

GRADUATE SEMINAR

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Numerical methods for nonsingular M-matrix solution of a quadratic matrix equation

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Wednesday, April 6

2.00 PM

Math Lounge (CW307.20)

Abstract: We study the quadratic matrix equation $X^2 - EX - F = 0$, where E is a diagonal matrix and F is a nonsingular M-matrix, which arises in the study of noisy Wiener-Hopf problems for Markov chains. The solution of practical interest is a particular M-matrix solution. The numerical methods for finding the desired M-matrix solution are discussed by transforming the equation into an equation that belongs to a special class of nonsymmetric algebraic Riccati equations. We discuss two different transformations to transform the equation into a nonsymmetric algebraic Riccati equation and illustrate their effectiveness with numerical results.

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