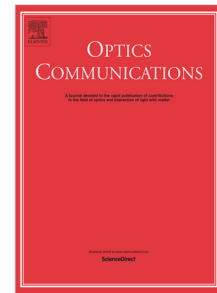


Accepted Manuscript

BER performance analysis of coherent SIMO FSO systems over correlated non-Kolmogorov turbulence fading with nonzero boresight pointing errors

Yulong Fu, Jing Ma, Siyuan Yu, Liying Tan



PII: S0030-4018(18)30717-X
DOI: <https://doi.org/10.1016/j.optcom.2018.08.026>
Reference: OPTICS 23383

To appear in: *Optics Communications*

Received date: 1 June 2018
Revised date: 9 August 2018
Accepted date: 9 August 2018

Please cite this article as: Y. Fu, J. Ma, S. Yu, L. Tan, BER performance analysis of coherent SIMO FSO systems over correlated non-Kolmogorov turbulence fading with nonzero boresight pointing errors, *Optics Communications* (2018), <https://doi.org/10.1016/j.optcom.2018.08.026>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

BER performance analysis of coherent SIMO FSO systems over correlated non-Kolmogorov turbulence fading with nonzero boresight pointing errors

Yulong Fu*, Jing Ma, Siyuan Yu, Liying Tan

*National Key Laboratory of Tunable Laser Technology, Harbin Institute of Technology,
Harbin 150001, China*

Abstract

In this paper, the effects of nonzero boresight pointing errors on the average bit-error rate (BER) performance of coherent single-input multiple-output (SIMO) free-space optical (FSO) communication systems applying maximal ratio combining (MRC) over correlated non-Kolmogorov turbulence fading are investigated. The non-Kolmogorov turbulence fading is modeled using Gamma-Gamma distribution. Novel closed-form expression was derived for evaluation of the average BER performance for the system under consideration. Analytical results are provided to evaluate the average BER performance with the presence of correlated Gamma-Gamma channels and nonzero boresight pointing errors. It is worth noting that there exist an optimum radius of the ring where all the receivers are located to achieve the minimum BER for a given average signal-to-noise ratio value. The validity of the obtained mathematical expression is illustrated by Monte Carlo simulations. This work will help with further investigation of the fading correlation and

*Corresponding author. Tel: +8618846411982
Email address: fuyulongm@163.com (Yulong Fu)

Download English Version:

<https://daneshyari.com/en/article/8948583>

Download Persian Version:

<https://daneshyari.com/article/8948583>

[Daneshyari.com](https://daneshyari.com)