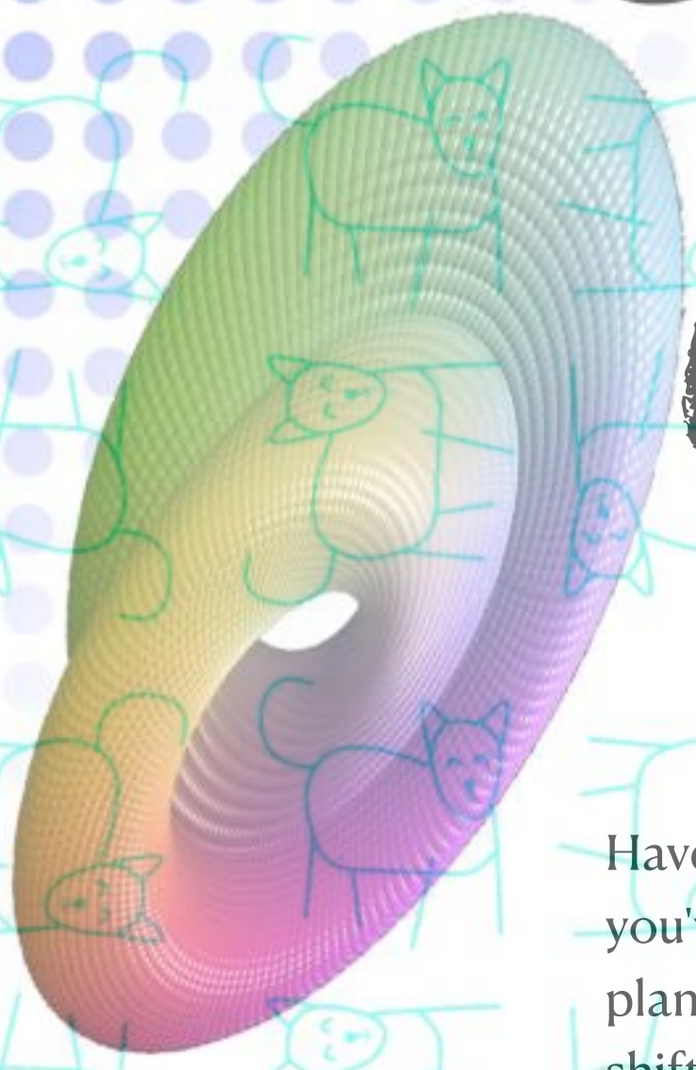
Michigan Math Club

Thursday at 4pm in EH1360
Pizza + pop outside afterwards!!



Wallpaper Patterns

Hanna Bennett — 28 March 2024

Have you ever stared at a repeating pattern to figure out where it repeats? If so, then you've thought about wallpaper patterns: (approximately) designs in the Euclidean plane that have translational symmetries in two different directions (that is, you can shift a wallpaper pattern in two directions so that it lines back up with itself). These designs often have more symmetries as well, like rotations or reflections. In this talk, we'll investigate distance-preserving transformations of the Euclidean plane to figure out what kinds of symmetries are possible, and then look at how these transformations interact to find out why there are 17 different kinds of wallpaper patterns. Yes, 17. Do you find that number as jarring as I do? If so, come find out how I made peace with this fact.