

The SUMO Speaker Series for Undergraduates

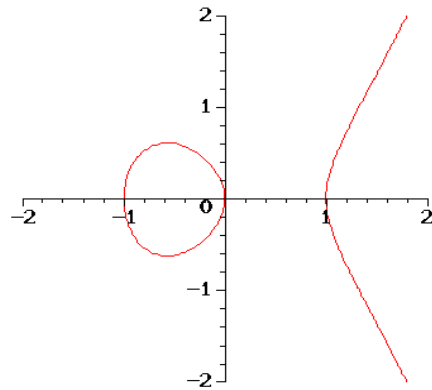
(food from Pizza Chicago)

Wednesday, April 29th

5:15-6:05, room 380C

What's the Deal with -163 ?

Brandon Levin



$$j(q) = 1/q + 744 + 196884q^2 + 21493760 q^3 + \dots$$

ABSTRACT:

The talk will concern two remarkable facts:

- (1) For the first forty non-negative integers n , the polynomial $n^2 + n + 41$ is prime!
- (2) The value of $e^{\pi\sqrt{163}}$ is within 10^{-12} of an integer.

These two facts turn out to be closely linked to each other, and in fact are best understood in terms of the arithmetic properties of numbers of the form $(a + b\sqrt{-163})/2$ with integers a and b . In the course of explaining this, I will tell a truncated version of the engrossing history of Gauss' class number problem.

sumo.stanford.edu/speakers