Asymptotic behavior of the condition number of two-level Toeplitz matrix sequences

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Abstract

In this note we give condition number estimates for two-level Toeplitz matrices generated by bivariate 2π-periodic weakly sectorial symbols (the largest class of symbols for which we can guarantee the invertibility of all the corresponding Toeplitz matrices). By using and extending tools previously developed in the one-level context, we show that the asymptotical ill-conditioning is essentially related to the order of zeros of the symbol.