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Security of quantum key distribution

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Abstract content
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Quantum key distribution, one aspect of quantum cryptography refers to the art of generating a secret key between authorized parties in the presence of an eavesdropper. The security of quantum key distribution is solely based on the laws of quantum mechanics. Therefore, we explain the role played by quantum mechanics in cryptographic tasks and also investigate how secure is quantum cryptography. We show by a proof that for any state sent by the sender, the eavesdropper can only guess the output state with a probability that will allow her not to learn more than half of the classical Shannon information shared between the authorized parties. This means that quantum key distribution is secure almost always.

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