

The effect of mean photon number to the output key rate in quantum key distribution.

ABSTRACT

Quantum Cryptography guarantees absolute confidentiality for secret key exchanged via an optical fiber. The ability lies in the possibility of distributing the secret key securely in the form of photon. We show that there are different values of optimal mean photon number (μ) based on which assumption is considered for Eve's technology. For lower optimal μ such as $\mu=0.1$ and $\mu=0.4$, the system is more robust to conservative attacks of Eve. However, the system could not support for higher distilled rate at large optimal μ of 1.

Keyword: Quantum; Mean photon number; Output key rate.