

Maximum Distance Separable b-Symbol Repeated-Root γ -Constacyclic Codes over a Finite Chain Ring of Length 2

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Abstract : Let p be a prime and let b be an integer. MDS b -symbol codes are a direct generalization of MDS codes. The γ -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 γ 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

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