Spectrum results in finite geometry

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In finite geometry, there are several spectrum results. In a spectrum result, the aim is to prove for a large interval of values of k, the existence of a particular substructure of size k in a finite projective space.

This includes results of Heden on maximal partial spreads in $\mathrm{PG}(3,q)$, q odd, [1], results of Szőnyi *et al* on minimal blocking sets in $\mathrm{PG}(2,q^2)$ [5], and results of Pepe, Roßing, and Storme on maximal partial ovoids in the generalized quadrangle $Q(4,q)$, and on minimal blocking sets with respect to planes in $\mathrm{PG}(3,q)$ [2, 3, 4].

We present in this talk the main ideas in obtaining these spectrum results.

References

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[4] C. Roßing and L. Storme, A spectrum result on minimal blocking sets with respect to the planes of $\mathrm{PG}(3,q)$, q odd. *Des. Codes Cryptogr.*, submitted.

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