

COINCIDENCE POINT AND COMMON FIXED POINT THEOREM FOR GENERALIZED HARDY-ROGERS TYPE ψ -CONTRACTION MAPPINGS IN A METRIC-LIKE SPACE WITH AN APPLICATION

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Abstract. In this paper, we introduce common fixed point theorems for a generalized Hardy-Rogers type of ψ -contraction in metric-like spaces. Also some examples to show our main result were introduced.

Keywords. Fixed point, Hardy-Rogers type contraction, Metric-like spaces.

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1 Introduction and preliminaries

Fixed points results of mappings satisfying certain contractive conditions on the entire domain have been at the centre of rigorous research activity. Recently, many results appeared related to fixed point theorems in complete metric spaces endowed with a partial ordering. Mathews in [19] extended the concept of a metric space to a partial metric space and obtained many results in partial metric spaces. Indeed, the motivation for introducing the concept of a partial metric was to obtain appropriate mathematical models in the theory of computation and, in particular, to give the improvement of Banachs contraction principle. Afterwards, many authors have studied the existence and uniqueness of a fixed point for nonlinear mappings satisfying various contractive conditions in the setting of partial metric spaces. Recently, Amini-Harandi in [2] presented generalization concept partial metric space which is metric-like space. The author also proved some fixed point theorems and gave ρ -completeness in such space. Subsequently Shukla et. al., in [24] have proved common fixed point theorems and introduced 0 - ρ -completeness in metric-like space which generalized Amini-Harandis results. Later, many results of Amini-Harandi have been generalized (see, for example [3, 5, 6, 8, 10, 13, 14, 15, 21, 23]). Now, we recall some elementary results