

Wong Type Oscillation Criteria for Nonlinear Impulsive Differential Equations

A. Zafer¹ and Sibel Dogru Akgol²

¹American University of the Middle East

²Atilim Universitesi

April 6, 2022

Abstract

We present Wong-type oscillation criteria for nonlinear impulsive differential equations having discontinuous solutions and involving both negative and positive coefficients. We use a technique that involves the use of a nonprincipal solution of the associated linear homogeneous equation. The existence of principal and nonprincipal solutions was recently obtained by the present authors in [J. Math. Anal. Appl. 503 (2021) 125311]. As special cases, we have superlinear and sublinear Emden-Fowler equations under impulse effects. It is shown that the oscillation behavior changes due to impulses, in particular impulses acting on the solution itself, not on its derivative. An example is also given to illustrate the importance of the results.

Hosted file

`mmasSA.pdf` available at <https://authorea.com/users/474232/articles/564179-wong-type-oscillation-criteria-for-nonlinear-impulsive-differential-equations>