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Global Hypercontractivity and Forbidden Intersection Theorems

Hypercontractive inequalities play a fundamental role in discrete Fourier analysis over the hypercube and have many applications throughout Discrete Mathematics. Such inequalities continue to hold in other combinatorial domains, but for a restricted class of functions that satisfy a pseudorandomness condition called *globalness*. We give an overview of global hypercontractivity and its application to Erdős–Ko–Rado and Erdős–Sós-type forbidden intersection theorems for various non-Abelian matrix groups. This is joint work with Esty Kelman and Ohad Sheinfeld.