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Direct Measurement of the Branching Fraction of $\Upsilon(4S) \rightarrow B^0 \bar{B}^0$

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We report the first direct measurement of the branching fraction of $\Upsilon(4S) \rightarrow B^0 \bar{B}^0$ carried out with a data sample of 82 fb^{-1} collected at the $\Upsilon(4S)$ resonance with the BaBar detector at the PEP-II asymmetric-energy B Factory at SLAC. Our result is obtained with a double-tag technique and does not depend on branching fractions of the \bar{B}^0 and the D^{*+} decays, on the simulated reconstruction efficiency, on the ratio of the charged and neutral B meson lifetimes, or on the assumption of isospin symmetry.

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