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DESCRIPTIVE PROXIMAL RELATOR SPACES: ADVANCES IN THE ALGEBRA OF PRIME RINGS AND IDEALS

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ABSTRACT

Given a non-empty set X and its subsets A and B, we say A is near to B (denoted by $A\delta B$), which implies that either A and B have one or more common points, or they have points close enough to each other [7]. A non-empty set X, equipped with δ is called a proximity space, provided it satisfies certain conditions. The nearness between two sets does not necessarily mean that there are common elements between the two sets *(Spatially proximity)*. Instead, nearness can be defined descriptively as *(Descriptive proximity)* [1, 6] based on probe functions [4]. A family of proximity relations R_δ together with a non-empty set X, defines a relator space [5]. Many algebraic structures have been proposed for relator spaces, such as approximately groups [2], approximately rings, approximately sub-rings, approximately ideals [2, 3]. These structures play an important role in algebraic theory. These observations have led lead to advances in descriptive relator space theory, namely, approximately prime rings (APRs) and approximately prime ideals (APIs). In this study, we present APRs and APIs in descriptive relator spaces and together with some of their properties. Moreover, we give a main theorem related to the approximately integral domain.

***K*eywords** relator spaces · approximately rings · approximately prime rings

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