LCD codes obtained from weakly p-self-orthogonal designs

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This is joint work with Mikulić Crnković Vedrana

A 1-design is weakly p-self-orthogonal if all the block intersection numbers gives the same residue modulo p. In [1], we analyze extensions of the incidence matrix, orbit matrix and submatrices of orbit matrix of a weakly p-self-orthogonal 1-design in order to construct self-orthogonal codes.

A linear codes is called LCD code if the intersection with its dual code is trivial. Matrix G generates an LCD code if and only if $\det(G \cdot G^T) \neq 0$ (see [3]). We extend the methods of construction described in [1] in order to construct LCD codes over finite fields. We use suitable extensions of incidence matrix, orbit matrices and submatrices of orbit matrices in order to construct LCD codes over finite field. We will present examples of LCD codes constructed from weakly p-self-orthogonal designs obtained from groups using construction described in [2].

References

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