Quantum Physics

Eavesdropping of two-way coherent-state quantum cryptography via Gaussian quantum cloning machines

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(Submitted on 22 Jan 2009)

We consider one of the quantum key distribution protocols recently introduced in Ref. [Pirandola et al., Nature Physics 4, 726 (2008)]. This protocol consists in a two-way quantum communication between Alice and Bob, where Alice encodes secret information via a random phase-space displacement of a coherent state. In particular, we study its security against a specific class of individual attacks which are based on combinations of Gaussian quantum cloning machines.

Comments:	Proceeding of ICQNM 2009, The Third International Conference on Quantum, Nano and Micro Technologies, Cancun, Mexico, 1-7 February 2009
Subjects:	**Quantum Physics (quant-ph)**
Journal reference:	Proc. of ICQNM 2009 (IEEE, Los Alamitos, California, 2009), pp. 38-41
DOI:	10.1109/ICQNM.2009.8
Cite as:	**arXiv:0901.3568v1 [quant-ph]**

Submission history

From: Stefano Pirandola [view email]
[v1] Thu, 22 Jan 2009 22:28:39 GMT (18kb)

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