm}$ experimentally measured (A_{CP}^{exp}) and conventionally defined (A_{CP}^{con}) are in fact different, which relation can be illustrated as $A_{CP}^{exp}=A_{CP}^{con}+\Delta A_{CP}^{\rho\omega}$, with $\Delta A_{CP}^{\rho\omega}$ the $\rho-\omega$ mixing contribution to A_{CP}^{exp}. The numerical value of $\Delta A_{CP}^{\rho\omega}$ is extracted from the experimental data of $B^{\pm}\to\pi^{+}\pi^{-}K^{\pm}$ and is found to be comparable with A_{CP}^{exp}, hence, non-negligible. The conventionally defined CP asymmetry, A_{CP}^{con}, is obtained from the value of A_{CP}^{exp} and $\Delta A_{CP}^{\rho\omega}$, and is compared with the theoretical calculations in the literature.

Presentation type

Oral

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