

FIXED POINT THEOREMS VIA INTERPOLATIVE F -CONTRACTIONS IN S -METRIC SPACES AND AN APPLICATION

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ABSTRACT. In this paper, we introduce a new concepts of contractions called modified generalized interpolative *Hardy-Rogers-type* F -contraction and modified generalized interpolative *Khan-type* F -contraction in S -metric spaces. We develop an extensive theoretical setting for these new modified generalized interpolative contractions and establish some fixed point theorems using suitable conditions, ensuring the existence and uniqueness of fixed points. Additionally, we present some consequences of the established results. An illustrative example is provided to support the established result. Finally, we give an application to the existence of certain type of non-linear integral equation. The results obtained in this paper extend, generalize and unify several results in the existing literature.

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Received: March 19, 2026. *Revised:* July 17, 2026.

2020 Mathematics Subject Classification: 47H10, 54H25.

Key words and phrases: Interpolative contraction, fixed point, S -metric space, Hardy-Rogers contraction, Khan-contraction, F -contraction.

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