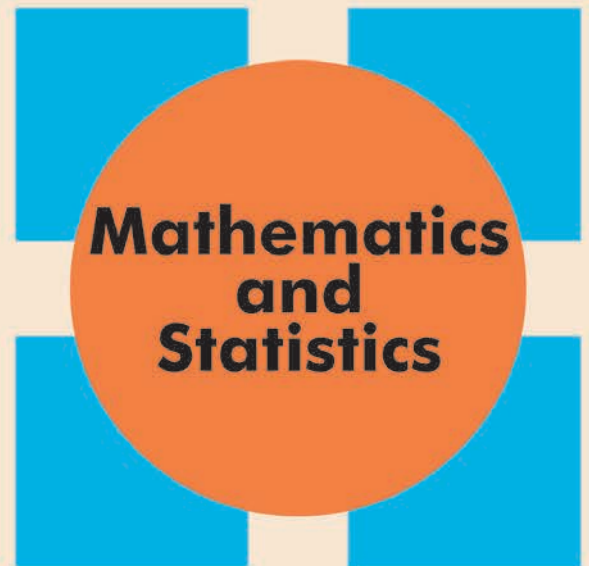


Math Grad Seminar

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**Studies on quadratic
matrix equations
associated with regular
M-matrices**



Date: Nov. 14, 2016
Time: 12:30 - 1:30 PM
Room: Math Lounge 307.20

Abstract: We study the quadratic matrix equation $X^2 - EX - F = 0$, where E is a diagonal matrix and F is a regular M -matrix. Quadratic matrix equations of this kind arise in noisy Wiener-Hopf problems for Markov chains. The solution of practical interest is a special M -matrix solution. The existence and uniqueness of M -matrix solutions are studied by transforming the equation into a non-symmetric algebraic Riccati equation for which the four coefficients matrices form a regular M -matrix. We also discuss two numerical methods to compute the desired M -matrix solutions and examine their convergence.