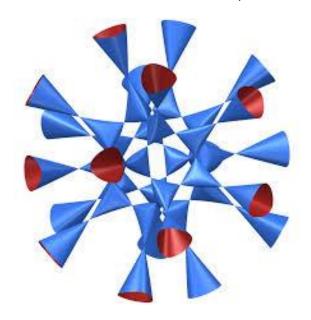
## The SUMO Speaker Series for Undergraduates

Thursday, October 16th 4:15-5:05, room 380C (Food Provided)

The Combinatorial Nullstellensatz and (restricted) sumsets



Professor Alex Wright

## Abstract:

Given two subsets A and B of the integers mod a prime p, how big does the set of sums A+B={a+b: a in A, b in B} have to be? What if you add the additional restriction that the a and b used should be not equal?

This famous problem in combinatorics looks like it has nothing to do with polynomials. However, we will solve it by proving a generalization of the fact that a polynomial of degree d can have at most d zeros. This generalization is called the Combinatorial Nullstellensatz, and has become a cornerstone of the so-called polynomial method in combinatorics.

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