

phi2 and phi3 measurements at Belle

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We present a time-dependent measurement of CP violation parameters in $B^0 \rightarrow \pi^+ \pi^-$ decays.

We present also a measurement of the branching fraction of $B^0 \rightarrow \rho^0 \rho^0$ decays,

which could provide a tighter constraint of the CKM angle ϕ_2 .

In addition we present measurements of branching ratios of other charmless B decays into 4 charged pions.

We present a measurement of the branching fraction and time-dependent CP violation parameters of $B^0 \rightarrow a_1^\pm \pi^\mp$ decays.

The measurement of $B \rightarrow \pi^0 \pi^0$ is vital in the extraction of the UT angle ϕ_2 , from

an isospin analysis of the $B \rightarrow \pi\pi$ system. In addition, this process is expected to exhibit direct CP violation, a measurement of which

would place additional constraints on ϕ_2 , and a new measurement of

$B \rightarrow \pi^0 \pi^0$ would help resolve the significant disagreement in the Belle and BaBar measurements of this mode.

The decay $B^- \rightarrow D^{(*)} K^-$ ($D = D^0$ or \bar{D}^0) includes the $b \rightarrow u$ transition and plays a crucial role in the measurement of the CP-violating angle ϕ_3 . We present the results of a study of the decay $B \rightarrow D^{(*)} K^-$ where the D meson is reconstructed from $K^+ \pi^-$ and from CP modes.

We report the first measurement of the angle ϕ_3 of the unitarity triangle using a binned model-independent Dalitz plot analysis technique of $B^\pm \rightarrow DK^\pm$,
 $D \rightarrow K_S^0 \pi^+ \pi^-$ decay chain.

These results are obtained from the final data sample that contains 772 million $B\bar{B}$ pairs collected at the $\Upsilon(4S)$ resonance with the Belle detector at the KEKB asymmetric-energy e^+e^- collider.

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