

Discrete Mathematics Seminar

Time: Friday, 18 November 2011, 12:30–1:30 PM
Location: 238 Derrick Hall
Title: Small Additive Bases for the First n Positive Integers
Speaker: Dr. Xingde Jia, Mathematics Department

Abstract:

Given a positive integer k . Let $n(2, k)$ denote the largest positive integer n so that there exists a k -element set $A = \{a_1, a_2, \dots, a_k\}$ of positive integers such that every positive integer t less than or equal to n can be written as a sum of at most two elements from A . A relatively simple construction of a good set A with k elements was discovered by Mrose in 1979, which shows that $n(2, k) \geq \frac{2}{7}k^2 + O(k)$. More than 30 years later today, this is still the best known lower bound for the extremal function. I will present the construction of this small additive basis, and also discuss some related open problems.