An update of Hopkins' analysis of the optical disc player using singular system theory

Roy Pike

Kings College, Strand, WC2R 2LS, London, UK.

Abstract

In this paper we describe a new approach to the analysis of scanning optical imaging systems which uses singular function expansions, rather than Fourier optics, to update the well-known low-aperture treatment of Hopkins† of 1974 for arbitrary numerical apertures. This new approach can also be used to update the widely used theory of optical transfer functions for general imaging systems.

†H. Hopkins: 'Diffraction theory of optical read-out systems for optical video discs'. J. Opt. Soc. Am., **69**, 4–24 (1979)