

# Linear codes and Grassmann graphs

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Joint work with I. Cardinali and M. Kwiatkowski

## Abstract

Let  $\mathcal{G}(n, k)$  be the Grassmann graph of all  $k$ -dimensional subspaces of a vector space of dimension  $n$  over a field  $\mathbb{F}$ . In this talk we consider the problem of representing families of linear  $[n, k]$ -codes on  $\mathcal{G}(n, k)$  and the properties of the induced subgraph. In particular, if  $\Delta_t(n, k)$  is the family of all linear  $[n, k]$ -codes with minimum dual distance at least  $t + 1$  and the field  $\mathbb{F}$  is large enough, then we show that the induced graph  $\mathcal{D}_t(n, k)$  on  $\mathcal{G}(n, k)$  is connected and isometrically embedded. We also prove that given a code  $C$  of parameters  $[n, k, d]$ , then the subgraph  $\mathcal{M}(C)$  of  $\mathcal{G}(n, k)$  induced by all codes equivalent to  $C$  is always connected, without any restriction on the field.

## References

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