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ON NADLER'S MULTI-VALUED CONTRACTION PRINCIPLE IN COMPLETE METRIC SPACES*

Adrian Petruşel†

Dedicated to Professor Mihail Megan
on the occasion of his 70th anniversary

Abstract

The aim of this paper to present an extended variant of the multi-valued contraction principle. Under the classical assumptions considered by Nadler (1969) and Covitz and Nadler (1970) (i.e., the completeness of the metric space (X, d) and the contraction assumption on a self multi-valued operator on X having nonempty and closed values) several other conclusions with respect to the fixed point problem are presented.

MSC: 47H10, 54H25.

keywords: multi-valued operator, complete metric space, fixed point, strict fixed point, data dependence, Ulam-Hyers stability, well-posedness, Ostrovski property, qualitative properties of the fixed point set.

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†petrusel@math.ubbcluj.ro Address: Faculty of Mathematics and Computer Science, Babeş-Bolyai University Cluj-Napoca, Romania and Academy of Romanian Scientists