

Tailoring the Parameters of the Quantum MDS Codes Constructed from Constacyclic Codes

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Abstract : The existence conditions of dual containing constacyclic codes have opened a new path for finding quantum maximum distance separable (MDS) codes. Using these conditions parameters of length $n=(q^2+1)/2$ quantum MDS codes were improved. A class of quantum MDS codes of length $n=(q^2+q+1)/h$, where $h>1$ is an odd prime, have also been constructed having large minimum distance and these codes are new in the sense as these are not available in the literature.

Keywords : hermitian construction, constacyclic codes, cyclotomic cosets, quantum MDS codes, singleton bound

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