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Some fixed point theorems for S_F-contraction in complete fuzzy metric spaces

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Abstract
In this paper, we prove some fixed point theorems by introducing a new F-contraction namely S_F-contraction in fuzzy metric spaces by combining the idea of Wardowski's (Fixed Point Theory Appl 2012, Article ID 94, 2012) and Secelean's (Fixed Point Theory Appl 2013, Article ID 277, 2013) contractions in metric spaces and Grabiec's (Fuzzy Sets Syst 125, 385–389, 1988) contraction in fuzzy metric spaces. An example is also given to support the results proved herein.

Keywords F-contraction · S_F-contraction · Fixed point · Fuzzy metric space

Mathematics Subject Classification 74H10 · 54H25

1 Introduction

Fixed point theory is mainly divided into two categories. The first one is fixed point theory for contraction mappings in a complete metric space and the second one is fixed point theory for continuous mappings on compact and convex subsets of a normed space. The backbone of first kind of study of fixed point theory is Banach contraction principle [3]. This principle states that "if (X, d) is a complete metric space and $T : X \to X$ is a contraction mapping,

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