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EPR correlations in $Y(4S) \rightarrow B^0 \text{ anti-}B^0$ decays

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The neutral B-meson pair produced at the Upsilon(4S) should exhibit a non-local correlation of the type discussed by Einstein, Podolski, and Rosen. The time-dependent flavour asymmetry of the B mesons decaying into flavour eigenstates will be used to test such a correlation.

The asymmetry obtained from semileptonic B^0 decays is in agreement with the prediction from quantum mechanics and far away from the predictions of local realism models.

We also test for possible partial decoherence effects.

Our results are consistent with no decoherence.

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