

Colloquium Notice

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Analysis of Bell inequality violation and entanglement in superconducting phase qubits

We obtain optimal conditions for violation of the Bell inequality in the Clauser-Horne-Shimony-Holt form, focusing on the Josephson phase qubits. We start the analysis with the ideal case, and then discuss effects of measurement errors and local decoherence. We also consider the entanglement sudden death due to decoherence and show that the survival time for entanglement is generally much longer than for the Bell violation. Finally, we analyze effects of measurement crosstalk on the Bell violation in phase qubits. In particular, we propose a version of the Bell inequality which is insensitive to the crosstalk.

Monday
February 9, 2009
Starts at 12:15 PM
Physics Conference Room, SB B326