

Abstract Submitted
for the APR05 Meeting of
The American Physical Society

The Conceptual Basis for the Possible Use of a Quantum Eraser to Send Binary Data to a Remote Location DOUGLAS M. SNYDER — The possible use of a quantum eraser to send information to a remote location depends on the ability in quantum mechanics to separate a measurement into two pieces, one which can be called determining the value of a quantity and one which is making the result of this determination available to the environment. Schrodinger noted these two pieces in making a measurement in his cat gedankenexperiment. Later, Greenberger and YaSin showed how in the absence of making the information available to the environment one could “reverse” the “result” obtained in the first piece of a measurement. Scully and his colleagues developed the discussion further by allowing the possibility of developing which-way information concerning a particle and its subsequent loss in one sense without directly affecting the motion of this particle and by tying these measurement results to the manipulation of the first piece of a measurement of a distant entangled photon while this entangled photon remained “hidden.” The present extension of the quantum eraser assures one particle distribution upon erasure and another where there is no erasure, thus making information transmission reliable.

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Date submitted: 04 Mar 2005

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