

A near rings has been  
developed much



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A near-ring is an algebraic structure similar to a ring but satisfying fewer axioms. The theory of near-rings enjoys the privilege of not only being deep rooted in many branches of mathematics like geometry, the theory of automata, non-abelian homological algebra, algebraic topology etc, but also of possessing fascinating and challenging areas of current mathematical research. In fact, the time seems reasonably near for an historically noteworthy combination of the algebraic theory of near-rings with the fields of nonlinear differential equations, functional analysis and analysis.

Twentieth century mathematics has already started revealing the discipline of mathematics as representing the ultimate in abstraction, formalization and analytic creativity. The theory of near ring is a fast growing branch of abstract algebra in Mathematics. In 1905, L. E.

Dickson<sup>17</sup> constructed the first proper near field by 'distorting' the multiplication in a field. These types of near fields are now called Dickson near-fields. Two years later, Veblen and Wedderburn used near-fields to coordinate geometric planes. In a monumental paper, H. Zassenhaus showed in 1936 that all finite near-fields are Dickson ones. Fifty one years later, Zassenhaus showed that there do exist non-Dickson infinite near-fields of every prime characteristic. Since then the theory of near rings has been developed much and at present it becomes a sophisticated theory with numerous applications in various areas namely geometries interpolation theory, group theory, polynomials and matrices. Designs are an important application of near rings.

The use of planner near-rings to get excellent balanced incompletesigns and experimental designs is probably the best known application ofnear-ring to the “ outside world”. In recent years its connection with computerscience, automata, dynamical systems, rooted trees, coding theory, cryptographyetc. have also been dealt with. A near-ring is exactly what is needed todescribe the structure of the endomorphisms of various mathematical structuresadequately. Near-rings are generalisations of rings.

It is natural to generalize various concepts of rings to near-rings. Betch, Beidleman, Ramakotaiah, Ligh, Clay, Satyanarayana, Chowdhury and others hadgeneralised various concepts to near-rings. Due to non-ring character of anear-ring the results have their own beauty. Extensive research work are beingcarried out on near-rings and near-ring groups in which structure theory is onearea of importance. Oswald, Beildman, Ligh, Chowdhury and other have doneconsiderable work on various aspects of near-rings with chain conditions onannihilators. In 70’s Oswald<sup>33</sup> has obtained the structure theory ofnear-rings in which each near-ring subgroup is principal. In recent years Pitz<sup>34</sup>, Meldrum and others have obtained elegantly the relations between near-rings andautomata, near-rings and dynamical system, semi-near-rings and rooted trees. D.

W. Blakett<sup>7</sup> studied simple and semi-simple near-rings around 1953. S. C. Choudhury, Mason and other have generalised that concept to strictlysemi-simple near-rings.

The first ones to use the name “near ring” were Zassenhaus in 1936 and Blackett and P. Jordan in 1950. Finally, the fifties brought the start of a rapid development of the theory of near-rings.

If in a ring we ignore the commutativity of ‘+’ and one of the distributive laws, becomes a near ring. If we do not stipulate the left distributive laws, is a right near-ring. The set of all mappings from a group  $(G, +)$  to itself with pointwise addition and composition of mappings serves as a natural example of a near-ring and indeed all near rings arise as sub near-rings of such near-rings. The concept of fuzzy set was introduced by Zadeh<sup>47</sup> in 1965, utilizing which Rosenfeld<sup>37</sup> in 1971 defined fuzzy subgroups. Since then, the different aspects of algebraic systems in fuzzy settings had been studied by several authors. The notion of fuzzy subnear-ring and fuzzy ideals of near-rings was introduced by Abou Zaid Salah<sup>1</sup>.

I want to generalize the different kinds of fuzzy ideals in near-ring and their properties. We also investigate some of its properties with example.