Stochastic deterministic methods for processing signals and images in optical electronic systems(Conference Paper)

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Краткое описание Просмотр пристатейных ссылок (30)

The theoretical and experimental studies of statistical properties of the input signals of optical electronic systems were carried out. The statistical models of interaction of an optical signal in optoelectronic systems based on the the distribution laws, characterized by a finite and infinite dispersion, were developed. The study of the asymptotic behavior of tailings of the output signals distribution densities for optoelectronic systems proved the possibility of using stable distribution laws describing the source signals of optoelectronic systems. The boundaries of statistical models applicability were outlined based on the central and generalized boundary theorems. Theoretical and experimental researches with the provision of high accuracy of determination of signals spatial-temporal characteristics with increased probabilistic detection characteristics were presented. © 2019 SPIE.