

Direct measurement of time-reversal violation at BABAR

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Although CP violation in the B-meson system has been well established by the B factories, there has been no direct observation of time-reversal violation in this system. Using 468 million B-Bbar pairs collected by the BABAR detector at SLAC, we measure T-violating parameters in the time evolution of neutral-B mesons by comparing the probabilities of B0 or anti-B0 transforming into definite CP final states and vice versa. The results lead to the first direct observation of Time Reversal non-invariance, independent of CP violation.

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