

偶阶半线性中立型分布时滞微分方程的振动性

张全信¹, 高丽¹, 俞元洪²

1. 滨州学院数学与信息科学系, 滨州 256603;

2. 中国科学院数学与系统科学研究院, 北京 100190

Oscillation of Even Order Half-linear Neutral Differential Equations with Distributed Delay

ZHANG Quanxin¹, GAO Li¹, YU Yuanhong²

1. Department of Mathematics and Information Science, Binzhou University, Binzhou 256603;

2. Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing 100190

- [摘要](#)
- [参考文献](#)
- [相关文章](#)

全文: [PDF \(252 KB\)](#) [HTML \(1 KB\)](#) 输出: [BibTeX](#) | [EndNote \(RIS\)](#) [背景资料](#)

摘要 本文研究偶阶半线性中立型分布时滞微分方程, 利用广义Riccati变换和积分平均技巧得到方程一切解均为振动的若干新的振动准则, 推广和改进了一些文献中的结果.

关键词: [半线性微分方程](#) [分布时滞](#) [振动准则](#)

Abstract: In this paper a class of even order half-linear neutral differential equations with distributed delay are studied. By using the generalized Riccati transformation and the integral averaging technique, new oscillation criteria are obtained for all solutions of the equations, which generalize and improve the results of some literatures.

Key words: [half-linear differential equation](#) [distributed delay](#) [oscillation criterion](#)

收稿日期: 2008-11-06;

基金资助:

国家自然科学基金(10771118), 山东省自然科学基金(ZR2010AM031), 山东省优秀中青年科学家科研奖励基金(BS2010SF001)以及山东省科技发展计划(2010GWZ20401)资助项目.

引用本文:

. 偶阶半线性中立型分布时滞微分方程的振动性[J]. 应用数学学报, 2011, 34(5): 895-905.

. Oscillation of Even Order Half-linear Neutral Differential Equations with Distributed Delay[J]. Acta Mathematicae Applicatae Sinica, 2011, 34(5): 895-905.

服务


- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [E-mail Alert](#)
- ▶ [RSS](#)

作者相关文章


[1] Wintner A. A Criterion of Oscillatory Stability. Quart. Appl. Math., 1949, 7: 115-117

[2] Kamenev I V. An Integral Criterion for Oscillation of Linear Differential Equations of Second Order. Math. Zametki, 1978, 23: 249-2




[3] Li H J, Yeh C C. An Integral Criterion for Oscillation of Nonlinear Differential Equations. Math. Japonica, 1995, 41: 185-188

[4] Philos Ch G. Oscillation Theorems for Linear Differential Equations of Second Order. Arch. Math., 1989, 53: 482-492 

[5] Li H J. Oscillation Criteria for Half-linear Second Order Differential Equations. Hiroshima Math. J., 1995, 25: 571-583

[6] Wang P G, Teo K L, Liu Y Q. Oscillation Properties for Even order Neutral Equations with Distributed Deviating Arguments. J. Comp Appl. Math., 2005, 182: 290-303 

[7] Agarwal R P, Grace S R, O' Regan D. Oscillation Criteria for Certain nth Order Differential Equations with Deviating Arguments. J.

- [8] Dosly O, Lomtadze A. Oscillation and Nonoscillation Criteria for Half-linear Second Order Differential Equations. Hiroshima Math. 2006, 36: 203-219
- [9] Hsu H B, Yeh C C. Oscillation Theorems for Second-order Half-linear Differential Equations. Appl. Math. Lett., 1999, 9: 71-77
- [10] Wang Q R. Oscillation and Asymptotics for Second-order Half-linear Differential Equations. Appl. Math. Comput., 2001, 122: 253-258 
- [11] Xu R, Meng F. Some New Oscillation Criteria for Second Order Quasi-linear Neutral Delay Differential Equations. Appl. Math. Comput. 2006, 182: 797-803 
- [12] Xu Z, Xia Y. Integral Averaging Technique and Oscillation of Certain Even Order Delay Differential Equations. J. Math. Anal. Appl., 2004, 292: 238-246 
- [13] Yang X. Oscillation Criterion for a Class of Quasilinear Differential Equations. Appl. Math. Comput., 2004, 152: 225-229
- [14] Philos Ch G. A New Criterion for the Oscillatory and Asymptotic Behavior of Delay Differential Equations. Bull. Acad. Pol. Sci. Ser. 5 Mat., 1981, 39: 61-64
- [15] Hardy G H, Littlewood J E, Polya G. Inequalities, 2nd ed. Cambridge: Cambridge Univ. Press, 1988

- [1] 张全信, 俞元洪. 偶阶半线性阻尼泛函微分方程的振动性[J]. 应用数学学报, 2010, 33(4): 601-610.
- [2] Li Qiang JIANG, Zhi En MA, S. Rionero, F. Petrillo. 一类含分布时滞革新传播模型的稳定性[J]. 应用数学学报, 2003, 26(4): 682-692.