Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Experimental witnessing of the initial correlation between an open quantum system and its environment[1] CHUAN-FENG LI, JIAN-SHUN TANG, YU-LONG LI, GUANG-CAN GUO, Key Laboratory of Quantum Information, University of Science and Technology of China, Chinese Academy of Sciences, Hefei 230026, P. R. C. — System-environment correlations, which determine the (non-)Markovian character of a dynamical process, is an area of intense interest in the study of open quantum systems. We send photons emitted from a quantum dot sample into a 15-m polarization-maintaining optical fiber to generate different system-environment correlated states and then witness the correlations by observing the growth of trace distances. This experimental scheme of correlation witnessing based on system-environment information flow can also be used for other similar systems.

[1]We thank J. Piilo, H. P. Breuer, and E. M. Laine for their helpful discussions. This work is supported by the National Fundamental Research Program, National Natural Science Foundation of China (Grants No. 60921091, No. 10874162, and No. 10734060).

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Date submitted: 27 Nov 2011 Electronic form version 1.4