ICTS Seminar

Title : Linear, half linear and fractional Lyapunov-type inequalities and applications

Speaker : Sougata Dhar, Northern Illinois University, USA

Date : Wednesday, December 27, 2017

Time : 3:30 PM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : In this talk, we will discuss several Lyapunov-type inequalities for second and third order linear, half-linear and fractional differential equations. These inequalities utilize integrals of both $q_+(t)$ and $q_-(t)$ rather than those of $|q(t)|$ as in most papers in the literature for higher order Lyapunov-type inequalities. In the process, we also obtain sharper inequalities than many existing results in the literature. Furthermore, by combining these inequalities with the ``uniqueness implies existence" theorems by several authors, we establish the uniqueness and hence existence-uniqueness for several classes of boundary value problems for third-order linear equations. We believe that this is the first time for Lyapunov-type inequalities to be used to deal with boundary value problems and expect that this approach can be further applied to study general higher-order boundary value problems.