

Abstract Submitted  
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**A Variation of the Classic Double-Slit Experiment in Quantum Mechanics** DOUGLAS SNYDER — The classic double-slit experiment in quantum mechanics was adapted previously to show that a distinct type of physical interaction between an atom with the double-slit screen through which it passes is not necessary to obtain which-way information concerning the atom. This adaptation relied on entanglement between: 1) an atom's emitting a photon in one of two micromaser cavities as the atom passes through the cavity system and 2) the atom's subsequent passage through the fixed double-slit screen. If the development of this entanglement is interrupted in a suitable fashion, it appears one can obtain complete interference as if there were no micromaser cavity system or laser through which the atom traveled on its way to the double-slit screen. It appears one can alter the development of an atomic distribution through an action that does not involve direct physical interaction with atoms that become part of the distribution. Distinct atomic distributions can be created that can convey binary information, apparently without the velocity limitation of the special theory.

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