On certain correlation properties of the sampling cardinal series expansion of stationary stochastic processes

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Abstract: The spectral representation of the sampling cardinal series expansion (SCSE) of non band-limited (BL) weakly stationary scalar and multidimensional stochastic processes and the correlation function of SCSE's in both cases are derived. Mean-square aliasing error upper bounds are given for the multidimensional processes. These results give the main tool in deriving the optimal value of the bandwidth in the mean-square approximation of the non BL stochastic process by its SCSE.