Discrete Mathematics Seminar

Time: Friday, 11 March 2011, 12:30–1:30 PM

Location: 238 Derrick Hall

Title: Three Layer Q_2-Free Families in the Boolean Lattice

Speaker: Dr. Jian Shen, Department of Mathematics

Abstract:

This is a follow up to a DM seminar talk given by Dr. Jake Manske in Fall 2010, and thus is joint work with Jake. Let Q_2 be the poset with four distinct elements a, b, c, d such that $a < b, c < d$; that is, Q_2 is the 2-dimensional Boolean Lattice. We prove that the largest Q_2-free family of subsets of $[n]$ having at most three different sizes has at most $\left(3 + 2\sqrt{3}\right) N/3 \approx 2.1547N$ members, where $N = \binom{n}{\lfloor n/2 \rfloor}$. This improves an earlier bound of $2.207N$ by Axenovich, Manske, and Martin.