

BAMA 2

School Year 2008—2009
Join us for a free talk...

Brian Conrad

Rational Right Triangles



San Jose State University*
Engineering Auditorium, Rm. 189

7:30 pm
Wednesday, October 22

The last remaining unsolved problem from Greek mathematics is the problem of determining “congruent numbers”: a positive integer is called a “congruent number” if it arises as the area of a rational right triangle (i.e., a right triangle all three of whose side lengths are rational numbers). For example, 6 is a congruent number since it is the area of the 3-4-5 right triangle (and so any square multiple of 6 is a congruent number, by scaling the triangle). Also, 5 is a congruent number because it is the area of the right triangle with side lengths $3/2$, $20/3$, and $41/6$. It is not easy to recognize whether or not a number is a congruent number! For example, 2 is not a congruent number because of Fermat’s Last Theorem for exponent 4.

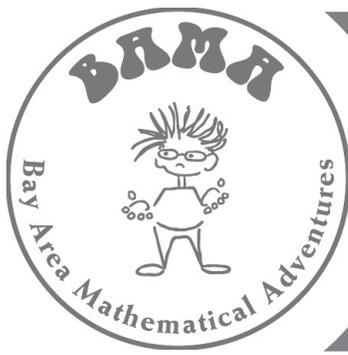
In this talk, we explain how to rephrase the congruent number problem in terms of elliptic curves, and show the striking insights that arise in this way.

Brian Conrad grew up on Long Island and decided to become a mathematician after attending the Ross Program at Ohio State after 10th grade. He did his undergraduate work at Harvard and his PhD work at Princeton under Andrew Wiles in the time period immediately following Wiles’ proof of Fermat’s Last Theorem. Following several postdoctoral years at Harvard, he was a professor at the University of Michigan for 8 years until moving to Stanford this year. He works on problems at the interface of number theory and algebraic geometry, and he has regularly supervised talented high school students on math research projects, 7 of whom were Finalists in the Intel competition.



* See back for map and directions.

Visit the Bay Area Mathematical Adventures (BAMA) at <http://mathematicaladventures.org>



BAMA

Bay Area Mathematical Adventures

A series of presentations on diverse topics by remarkable mathematicians. All talks are free and open to the public.

WHY?

The primary goal of BAMA is to challenge and motivate students to think mathematically. Speakers will present real mathematics, and will share with the audience modern views of mathematics. Some talks will provide students with related problems, or will enable teachers to expand later on the topics with their students.

WHO?

BAMA is aimed at bright high-school age students. However, all are welcome: older students, teachers, parents, and the general public.

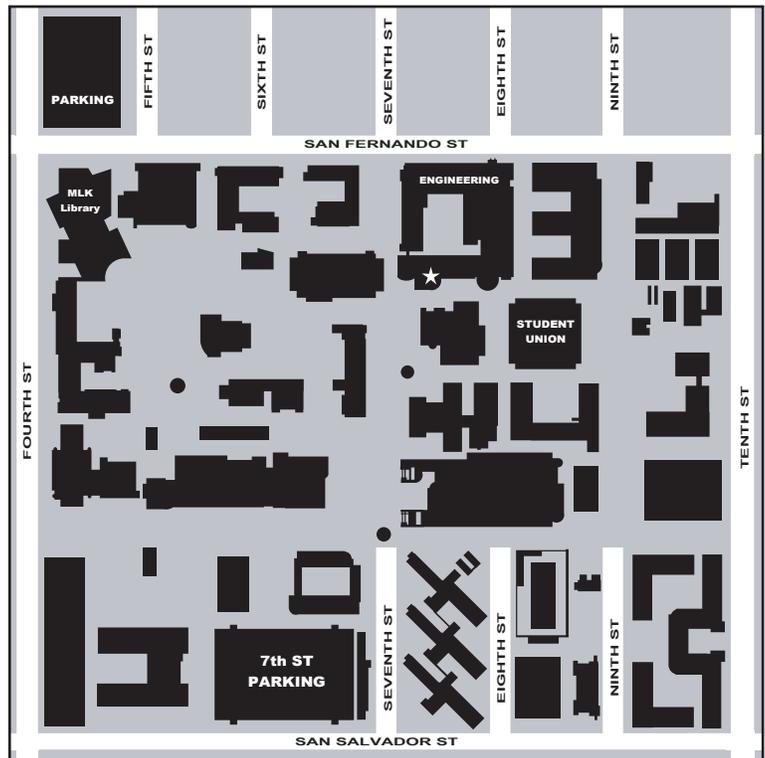
WHEN?

Evening talks will be given approximately once a month between September and April. Each talk will be self-contained (speakers will not assume their audiences have attended previous talks).

WHERE?

San Jose State University Engineering Auditorium 189

- From 101 take the First Street or Guadalupe Expressway exit and go to Fourth Street.
- Take Fourth to San Salvador Street; turn left onto San Salvador and park in the Seventh Street Garage. The automated pay stations located on level 3 and above accept coins, \$1, \$5 and \$10 bills. A 2-hour parking permit costs \$4.
- From 280 take the 7th Street exit and turn North on Seventh St. The garage is on the left after 5 or 6 blocks.
- Convenient parking is also available at the Fourth Street Garage across E. San Fernando St. from the Dr. Martin Luther King, Jr. Library. The first hour after 6:00 pm is free, but otherwise a \$2 flat rate applies to cars entering after 6:00 PM.



SPONSORS:

San Jose State University
Department of Mathematics and College of Science

Santa Clara University
Department of Mathematics and Computer Science

American Institute of Mathematics
Mathematical Sciences Research Institute

FOR MORE INFO:

<http://www.mathematicaladventures.org>

BAMA Steering Committee:

Tatiana Shubin	SJSU	408-924-5146
Peter Ross	SCU	408-554-4544
Bradley Jackson	SJSU	408-924-5100
Gerald L. Alexanderson	SCU	408-554-6894