
LÁSZLÓ M. LOVÁSZ, MIT

A tight bound for Green's arithmetic triangle removal lemma

Green proved an arithmetic triangle removal lemma, which roughly says that for any three subsets of \mathbb{F}_p^n , if the number of triangles (triples summing to zero) between them is small, then we can delete a small number of elements and remove all triangles. Green posed the problem of improving the bounds, and asked whether a polynomial bound holds. Despite considerable attention, prior to our work, the best known bound, due to Fox, was tower type. We discuss our solution to Green's problem, proving a tight polynomial bound, using recent breakthroughs on the cap set problem.

Joint work with Jacob Fox.