

# Combined Measurement of the CP Violating Angle $\beta$ by the BaBar and Belle Experiments

*Wednesday, May 30, 2018 2:30 PM (30 minutes)*

We present a recent joint measurement of the CP violating angle  $\beta$  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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## Collaboration name

BaBar and Belle

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**Session Classification:** Heavy Flavors and the CKM Matrix

**Track Classification:** HFCKM