

GRAPH-THEORETIC APPROACH TO THE IDEAL STRUCTURE OF
A FAMILY OF NON-CHAIN RINGS

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Abstract

For finite $k \geq 1$

$$R_k = F_2 [u_1, u_2, \dots, u_k] / \langle u_i^2 = 0, u_i u_j = u_j u_i \rangle. \quad (1)$$

and $R_0 = F_2$ (finite field with two elements) are commutative rings with characteristic two. In [1], Yildiz *et.al* studied some special codes, called self-dual codes, over this ring. This family of rings has been studied as a new source for building linear codes. As pointed out in these studies, it is not easy to determine all ideals of R_k where $k > 1$, since it is not a principal ideal ring. In this study, we determine the ideal structure of R_3 by using the zero-divisor graph [2] of R_3 ($k = 3$).

Keywords: Zero-divisor graphs, Non-chain rings.

References

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