



Introduction to Large Truncated Toeplitz Matrices

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Book Condition: New. Publisher/Verlag: Springer, Berlin | Applying functional analysis and operator theory to some concrete asymptotic problems of linear algebra, this book contains results on the stability of projection methods, deals with asymptotic inverses and Moore-Penrose inversion of large Toeplitz matrices, and embarks on the asymptotic behaviour of the norms of inverses, the pseudospectra, the singular values, and the eigenvalues of large Toeplitz matrices. The approach is heavily based on Banach algebra techniques and nicely demonstrates the usefulness of C -algebras and local principles in numerical analysis, including classical topics as well as results and methods from the last few years. Though employing modern tools, the exposition is elementary and points out the mathematical background behind some interesting phenomena encountered with large Toeplitz matrices. Accessible to readers with basic knowledge in functional analysis, the book addresses graduates, teachers, and researchers and should be of interest to everyone who has to deal with infinite matrices (Toeplitz or not) and their large truncations. | 1 Infinite Matrices.- 1.1 Boundedness and Invertibility.- 1.2 Laurent Matrices.- 1.3 Toeplitz Matrices.- 1.4 Hankel Matrices.- 1.5 Wiener-Hopf Factorization.- 1.6 Continuous Symbols.- 1.7 Locally Sectorial Symbols.- 1.8 Discontinuous Symbols.- 2 Finite Section Method and Stability.- 2.1 Approximation...



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