

New bounds and constructions for constant dimension codes

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Constant dimension codes, as special subspace codes, have attracted lots of attention due to its application in random network coding. There are two fundamental constructions for constant dimension codes with large sizes: the multilevel construction introduced by T. Etzion and N. Silberstein in 2009, and the parallel construction introduced by L. Xu and H. Chen in 2018. This talk gives a survey on this topic. We shall show how to combine the parallel construction and multilevel construction efficiently to produce constant dimension codes with large sizes. New lower bounds of constant dimension codes are given. We shall show how to construct optimal rank-metric codes in Ferrers diagrams that can be used to construct constant dimension codes. Several constructions for Ferrers diagram rank-metric codes are presented.