Uniform Bound on the 1-Norm of the Inverse of Lower Triangular Toeplitz Matrices

Ya-xiang Yuan
LSEC, ICMSEC, AMSS, CAS, China

A uniform bound of the $1-$norm is given for the inverse of lower triangular Toeplitz matrices with nonnegative monotonic decreasing entries whose limit is zero. The new bound is sharp under certain specified constraints. This result is then employed to throw light upon a long standing open problem posed by Brunner concerning the convergence of the one-point collocation method for the Abel's equation. In addition, the recent conjecture of Gauthier et al. is proved.

Joint work with X.Liu, S. McKee and J.Y. Yuan.