ON WEAKLY COMMUTING MAPS AND COMMON FIXED POINT RESULTS FOR FOUR MAPS IN G-METRIC SPACES

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Abstract

In this paper, we introduce the concept of weakly commuting maps in G-metric spaces and prove a common fixed point theorem for four self maps in the setting of generalized metric spaces. We also present an example to support our result.

Keywords: Common fixed Point, Weakly Commuting Maps, Generalized Metric Spaces.

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1. Introduction

The notion of G-metric space was introduced by Z. Mustafa and B. Sims [10] as a generalization of the notion of metric spaces. Mustafa et al. studied many fixed point results in G- metric spaces (see [8, 9, 10, 11, 12]). The study of common fixed point theorems in generalized metric spaces was initiated by Abbas and Rhoades [2], while, Saddati et al. [13] studied some fixed points in generalized partially ordered G-metric spaces. Shatanawi [15] obtained fixed points of Φ-maps in G-metric spaces. Also, Shatanawi [16] obtained a coupled coincidence fixed point theorem in the setting of a generalized metric spaces for two mapping F and g under certain conditions with an assumption of G-continuity of one of the mapping involved therein, see also [3, 17, 1, 4, 18, 5], while Chugh et al. [6] obtained some fixed point results for maps satisfying property p in a G-metric space. In the present paper, we introduce the concept of weakly commuting maps in G-metric spaces and prove a common fixed point theorem for four self maps in the setting of generalized metric spaces.

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