

Abstract Submitted
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A Practical Experiment to Obtain Either Which-Way or Interference Photon Distributions at a Distance Using Delayed Choice and Without Correlating Measurement Results on Entangled Photons DOUGLAS SNYDER, None — For a pair of entangled signal-idler photons, one may “lose” the idler photon (that provides which-way information to the entangled signal photon) in many other photons with similar characteristics to the idler photon before the signal photon is detected, thereby losing the which-way information supplied to the signal photon and eliminating the entanglement. The experiment allows for a delayed choice on the idler photons (whether or not to lose the idler photon before the signal photon is detected) to determine the distribution of distant signal photons (either overall which-way or overall interference) without making correlations between signal and idler photon detections. When the idler photon is lost, it is lost in an optical microcavity filled with photons in the same mode as the idler photon. The experiment could provide the basis for a useful quantum communications device. It might be possible to use a micropost coated with a material such as Vantablack in place of the optical microcavity.

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None

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