

Optical communication with invisible photons

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In this paper [1], we present a counterfactual quantum communication protocol in which no real information carriers (photons) are transmitted through the transmission channel. By using the first “chain” version of the quantum Zeno effect, we show how the possibility of a highly efficient direct communication exists through a quantum channel. A double chain version enables us to make the information carriers invisible in the transmission channel. This counterfactual protocol is secure and can survive most of the conventional attacks.

[1] H. Salih, Z. Li, M. Alamri, and M. S. Zubairy, *Phys. Rev. Lett.* 110, 170502 (2013).