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Title: Inverse-closed linear subspaces and related problems

Summary:

If D is a planar difference set in an abelian group, then -D is an oval (Jungnickel and Vedder 1987, see also Hall 1984). If A is an inverse-closed additive subgroup of a field F of characteristic different from two, then A is a subfield of F or it is the set of elements of trace zero in some quadratic field extension contained in F (Goldstein, Guralnick, Small and Zelmanov 2006, and Mattarei 2007).

In this talk we present some connections between the above results and show some of their generalizations.