Abstract Submitted
for the DAMOP07 Meeting of
The American Physical Society

Robust transmission of non-Gaussian entanglement over optical fibers ASOKA BISWAS, DANIEL A. LIDAR, University of Southern California — We show how the entanglement in a wide range of continuous variable non-Gaussian states can be preserved against decoherence for long-range quantum communication through an optical fiber. We apply protection via decoherence-free subspaces and quantum dynamical decoupling to this end. The latter is implemented by inserting phase shifters at regular intervals Δ inside the fiber, where Δ is roughly the ratio of the speed of light in the fiber to the bath high-frequency cutoff. Detailed estimates of relevant parameters are provided using the boson-boson model of system-bath interaction for silica fibers, and Δ is found to be on the order of a millimeter.

Asoka Biswas
University of Southern California

Date submitted: 01 Feb 2007 Electronic form version 1.4