

Disordered photonics

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There has been a lot of interest in recent years in disordered photonic media in which the spatial arrangement of scattering elements goes beyond a simple Gaussian distribution. Examples include photonic quasi-crystals, hyper-uniform structures, random lasers, and structures in which the distribution is inhomogeneous. We will discuss recent developments in the field and in particular go into the case of self-similar random systems and Lévy flights, and show how dynamic optical measurements can be used to determine the fractal dimension of an optical random walk. Also we will discuss optical structures found in nature (which can sometimes outperform those created by researchers), and go into real-life applications in the field of lighting and solar energy.

