



**BAMO**

Bay Area Mathematical Olympiad

## 26th Annual BAMO Awards

Santa Clara University

March 16, 2025



SIMONS LAUFER  
MATHEMATICAL  
SCIENCES INSTITUTE

- 2:30 Introduction
- 2:45 Why can't you tie your shoes in the 4th dimension?

*Steve Trettel, University of San Francisco*

The fourth dimension is a weird and wonderful place—just barely beyond the reach of our visualization skills, yet irresistible to the mathematical imagination. In this talk, we'll take a creative approach to exploring the fourth dimension by first stepping into the shoes of a two-dimensional mathematician. What blind spots would they have when trying to grasp our three-dimensional world? By turning that perspective on ourselves, we'll uncover some strange consequences of living in four dimensions—like the fact that no matter how hard you try, you can't tie a knot in a piece of string. Any knot you make will simply unravel! Even more surprising? While shoelaces always come undone, in four dimensions, you can tie a basketball into a knot.

- 3:45 Presentation of awards

# About BAMO



- **The Bay Area Mathematical Olympiad (BAMO)** is an annual contest for middle and high school students. The first high school contest was held on February 23, 1999. The 26th annual BAMO took place on March 5, 2025, with nearly 700 participants from grades 3 to 12, mostly in the Bay Area, but including students from Seattle to San Diego. The BAMO competition tests students' problem-solving skill, stamina, and creativity.
- **BAMO is made possible** by generous gifts from Tom Davis and Ellyn Bush, Peggy and Tom Rike, the support of the Simons Laufer Mathematical Sciences Institute, and numerous donations from private individuals.
- **BAMO Organizing Committee:** Zvezdelina Stankova, UC Berkeley; Paul Zeitz, University of San Francisco; Austin Shapiro, Proof School.
- **BAMO Problems Committee:** Austin Shapiro, Elysée Wilson-Egolf, Eugene Veklerov, Paul Zeitz.

# About BAMO



- **BAMO Grading Team (CA):** Aaron Cho, Aathreya Kadambi, Andrew Huang, Atticus Cull, Colby Brown, Elysée Wilson-Egolf, Eugene Veklerov, Jonathan Sy, Joshua Zucker, Khang Ho, Liliana Mironova, Paul Zeitz, Peter Koroteev, Theodore Alper, Vrajesh Daga, Zvezdelina Stankova.
- **BAMO Grading Team (WA):** Alexander Vaschillo, Dmitry Vasilevsky, Luba Malkina, Carl de Marcken, Sergey Malkin, Anton Lapounov, David Vincent, Irina Yatsenko, Aleksandr Gil

# About BAMO



- We thank:
  - Austin Shapiro, Michael Tan, Samuel Yeom, Eugene Veklerov, and Ruixiang Zhang for problem contributions;
  - The UC Berkeley mathematics department for providing meeting space for the construction of BAMO, Proof School for hosting the CA grading team, and Alexander Vaschillo for hosting the WA grading team;
  - Professors Tamsen McGinley, Frank Farris, and Shamil Asgarli of the Santa Clara University mathematics department, and Brian Conrey of the American Institute of Mathematics for generously hosting both a satellite site for the BAMO exam and especially, this awards ceremony;
  - UC Berkeley student Vrajesh Daga for his superb help with data management;
  - Tom Davis, as always, for the T-shirt design!

## Our speaker



**Steve Trettel** received his BA from the University of Minnesota and his PhD from UC Santa Barbara. Before joining the University of San Francisco, Steve was a Szego Assistant Professor at Stanford University, and a Postdoc at Brown University's Institute for Computational and Experimental Mathematics (ICERM). When not teaching mathematics and conducting research in geometry and topology, Steve is bicycling around the Bay Area, creating beautiful mathematical art, coding amazing animations, and cooking gourmet meals.



Steve joins a very distinguished list of speakers, which includes Arthur Benjamin, Melanie Wood, and the late John Conway and Ronald Graham. See <https://www.bamo.org/archives/speakers/> for more information.