Thesis Title Computer Simulation of Coherent Optical Spatial Filtering
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ABSTRACT

Optical systems are analyzed as linear systems. Coherently illuminated systems are useful for performing operations such as convolution, cross correlation, and spectral analysis since the Fourier transform of an optical signal exists physically and can be measured or modified. The basic Fourier transform relationship for coherently illuminated systems is described in this thesis. It can be detected directly and be used to estimate the distribution of spatial frequencies contained in the signal. Methods for constructing spatial filters are described. Results of the computation using computer are presented and compared with the experimental results to illustrate concepts and to suggest potential application.