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*Finite Geometry and Rank-Metric Codes*

It is well known that there is a correspondence between codes in the hamming metric and sets of points in a projective space, where weights of codewords correspond to intersection properties of this set with hyperplanes. In the extremal case, we have the classical correspondence between MDS codes and arcs.

Codes in the rank-metric have been studied since Delsarte (1978) and Gabidulin (1985), but have had increased attention in recent years due to potential applications in Network Coding and Code-based Cryptography.

In this talk we outline a natural correspondence between codes in the rank-metric and linear sets in a projective space. Linear sets have been studied in finite geometry for the past 20 years. These two topics have developed independently until recently, so there are various results and techniques in each which translate to interesting and non-trivial results in the other. We will present recent results and open problems arising from this new correspondence.