

# ATILIM UNIVERSITY

## DEPARTMENT OF MATHEMATICS

### SEMINAR ANNOUNCEMENT

*Speaker:* **Marat AKHMET**  
(Middle East Technical University, IAM )

## Differential equations with discontinuities

We consider differential equations with discontinuities as systems of a wide spectrum: discontinuous dynamical systems, impulsive differential equations, differential equations with the discontinuous right-hand side, differential equations with piecewise constant argument, and differential equations on time scales.

The differential equations are used to examine the importance of the new classes of differential equations for the investigation of real processes. The rationale for the “invention” of systems is also discussed along with the emergence of new classes of equations. The relations between these classes of systems are described. Examples from biology, mechanics, and neural networks are considered. Results concerning the chaotic behavior of equations with discontinuities will also be reported.

Our own experience in the introduction of new type equations is illustrated by the following three types of systems: differential equations with piecewise constant argument of generalized type, differential equations on time scales with transition conditions, and differential equations on variable time-scales with transition conditions along with their analysis methods.

**DATE: MARCH 25, 2009**

**TIME: 15:45**

**PLACE: FEF 403 (Seminar Room)**

All interested people are cordially invited. After the seminar, some cookies and soft drinks will be served.