

GRADUATE SEMINAR

Di Lu

On Algebraic Riccati Equations Associated with Regular M -Matrices

MSc Student supervised by C.-H. Guo

June 22, 2015

2:00 p.m.

Mathematics/Statistics Lounge, CW307.20

Abstract

This talk is about the algebraic Riccati equation for which the four coefficient matrices form an M -matrix K . A lot of research has been done for the case where K is a nonsingular M -matrix or an irreducible singular M -matrix. Recently Guo extended the research to the case where K is a regular M -matrix (An M -matrix K is said to be regular if $Kv > 0$ for some $v > 0$). This allows K to be reducible and singular. Guo made a conjecture about the product of the minimal nonnegative solution of the Riccati equation and the minimal nonnegative solution of its dual equation. In this talk I will present a proof of this conjecture. I will also explain how the proved result can enhance our understanding of a doubling algorithm for computing the minimal nonnegative solutions of the Riccati equations.

University
of Regina

