

论文

具有可变脉冲点的脉冲微分方程的稳定性

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摘要:

该文考虑具有可变脉冲点的脉冲微分方程零解的稳定性。通过利用Lyapunov函数以及Razumikhin技巧,可以得到关于具有可变脉冲点的脉冲微分方程零解的一致稳定和一致渐近稳定的充分条件。

关键词: 脉冲微分方程; 一致稳定; 一致渐近稳定; Lyapunov函数; Razumikhin技巧

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34A37; 34D20; 34K20

Stability of Impulsive Differential Equations with Impulses at Variable Times

ZHANG Yu, WANG Chun-Yan, SUN Ji-Chao

Abstract:

This paper considers stability of the zero solution of impulsive differential equations with impulses at variable times. By means of Lyapunov functions and Razumikhin techniques, some sufficient conditions of uniform stability and uniform asymptotic stability for differential equation with impulses at variable times are obtained.

Keywords: Impulsive differential equation; Uniform stability; Uniform asymptotic stability Lyapunov function; Razumikhin technique

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参考文献:

[1]Bainov D, Kolev D Nakagawa K.Solutions with polynomial growth to an impulsive parabolic model. Pan American Mathematical,2000,10(1): 47-57

[2]Sun Jitao,Zhang Yinping, Wang Lei, Wu Qidi. Impulsive robust control of uncertain Lur'e systems.Phys Letters, 2002A,304: 130-135

[3]Lakshmikantham V, Bainov D, Simeonov P S. Theory of Impulsive Differential Equations. Singapore: World Scientific, 1989

[4]Yang Tao. Impulsive Systems and Control: Theory and Applications. New York: Nova Science Publishers Inc Huntington, 2001

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[5]Shen J H. Razumikhin techniques in impulsive functional differential equations. Nonlinear Analysis,1999,36: 119-130

[6]Sun Jitao,Zhang Yinping, Wu Qidi. Less conservative conditions for asymptotic stability of impulsive control systems.IEEE Trans Automatic Control, 2003,48(5): 829-831

[7]Soliman A A. Stability Criteria of Perturbed Impulsive Differential Systems. Applied Mathematics and Computation,2003,134: 445-457

[8]Sun Jitao, Zhang Yinping. Impulsive control of a nuclear spin generator.J of Computational and Applied Mathematics,2003,157(1): 235-242

[9]Soliman A A. On Stability of Impulsive Differential Systems.Applied Mathematics and Computation,2002,133: 105-117

[10]Zhang Yu,Sun Jitao.Boundedness of the solutions of impulsive differential systems with time varying delay. Applied Mathematics and Computation, 2004,154: 279-288

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