

Accepted Manuscript

Title: Polarization properties of Square Multi-Gaussian Schell-Model beam propagating through non-Kolmogorov turbulence

Authors: Hanmou Zhang, Wenyu Fu

PII: S0030-4026(17)30056-6
DOI: <http://dx.doi.org/doi:10.1016/j.ijleo.2017.01.045>
Reference: IJLEO 58748

To appear in:

Received date: 14-2-2016
Accepted date: 16-1-2017

Please cite this article as: Hanmou Zhang, Wenyu Fu, Polarization properties of Square Multi-Gaussian Schell-Model beam propagating through non-Kolmogorov turbulence, Optik - International Journal for Light and Electron Optics <http://dx.doi.org/10.1016/j.ijleo.2017.01.045>

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.



Polarization properties of Square Multi-Gaussian Schell-Model beam propagating through non-Kolmogorov turbulence

Hanmou Zhang, Wenyu Fu*

(College of Electrical Engineering, Longdong University, Qingyang, 745000, China)

*Corresponding author. Tel.: +86 15109462199. E-mail addresses: qytcfwy@163.com (W.Y. Fu), zhanghm@ldxy.edu.cn (H.M. Zhang)

Abstract: In this paper, analytical expressions for elements of the cross-spectral density matrix of Square Multi-Gaussian Schell-Model (SMGSM) beam, propagating in non-Kolmogorov turbulence, are derived based on the extended Huygens Fresnel integral. Polarization properties of the SMGSM beam are studied in detail based on the derived expressions. It is interesting to find that, apart from keeping the square flat shape of intensity distribution, polarization properties of the SMGSM beam, such as degree of polarization, the orientation angle and degree of ellipticity for the polarization ellipse also form square plateau distributions in the same areas as that of intensity distribution, and can preserve relatively long distance in atmospheric turbulence. This novel characteristic can be used for coherent light free space communications, polarization remote sensing and imaging in atmosphere.

Download English Version:

<https://daneshyari.com/en/article/5026239>

Download Persian Version:

<https://daneshyari.com/article/5026239>

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