

**Izmir University of Economics**  
**Department of Mathematics**  
**Seminars**

**T** **IME SCALE DAY**  
**May 23, 2006**

Place: Room A-1

13.30-14.30:

**Prof. Dr. Martin Bohner**, University of Missouri-Rolla, U.S.A

**"Unified Transform Methods on Time Scales"**

Abstract:

"We introduce the Laplace transform for an arbitrary time scale. Two particular choices of time scales, namely the reals and the integers, yield the concepts of the classical Laplace transform and of the classical Z-transform. Other choices of time scales yield new concepts of our Laplace transform, which can be applied to find solutions of higher order linear dynamic equations with constant coefficients. We present several useful properties of our Laplace transform and offer formulas for the Laplace transforms of many elementary functions, among them results for the convolution of two functions on a time scale."

14.30-14.45 : **Coffee Break**

14.45-15.45:

**Prof. Dr. Elvan Akin-Bohner**, University of Missouri-Rolla, U.S.A

**"On Solutions of Quasilinear Dynamic Equations"**

Abstract:

"We consider a quasilinear dynamic equation reducing to a half-linear equation, an Emden-Fowler equation or a Sturm-Liouville equation under some conditions. Any nontrivial solution of the quasilinear dynamic equation is eventually monotone. In other words, it can be either positive decreasing (negative increasing) or positive increasing (negative decreasing). More precisely, all solutions of the quasilinear dynamic equation can be divided into several disjoint subsets by means of necessary and sufficient integral conditions."