Alissa Crans

Musical Mathematics

Santa Clara University, Daly Science 207
Friday, November 16, 7:30 pm

Can we hear mathematics? In the same way that it is possible to see mathematical beauty in crystals, it is also possible to hear mathematical structure in music. Using the language of modular arithmetic, we connect the symmetries of a regular dodecahedron to the major and minor chords that musicians use to build their compositions. We illustrate the connection both geometrically and algebraically. These relationships have been used to analyze works of music as diverse as that of Beethoven and the Beatles. (This is joint work with Thomas M. Fiore and Ramon Satyendra.)

Alissa S. Crans is an Associate Professor of mathematics at Loyola Marymount University and the Director of Educational Activities at the Mathematical Sciences Research Institute (MSRI).

Alissa's interests are in higher-dimensional algebra. Her recent work involves categorifying algebraic structures called quandles with the goal of defining new knot and knotted surface invariants. Interested in the connections between mathematics and music, she enjoys playing the clarinet with the Santa Monica College wind ensemble.
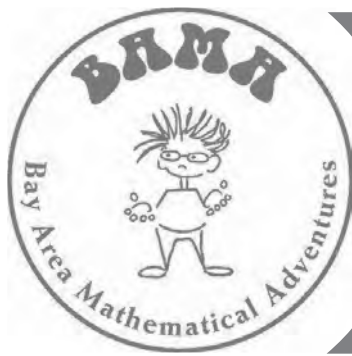
Alissa fosters appreciation and enthusiasm for mathematics in students through co-organizing conferences and mentoring young women. She received the Mathematical Association of America's 2011 Merten M. Hasse Prize for expository writing and 2011 Henry L. Alder Award for distinguished teaching by a beginning college/university mathematics faculty member.

* See back for map and directions.

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?
BAMA aims 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: younger or 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).
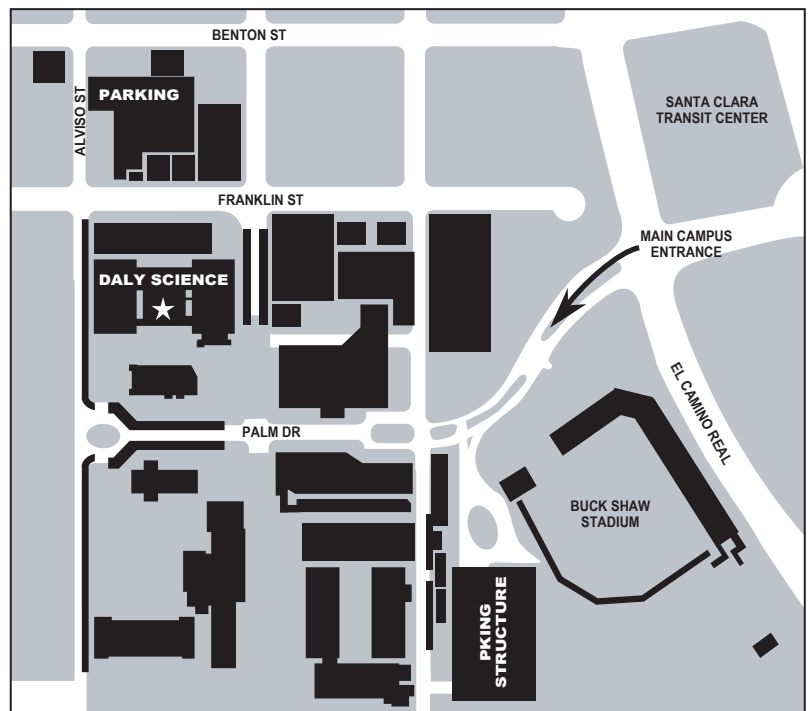
WHERE?

Santa Clara University
Daly Science, rm. 207

■ From US Highway 101, take the De La Cruz Blvd/Santa Clara exit and follow the signs to El Camino real and main campus entrance.

■ From I-280, take I-880 north toward Oakland to The Alameda exit. Turn left onto The Alameda (which becomes El Camino Real) to main campus entrance.

■ From I-880, take The Alameda exit, travel north (The Alameda becomes El Camino Real) to main campus entrance.

Note: If you bring your car to a talk at SCU, use the formal entrance to the University. You may buy a "conference rate" parking permit for $3 if you tell the parking guard that you are attending a BAMA talk. We also offer **a coupon for free parking through our email list and website, but you must print the coupon and give it to the guard at the kiosk.** With your permit, you may park in the garage or in the lot on Franklin Street, which is closer to the talk location.

■ If you have a disability and require reasonable accommodation, please call anyone on the steering committee, or 1-800-735-2929 (TTY—California Relay) 24 hours in advance.

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FOR MORE INFO:

http://www.mathematicaladventures.org

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