

Self-dual codes from orbit matrices and quotient matrices of combinatorial designs

In this talk we will give constructions of self-orthogonal and self-dual codes, with respect to certain scalar products, with the help of orbit matrices of block designs and quotient matrices of symmetric (group) divisible designs (SGDDs) with the dual property. First we will describe constructions from block designs and their extended orbit matrices, where the orbit matrices are induced by the action of an automorphism group of the design. Then we will give some further constructions of self-dual codes specifically from symmetric block designs and their orbit matrices. Moreover, in a similar way as for symmetric designs, we will give constructions of self-dual codes from SGDDs with the dual property and their quotient matrices. This is joint work with Dean Crnković.

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