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DISCRETE TIME PERIODICALLY CORRELATED MARKOV PROCESSES

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Abstract: We consider a discrete time periodically correlated process $\{X_n\}$ which is also Markov in the wide sense. We provide closed formulas for the covariance function $R(n,m) = EX_nX_m$ and for the spectral density $f = [f_{jk}]$ of such a process. Interestingly, we observe that the covariance function, and also the spectral density, is fully specified only by the values of $\{R(j,j), R(j,j+l), j = 0, 1, \ldots, T-1\}$, where T is the period of the process.

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