Multifractal characteristics of optical turbulence measured through a single beam holographic process

Titre	Multifractal characteristics of optical turbulence measured through a single beam holographic process
Type de publication	Article de revue
Auteur	Perez, D.G. [1], Barille, Régis [2], Morille, Yohann [3], Zielinska, Sonia [4], Ortyl, Ewelina [5]
Pays	Etats-Unis
Editeur	Optical Society of America
Ville	Washington D.C.
Type	Article scientifique dans une revue à comité de lecture
Année	2014
Langue	Anglais
Numéro	16
Pagination	19538-19545
Volume	22
Titre de la revue	Optics Express
ISSN	1094-4087
Résumé en anglais	We have previously shown that azopolymer thin films exposed to coherent light that has travelled through a turbulent medium produces a surface relief grating containing information about the intensity of the turbulence; for instance, a relation between the refractive index structure constant C^2_n as a function of the surface parameters was obtained. In this work, we show that these films capture much more information about the turbulence dynamics. Multifractal detrended fluctuation and fractal dimension analysis from images of the surface roughness produced by the light on the azopolymer reveals scaling properties related to those of the optical turbulence.
URL de la notice	http://okina.univ-angers.fr/publications/ua12189 [6]
DOI	10.1364/OE.22.019538 [7]

Liens

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[7] http://dx.doi.org/10.1364/OE.22.019538