



Approximation and Spectral Analysis for Large Structured Linear Systems

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LAP Lambert Academic Publishing. Paperback. Condition: New. 268 pages. Dimensions: 8.7in. x 5.9in. x 0.6in. In this work we are interested in standard and less standard structured linear systems coming from applications in various fields of computational mathematics and often modeled by integral and/or differential equations. Starting from classical Toeplitz and Circulant structures, we consider some extensions as g -Toeplitz and g -Circulants matrices appearing in several contexts in numerical analysis and applications. Then we consider special matrices arising from collocation methods for differential equations: also in this case, under suitable assumptions we observe a Toeplitz structure. More in detail we first propose a detailed study of singular values and eigenvalues of g -circulant matrices and then we provide an analysis of distribution of g -Toeplitz sequences. When possible, we consider Krylov space methods with special attention to the minimization of the computational work. In that case, crucial issues are the convergence speed of this iterative solver, the use of special techniques (preconditioning, multilevel techniques) for accelerating the convergence, and a careful study of the spectral properties of such matrices. We study the asymptotic behavior of spectral radii of collocation matrices. This item ships from multiple locations. Your book may arrive from Roseburg, OR, La Vergne, TN. Paperback.



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