

## Abstract

We investigate the minimum distance of  $q$ -ary negacyclic codes of length  $(q^m-1)/2$  generated by a product of two distinct minimal polynomials. A necessary and sufficient condition on the minimum distance of such negacyclic codes is given. Several classes of optimal quinary negacyclic codes with parameters  $[(5^m-1)/2, (5^m-1)/2-2m, 4]$  are constructed. The dual codes of a subclass of the quinary negacyclic codes are studied. A comparison with cyclic codes is also presented.