

FINITE GEOMETRY AND ITS APPLICATIONS IN ERROR CORRECTION

JASPER LANDA

Error-correcting codes are sets of codewords of length n over a finite alphabet. These words can be considered as points of a finite, discrete vector space. With the convenient minimal Hamming distance d , these are separated from one another. The dimension of the codeword span, k , is equal to the amount of datasymbols which are to be encoded into blocks of n symbols, by adding $n - k$ parity symbols. This makes the data resistant to the noise of the channel the data is sent over. We see that the codewords of the most efficient codes form a (hyper)oval in their projective space.