

## Measurement of branching fractions and CP asymmetries in $B^{+-} \rightarrow K^+ \pi^0$ , $B^{+-} \rightarrow \pi^+ \pi^0$ and $B^0 \rightarrow \pi^0 \pi^0$ decays with the full BaBar dataset

We present improved measurements of the branching fractions and CP asymmetries in the decays  $B^{+-} \rightarrow K^+ \pi^0$ ,  $B^{+-} \rightarrow \pi^+ \pi^0$  and  $B^0 \rightarrow \pi^0 \pi^0$ . This update is based on 467  $Y(4S) \rightarrow B\bar{B}$  decays, constituting the complete set of data collected at the  $Y(4S)$  resonance by the BaBar experiment at the SLAC PEP-II B-factory.

We determine constraints on the Unitarity Triangle angle  $\alpha$  from the isospin relation between all  $B \rightarrow \pi\pi$  rates and asymmetries, and we measure the difference in the size of direct CP asymmetries between the decays  $B^{+-} \rightarrow K^+ \pi^0$  and  $B^0 \rightarrow K^+ \pi^-$ .

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**Track Classification:** CP-violation