

BAMA

School Year 2020—2021
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Steve Trettel *Life in Curved Space*

Via Zoom 7:30 pm, Tuesday, Dec. 1, 2020

<https://scu.zoom.us/j/97652406018?pwd=RXdJWFoyc2JaRHJyZThacGV5UElJQT09>

Join meeting between 7:15 and 7:30 pm

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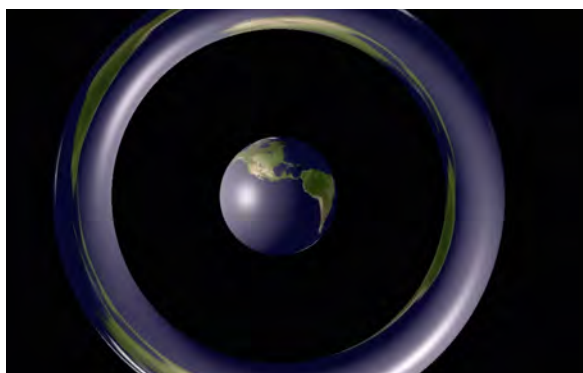
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A space is called flat when Euclidean geometry holds true there. For instance, the Cartesian plane is flat, and unsurprisingly the "real world," the 3-dimensional space here on earth seems to be flat. After all, Euclidean geometry was invented to describe the patterns the Greeks saw in the world around them. Modern geometers are interested in other types of space. The curved nature of these worlds causes many strange effects: light can get trapped in loops and spirals, objects may explode just from being pushed, and in some worlds, it's physically impossible to lay down. After some explorations, for instance, comparing Pringles with orange peels, we pop into 3D, even using virtual reality to confirm our guesses. We end up in a position to describe Einstein's great insight: that gravity is not a force, but just a consequence of living in a curved world.

Steve Trettel is a Szego Assistant Professor of mathematics at Stanford University, studying the geometry and topology of curved, and otherwise tangled up, spaces. He earned his PhD from the University of California, Santa Barbara in 2019, and being originally from Minnesota, has sure come to appreciate the California climate! Steve is passionate about sharing the beauty of mathematics with the general public and producing animations of mathematical ideas. Steve got his start pursuing STEM in high school, listening to exciting guest lectures while attending science fair competitions.



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