

Rump

1 The ratio between the Toeplitz and the unstructured condition number

By *S.M. Rump and H. Sekigawa*.

Recently we showed that the ratio between the normwise Toeplitz structured condition number of a linear system and the general unstructured condition number has a finite lower bound. However, the bound was not explicit, and nothing was known about the quality of the bound. In a joint work with H. Sekigawa we give an explicit lower bound only depending on the dimension, and we show that this bound is almost sharp. The solution of both problems is based on the minimization of the smallest singular value of a class of Toeplitz matrices and its nice connection to a lower bound on the coefficients of the product of two polynomials.