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DEPARTMENT OF APPLIED MATHEMATICS APPLIED SEMINAR SERIES 2007

The Seminar Series of the Department of Applied Mathematics, UNSW, Sydney is dedicated to the announcement, dissemination and discussion of research in mathematics and its applications. A fundamental aim of the Seminar Series is to feature lectures that inform in a manner that makes the subject accessible to the audience, including non-specialists.

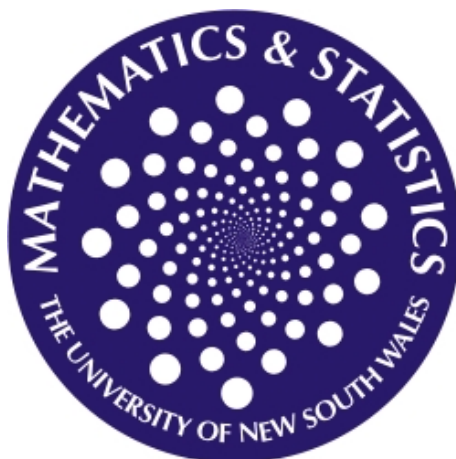
SPEAKER: Professor Youssef Raffoul, Department of Mathematics, University of Dayton, OH, USA. Youssef.Raffoul@notes.udayton.edu

TITLE: Neutral Nonlinear Dynamic Equations on Time Scales

Abstract: The study of dynamic equations on time scales is a new and fast growing branch of mathematics. Introduced by Stephan Hilger in 1989, time scales unify and extend continuous and discrete calculi. Differential equations, difference equations and q-difference equations are examples of dynamic equations on time scales. One of the main uses of time scales is to study hybrid systems, systems that exhibit both continuous and discrete behavior. We will present some basic concepts of time scales including Δ derivatives, properties of the exponential function, the chain rule, and the substitution rule for Δ integrals. We will also define periodic time scales and give examples. As an application, we show the existence of periodic solutions of a neutral dynamic equation with delay on a time scale.

Under a slightly more stringent inequality we show that the periodic solution is unique using the contraction mapping principle.

TIME AND VENUE: 2pm, Thursday 8 March 2007, Room 4082, Red Centre.



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