

Combined Measurement of the CP Violating Angle β by the BaBar and Belle Experiments

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We present a recent joint measurement of the CP violating angle β using 1.1 inverse attobarns of data collected by the BaBar and Belle experiments. This analysis is based on a time-dependent Dalitz plot analysis of $B \rightarrow D^* h^0$ with $D \rightarrow K_S^0 \pi^+ \pi^-$ decays. These decays provide experimental access to $\cos(2\beta)$ as well as $\sin(2\beta)$, and can therefore resolve an ambiguity in the determination of the apex of the CKM Unitarity Triangle. As part of the analysis, a full Dalitz plot amplitude analysis of $D \rightarrow K_S^0 \pi^+ \pi^-$ is performed on a high-statistics charm data set. We report the first evidence for $\cos(2\beta) > 0$, an observation of CP violation, and the exclusion of the second solution of the CKM Unitarity Triangle of $\beta = 68.1 \pm 0.7$ degrees at a significance of 7.3 standard deviations.

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