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Matrix Equations, Spectral Problems and Stability of Dynamic Systems

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This volume presents new matrix and operator methods of investigations in systems theory, related spectral problems, and their applications in stability analysis of various classes of dynamic systems. Providing new directions for future promising investigations, **Matrix Equations, Spectral Problems and Stability of Dynamic Systems**

- furnishes general methods for localization of eigenvalues of matrices, matrix polynomials and functions
- develops operator methods in a matrix space
- evolves the inertia theory of transformable matrix equations
- describes general spectral problems for matrix polynomials and functions in the form of matrix equations
- presents new Lyapunov type equations for various classes of dynamic systems as excellent algebraic approaches to solution of spectral problems
- demonstrates effective application of the matrix equations approaches in stability analysis of controllable systems
- gives new expression for the solutions of linear arbitrary order differential and difference systems
- advances the stability theory of positive and monotone dynamic systems in partially ordered Banach space
- systematizes comparison methods in stability theory
- and more!

Containing over 1200 equations, and references, this readily accessible resource is excellent for pure and applied mathematicians, analysts, graduate students and undergraduates specializing in stability and control theory, matrix analysis and its applications.

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