

SOME EXTENDED INTEGRAL INEQUALITIES ON TIME SCALES

BOQUN OU

Abstract. In this paper, we establish an integral inequality on time scales. As an applications, we study the stability of a kind of difference equations.

Mathematics subject classification (2010): 34N05,35B35.

Keywords and phrases: Integral inequality, time scales, stability.

REFERENCES

- [1] L. Z. LI, F. W. MENG, P. J. JU, *Some new integral inequalities and their applications in studying the stability of nonlinear integro-differential equations with time delay*, J. Math. Anal. Appl. **377** (2011) 853–862.
- [2] M. BOHNER, A. PETERSON, *Dynamic Equations on Time Scales: An Introduction with Applications*, Birkhäuser, Boston, 2001.
- [3] O. LIPOVAN, *Integral inequalities for retarded Volterra equations*, J. Math. Anal. Appl. **322** (2006) 349–358.
- [4] B. G. PACHPATTE, *On a new inequality suggested by the study of certain epidemic models*, J. Math. Anal. Appl. **195** (1995) 638–644.
- [5] B. G. PACHPATTE, *Explicit bound on a retarded integral inequality*, Math. Inequal. Appl. **7** (2004) 7–11.
- [6] B. G. PACHPATTE, *On a certain retarded integral inequality and its applications*, J. Inequal. Pure Appl. Math. **5** (2004) (Article 19).
- [7] M. ADIVAR, ELVAN AKIN BOHNER, *Halanay type inequalities on time scales with applications*, Nonlinear Analysis **74** (2011), 7519–7531
- [8] L. LI, F. MENG, L. HE, *Some generalized integral inequalities and their applications*, J. Math. Anal. Appl. **372** (2010) 339–349.
- [9] N. T. J. BAILEY, *The Mathematical Theory of Infectious Diseases and Its Applications*, 2nd ed., Hafner, New York, 1975.
- [10] QINGHUA MA, *Estimates on some power nonlinear Volterra-Fredholm type discrete inequalities and their applications*, J. Comput. Appl. Math. **233** (2010) 2170–2180.
- [11] M. BOHNER, ALLAN C. PETERSON, editors, *Advances in Dynamic Equations on Time Scales*, Birkhäuser Boston Inc., Boston, MA, 2003.
- [12] K. L. COOKE, I. GYORI, *Numerical approximation of the solutions of delay differential equations on an infinite interval using piecewise constant arguments*, Comp. Math. Appl. **28** (1994), 81–92.
- [13] H. D. LIU, F. W. MENG, *Nonlinear retarded integral inequalities on time scales and their applications*, J. Math. Inequal. **12** (2018), 219–234.
- [14] S. H. SAKER, A. M. AHMED, H. M. REZK, D. O’REGAN AND R. P. AGARWAL, *New Hilbert dynamic inequalities on time scales*, Math. Inequal. Appl. **20** (2017), 1017–1039.
- [15] A. TUNA AND W. LIU, *New weighted Cebysev-Ostrowski type integral inequalities on time scales*, J. Math. Inequal. **10** (2016), 327–356.
- [16] W. J. LIU, X. Y. GAO, Y. Q. WEN, *Approximating the finite Hilbert transform via some companions of Ostrowski’s inequalities*, Bull. Malays. Math. Sci. Soc. **39** (2016), 1499–1513.
- [17] Y. JIANG, H. RUZGAR, W. LIU, A. TUNA, *Some new generalizations of Ostrowski type inequalities on time scales involving combination of Δ -integral means*, J. Nonlinear Sci. Appl. **7** (2014), 311–324.

- [18] S. F. WANG, Q. L. XUE, W. J. LIU, *Some new perturbed generalizations of Ostrowski-Grüss type inequalities for bounded differentiable mappings and applications*, Appl. Math. Inf. Sci. **7** (2013), 2077–2081.
- [19] Y. G. SUN, *Some new integral inequalities on time scales*, Math. Inequal. Appl. **15** (2012), 331–341.