Hypergeometric Modes

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Abstract

The paper analyzes a new family of paraxial laser beams forming an orthogonal basis. When propagating in homogeneous space, these beams retain their structure with the accuracy of the scale. The intensity distribution in the cross section of such beams is similar to the intensity distribution for Bessel modes and is represented as a set of concentric alternating light and dark rings. The complex amplitude of such beams is proportional to the degenerate (confluent) hypergeometric function, and therefore we called such beams hypergeometric modes. We formed such modes using a liquid crystal microdisplay.

Keywords: paraxial laser beams, modes of homogeneous space, hypergeometric function.

Citation: V.V. Kotlyar, R.V. Skidanov, S.N. Khonina, S.A. Balalaev. Hypergeometric Modes. Computer Optics 2006; 30: 16-22.

Acknowledgements: This work was supported by the Russian-American program "Basic Research and Higher Education" (CRDF Project SA-014-02), as well as grants from the RFBR 05-08-50298, 05-01-96505.

Access full text (in Russian)

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