

Nano optics and photonics

Correlation approach to the dynamic formation of light microfields

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Progress in the field of nanotechnology, photonic and light guide devices, manipulation of microparticles, microlithography is an incentive for development of methods whose main aim is to create the complicated configurations of light fields with controlled distribution of intensity. Therefore, the possibility of the correlation approach to the formation of light beams is being investigated by us in-depth. The main feature of such approach is the propagation of the initial wave through several spatial separated phase modulators [1].

An experimental setup and computer simulation were tested for theoretical models which describe various variants of synthesized fields and their transformation. It is shown that the correlation cascades give the possibility to effectively use guided transparencies, simplify algorithms for constructing synthesized apertures and transform an arbitrary beam to any other, replace the amplitude-phase transparencies with phase ones.

1. O.V. Gnatovskyy, A.M. Negriyko, V.O. Gnatovskyy, A.V. Sidorenko, Cross-correlation method for the formation of laser energy fields with complex distributions // Ukr. J. Phys. -**58**, N 2. -2013.-P. 122-125.