

# Diffraction of a plane, finite-radius wave by a spiral phase plate

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## Abstract

Analytical expressions in terms of hypergeometric function are obtained that describe the Fresnel and Fraunhofer diffraction of a plane wave of finite radius by a spiral phase plate (SPP) of any integer order. The experimental diffraction patterns obtained using the SPP made on a resist by direct recording by an electron beam are in good agreement with the estimated intensity distributions.

**Keywords:** hypergeometric function, Fresnel describe, Fraunhofer diffraction, spiral phase plate, SPP

**Citation:** Kotlyar VV, Khonina SN, Kovalev AA, Soifer VA. Diffraction of a plane, finite-radius wave by a spiral phase plate. *Computer Optics* 2005; 28: 37-40.

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