ABSTRACT

OSCILLATION OF SECOND ORDER MATRIX EQUATIONS ON TIME SCALES

Selçuk Aysun
M.Sc., Department of Mathematics
Supervisor: Prof. Dr. Ağacık Zafer

November 2004, 42 pages

The theory of time scales is introduced by Stefan Hilger in his PhD thesis in 1988 in order to unify continuous and discrete analysis. In our thesis, by making use of the time scale calculus we study the oscillation of nonlinear matrix differential equations of second order. The first chapter is introductory in nature and contains some basic definitions and tools of the time scales calculus, while certain well-known results have been presented with regard to oscillation of the solutions of second order matrix equations and some new oscillation criteria for the same type equations have been established in the second chapter.

Keywords: Differential equation, Time scales, Riccati equation, Oscillation