MRD FIRE-CODES

W.B. Vasantha Kandasamy and N. Madan Kumar

The study of fire codes is an important one, for fire codes can correct all burst errors of length \( \leq b \). A fire code is a cyclic code over \( F_q \) with generator polynomial \( g(x) = (x^{2b - 1} - 1)r(x) \) where \( r(x) \) is an irreducible polynomial of degree \( m \geq b \), and of order \( e \), \( r(x) \) does not divide \( x^{2p-1} - 1 \). The block length of the Fire code is the order of \( g(x) \). Let the block length \( n = e(2b - 1) \). If \( g(x) \) is primitive, the Fire code is a \((q^m - 1)(2b - 1), (q^m - 1)(2b - 1) - m - 2b + 1)\) code which can correct all burst errors of length \( \leq b \).

In this paper we introduce Fire codes using MRD cyclic codes and study them.