

Partitions of Vector Spaces into Subspaces

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Abstract:

Let V be a finite vector space over a finite field. The subspaces W_1, W_2, \dots, W_k form a partition of V if

- (a) each vector u in V belong to some W_i ,
- (b) W_i and W_j only intersect at the 0-vector for $i \neq j$.

In this talk we will discuss necessary and/or sufficient conditions for the existence of a partition of V . In the process, we will define the concept of realizable dimension sequence, which is a sort of vector space analogue of a realizable degree sequence for graphs.