

## Maximum Distance Separable b-Symbol Repeated-Root $\gamma$ -Constacyclic Codes over a Finite Chain Ring of Length 2

**Authors :** Jamal Laaouine, Mohammed Elhassani Charkani

**Abstract :** Let  $p$  be a prime and let  $b$  be an integer. MDS  $b$ -symbol codes are a direct generalization of MDS codes. The  $\gamma$ -constacyclic codes of length  $p^s$  over the finite commutative chain ring  $F_{p^m}[u]/\langle u^2 \rangle$  had been classified into four distinct types, where  $\gamma$  is a nonzero element of the field  $F_{p^m}$ . Let  $C_3$  be a code of Type 3. In this paper, we obtain the  $b$ -symbol distance  $db(C_3)$  of the code  $C_3$ . Using this result, necessary and sufficient conditions under which  $C_3$  is an MDS  $b$ -symbol code are given.

**Keywords :** constacyclic code, repeated-root code, maximum distance separable, MDS codes,  $b$ -symbol distance, finite chain rings

**Conference Title :** ICICT 2020 : International Conference on Information and Coding Theory

**Conference Location :** Barcelona, Spain

**Conference Dates :** December 17-18, 2020