

EVENTUAL STABILITY OF IMPULSIVE FUNCTIONAL DIFFERENTIAL EQUATIONS

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Abstract

In many practical problems, it is obligatory to study the stability of sets, which are not invariant with respect to a given system of differential equations. This excludes the stability in the sense of Lyapunov. This problem can be resolved with a new notion eventual stability. In addition to that scientists have been aware of the fact that many applicable problems are pointless unless the dependence on previous state is being taken into account. These problems can be discussed by considering functional differential equations. Moreover Impulsive functional differential equations may be used for the mathematical simulation of process which are characterized by the fact that their state changes by jumps and by dependence of the process on its history at each moment of time. In this paper, the notion of eventual stability for impulsive functional differential equations is investigated. The sufficient conditions that are obtained significantly depend on the moments of impulses. Our technique depends on Liapunov's direct method.

Key Words : *Impulsive functional differential equations, Eventual stability, Liapunov's direct method.*

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