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Sumsets as Unions of Sumsets of Subsets

I will talk about a modest generalization of the cap set bound which shows that sumsets $S + T$ in F_p^n can be expressed “more efficiently” than one might expect; this uses the polynomial method combined with results of Meshulam on linear spaces of low-rank matrices, an interesting linear algebra problem in its own right. I’ll explain the short proof and speculate about other generalizations one might hope for in the near or long term.