



Pathak, H.K., Shahzad, N.

Fixed point results for set-valued contractions by altering distances in complete metric spaces

(2009) *Nonlinear Analysis, Theory, Methods and Applications*, 70 (7), pp. 2634-2641.

^a School of Studies in Mathematics, Pt. Ravishankar Shukla University, Raipur (G.C.), 492010, India

^b King Abdulaziz University, Department of Mathematics, PO Box 80203, 21589 Jeddah, Saudi Arabia

Abstract

Nadler's contraction principle has led to fixed point theory of set-valued contraction in non-linear analysis. Inspired by the results of Nadler, the fixed point theory of set-valued contraction has been further developed in different directions by many authors, in particular, by Reich, Mizoguchi-Takahashi, Feng-Liu and many others. In the present paper, the concept of generalized contractions for set-valued maps in metric spaces is introduced and the existence of fixed point for such a contraction are guaranteed by certain conditions. Our first result extends and generalizes the Nadler, Feng-Liu and Klim-Wardowski theorems and the second result is different from the Reich and Mizoguchi-Takahashi results. As a consequence, we derive some results related to fixed point of set-valued maps satisfying certain conditions of integral type. © 2008 Elsevier Ltd. All rights reserved.

Author Keywords

Complete metric space; Hausdorff metric; Set-valued contraction

ISSN: 0362546X