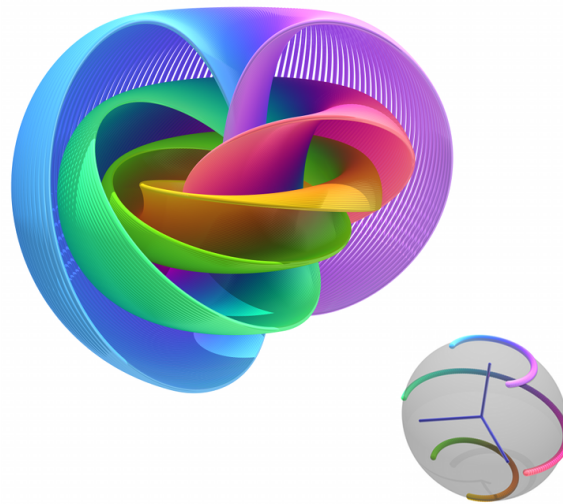


The Magical Mysterious Hopf Map

Undergraduate Math Club
CORNELL UNIVERSITY



SPEAKER

Isaac Legred

ABSTRACT

Have you ever pondered what a 3-sphere looks like embedded in full 4 dimensional glory? Or why your hair always seems to have a cowlick? Or maybe why LIGO detectors look the way they do? These and many more questions are all related to a curious bit of Geometry known as the Hopf Map (sometimes the Hopf Fibration, or Hopf Bundle). At the surface, the Hopf Map is a differentiable function from the 3-sphere (the set of all points in four dimensional space which are distance 1 from the origin), to the 2-sphere (good old, everyday, surface-of-the-Earth 2-sphere) which squashes circles to points. In it, though, we can see some strange asymmetries in geometry, some strange symmetries in our universe, and maybe even get some more fibers into our mathematical diet.

DEC 9 at 5:15pm

Malott 532 ★ Refreshments