Critical oscillation constants for half-linear differential and difference equations

Petr Hasil*†[1]

[1]Department of Mathematics and Statistics, Faculty of Science, Masaryk University (MUNI) – Kotlarska 2, 611 37 Brno, Czech Republic

Abstract

The main subject of this talk is to present the results concerning the conditional oscillation of second order half-linear differential equations. We show that the existence of the mean values of coefficients is sufficient for Euler-type equations to be conditionally oscillatory (i.e., that there exists a border value given by their coefficients which separates oscillatory equations from non-oscillatory ones). We explicitly find oscillation constants even for the considered equations whose coefficients can change sign. These results cover known results concerning equations with periodic and almost periodic positive coefficients and extend them to larger classes of equations. Then, we aim to the conditional oscillation of half-linear difference equations and point out the similarities and differences in comparison with the continuous case.

*Speaker

†Corresponding author: hasil@mail.muni.cz