

The SUMO Speaker Series for Undergraduates

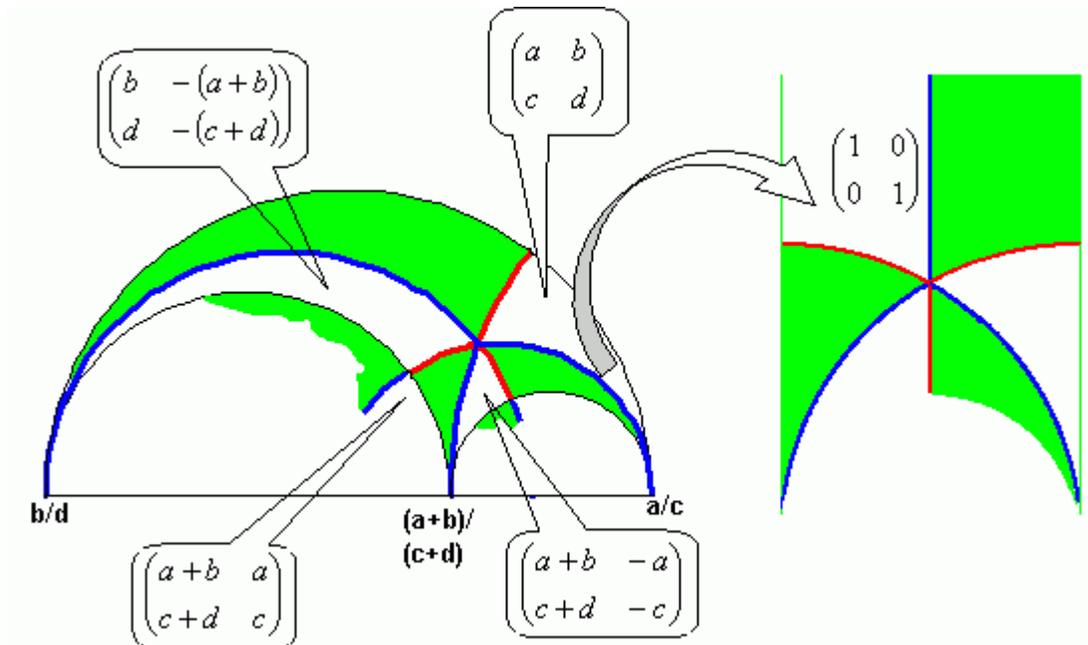
Wednesday, May 2nd

4:15-5:05, room 380C

(Food Provided)

Reasonable and Unreasonable Effectiveness of Modular Forms in Enumeration

Professor Rob Rhoades



ABSTRACT:

The number of ways of writing any positive integer n as a sum of four squares equals eight times the sum of the divisors of n that are not divisible by 4. The number of non-increasing sequences of positive integers that sum to n is approximately equal to $C \exp(K\sqrt{n})/n$ with C and K constants.

These results follow easily from the theory of modular forms. I'll discuss the role of modular forms in many classical enumeration problems. The great usefulness of modular forms is that each form has a finite number of calculable invariants that determine it uniquely. This means that identities and asymptotics like the ones above are reduced to a finite check.

sumo.stanford.edu/speakers