Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, February 13@ STV 120

Speaker: Yifan Jing, UIUC

The avoidance density of (k, l)-sum-free sets

Let $\mathscr{M}_{(2,1)}(N)$ be the infimum of the size of the largest sum-free subset of any set of N positive integers. An old conjecture in additive combinatorics asserts that there is a constant $c = c(2, 1)$ and a function $\omega(N) \to \infty$ as $N \to \infty$, such that $cN + \omega(N) < \mathscr{M}_{(2,1)}(N) < (c + \varepsilon)N$ for any $\varepsilon > 0$. The constant $c(2, 1)$ is determined by Eberhard, Green, and Manners, while the existence of $\omega(N)$ is still open. In this talk, we consider the analogue conjecture for (k, l)-sum-free sets. We determine the constant $c(k, l)$ for every (k, l), and prove the existence of the function $\omega(N)$ for infinitely many (k, l).