

# The SUMO Speaker Series for Undergraduates

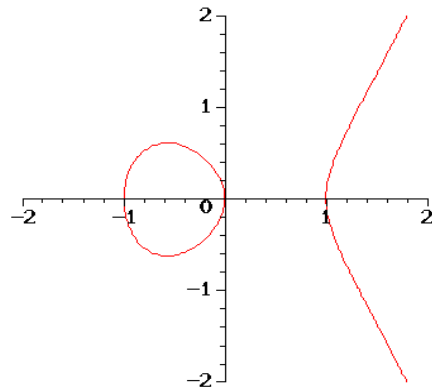
*(food from Pizza Chicago)*

Wednesday, April 29<sup>th</sup>

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.

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