ISTANBUL TECHNICAL UNIVERSITY

DEPARTMENT OF MATHEMATICS ENGINEERING

SEMINAR

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Oscillations of Differential and Difference Equations with Several Deviating Arguments

Abstract: Consider the first-order delay differential equation

$$x'(t) + \sum_{i=1}^{m} p_i(t)x\big(\tau_i(t)\big) = 0, \quad t \geq 0$$

where, for every $i \in \{1, \dots, m\}$, p_i is a continuous real-valued function in the interval $[0, \infty)$, and τ_i is a continuous real-valued function on $[0, \infty)$ such that

$$\tau_i(t) \leq t, t \geq 0 \quad \text{and} \quad \lim_{t\to\infty} \tau_i(t) = \infty$$

and the discrete analogue difference equation

$$\Delta x(n) + \sum_{i=1}^{m} p_i(n)x\big(\tau_i(n)\big) = 0, \quad n \in \mathbb{N}_0$$

where $\mathbb{N} \ni m \geq 2$, p_i, $1 \leq i \leq m$, are real sequences and $\{\tau_i(n)\}_{n\in\mathbb{N}_0}$, $1 \leq i \leq m$, are sequences of integers such that

$$\tau_i(n) \leq n - 1, \ n \in \mathbb{N}_0 \text{ and } \lim_{n\to\infty} \tau_i(n) = \infty, 1 \leq i \leq m$$

Several optimal sufficient oscillation conditions for the above equations are presented

Date: April 14th, Friday 2017

Tea: 14:30-15:00

Seminar: 15:00-16:00

Place: Matematics Engineering, Faculty Meeting Room, 3rd Floor

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