

EXISTENCE OF ASYMPTOTICALLY STABLE SOLUTIONS TO A NONLINEAR INTEGRAL EQUATION OF MIXED TYPE

CRISTIAN VLADIMIRESCU

Department of Applied Mathematics, University of Craiova
13 A.I. Cuza Str., Craiova RO 200585, Romania
E-mail: vladimirescucris@yahoo.com

Abstract. In the present note an existence result of asymptotically stable solutions to a nonlinear integral equation of mixed (Volterra-Hammerstein) type is presented. The proof is based on the application of a fixed point theorem of Schaefer's type on Fréchet spaces.

Key Words and Phrases: Fixed points, integral equations.

2010 Mathematics Subject Classification: 47H10, 45G10.

REFERENCES

- [1] C. Avramescu, C. Vladimirescu, *On the existence of asymptotically stable solutions of certain integral equations*, *Nonlinear Anal. - Theory, Methods & Applications*, **66**(2007), no. 3-4, 472-483.
- [2] J. Banaś, B. Rzepka, *An application of a measure of noncompactness in the study of asymptotic stability*, *Applied Math. Letters*, **16**(2003), 1-6.
- [3] T.A. Burton, *A fixed-point theorem of Krasnoselskii*, *Applied Math. Letters*, **11**(1998), no. 1, 85-88.
- [4] T.A. Burton, C. Kirk, *A fixed point theorem of Krasnoselskii type*, *Mathematische Nachrichten*, **189**(1998), 23-31.
- [5] T.A. Burton, B. Zhang, *Fixed points and stability of an integral equation: nonuniqueness*, *Applied Math. Letters*, **17**(2004), 839-846.
- [6] M.N. Islam, M. Adivar, *Asymptotically stable solutions of a nonlinear Volterra integral equation*, *Commun. Applied Anal.*, **18**(2014), 155-162.
- [7] M.A. Krasnoselskii, *Some problems of nonlinear analysis*, *American Math. Soc. Translations*, **10**(1958), no. 2, 345-409.
- [8] I.A. Rus, A. Petruşel, G. Petruşel, *Fixed Point Theory*, Cluj University Press, 2008.
- [9] H. Schaefer, *Über die Methode der a priori-Schranken*, *Mathematische Annalen*, **129**(1955), no. 1, 415-416.
- [10] D.R. Smart, *Fixed Point Theorems*, Cambridge University Press, Cambridge, 1980.
- [11] T. Zamfirescu, *A generic view on the theorems of Brouwer and Schauder*, *Mathematische Zeitschrift*, **213**(1993), 387-392.
- [12] E. Zeidler, *Nonlinear Functional Analysis and its Applications. I. Fixed-Point Theorems*, Springer-Verlag, New York, 1986.

Received: September 21, 2017; Accepted: November 10, 2017.

