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Asymptotic Spectral Theory for Nonlinear Random Fields

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Abstract : In this paper, we consider the asymptotic problems in spectral analysis of stationary causal random fields. We impose conditions only involving (conditional) moments, which are easily verifiable for a variety of nonlinear random fields. Limiting distributions of periodograms and smoothed periodogram spectral density estimates are obtained and applications to the spectral domain bootstrap are given.

Keywords : spatial nonlinear processes, spectral estimators, GMC condition, bootstrap method
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