

GENERATOR AND PARITY-CHECK MATRICES OF
 $\mathbb{Z}_p[u^r, u^s]$ -LINEAR CODES

Ismail Aydogdu

Department of Mathematics, Yildiz Technical University

ABSTRACT. In this work we generalize $\mathbb{Z}_2\mathbb{Z}_2[u]$ -linear codes to codes over $\mathbb{Z}_p[u]/\langle u^r \rangle \times \mathbb{Z}_p[u]/\langle u^s \rangle$ where p is a prime number and $u^r = 0 = u^s$. These family of codes will be called as $\mathbb{Z}_p[u^r, u^s]$ -linear codes which are actually special submodules. We determine the standard forms of the generator and parity-check matrices of $\mathbb{Z}_p[u^r, u^s]$ -linear codes.

References

- [1] T. ABUALRUB AND I. SIAP: *Cyclic codes over the rings $\mathbb{Z}_2 + u\mathbb{Z}_2$ and $\mathbb{Z}_2 + u\mathbb{Z}_2 + u^2\mathbb{Z}_2$* , Designs Codes and Cryptography. **42**, No.3, (2007), 273-287.
- [2] M. AL-ASHKER AND M. HAMOUDEH: *Cyclic codes over $\mathbb{Z}_2 + u\mathbb{Z}_2 + u^2\mathbb{Z}_2 + \dots + u^{k-1}\mathbb{Z}_2$* , Turk J Math, **35**, (2011), 737-749.
- [3] I. AYDOGDU, T. ABUALRUB AND I. SIAP: *On $\mathbb{Z}_2\mathbb{Z}_2[u]$ -additive codes*, International Journal of Computer Mathematics, **92**, No. 9, (2015), 1806-1814.