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A NEW VIEW TO NEAR-RING THEORY: SOFT NEAR-RINGS

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Abstract: In this paper, we indicate the study of soft near-rings by using the definition of the soft sets. The notions of soft near-rings, soft subnear-rings, soft (left, right) ideals, (left, right) idealistic soft near-rings, soft homomorphisms and soft near-ring homomorphisms are introduced. Also we investigate the soft homomorphism and soft near-ring homomorphism with respect to the homomorphic image and we show that some structures of soft near-rings are preserved under soft near-ring isomorphism.

Keywords and Phrases: Soft sets, Soft near-rings, Idealistic soft near-rings, Soft near-ring homomorphisms.

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1. Introduction

Molodtsov [1] proposed a new approach for modeling vagueness and uncertainty, which is called soft set theory in 1999. Since its inception, Maji et al. [2] and Ali et al. [3] introduced several operations of soft sets and Sezgin and Atagün [4] studied on soft set operations in more detail. Soft set theory has also wide-ranging applications in algebraic structures, for example Aktas and Çağman [5] studied soft groups and Sezgin and Atagün [6] studied on normalistic soft groups as well. Then, Feng et al. [7] introduced and investigated soft semirings, soft subsemirings, soft ideals, idealistic soft semirings and soft semiring homomorphisms. In [8], Zhan and Jun introduced soft BL-algebras on fuzzy sets and in [9], Çağman and Enginoglu defined soft matrices and their operations and constructed a soft max-min decision making method. Acar et al. [10] introduced initial concepts of soft rings. Atagün and Sezgin [11] studied soft substructures of rings, fields and modules and Sezgin et al. [12] introduced the union soft substructures of near-rings and N-groups. Soft set has also studied in [22-24] as regards operations and algebraic structures.