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Quantum secret communication without an encryption key

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Abstract
Quantum cryptographic methods increase security over classical methods. To date, quantum algorithms aim to distribute a secret key to be used afterwards to encrypt messages. The method described in this paper does not use an encryption key at all. An array of qubits is transmitted from the source to the destination with the message encoded in the phase of the qubit. The secrecy of the message derives from the nonclonability principle. Our algorithm relies on the common assumption that public information can be authenticated. The alforithm shows an increased detection rate per qubit, 33%, which is higher than the one commonly used in literature, namely 25%. © 2013 Springer-Verlag.

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