World Academy of Science, Engineering and Technology
International Journal of Electronics and Communication Engineering
Vol:12, No:01, 2018

Optical Fiber Data Throughput in a Quantum Communication System

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Abstract : A mathematical model for an optical-fiber communication channel is developed which results in an expression that calculates the throughput and loss of the corresponding link. The data are assumed to be transmitted by using of separate photons with different polarizations. The derived model also shows the dependency of data throughput with length of the channel and depolarization factor. It is observed that absorption of photons affects the throughput in a more intensive way in comparison with that of depolarization. Apart from that, the probability of depolarization and the absorption of radiated photons are obtained.

Keywords : absorption, data throughput, depolarization, optical fiber
Conference Title : ICFOTT 2018 : International Conference on Fiber-Optic Telecommunication Technologies
Conference Location : Zurich, Switzerland
Conference Dates : January 15-16, 2018