

Michigan Math Club

Thursday at 4pm in the Commons
Free Pizza and Pop



The Geometry of the Hopf Fibration

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Abstract for 5 February

Heinz Hopf introduced his eponymous fibration in 1931 in a successful attempt to weird out the mathematical community. Seen one way, the Hopf fibration tells you how the 3-sphere can be wrapped around the 2-sphere. Seen another way, it provides instructions for how to glue 2-spheres and circles together in order to reproduce the 3-sphere.

In this talk, I will use hand gestures, chalk, an inner-tube, and hula-hoops to:

- define the 3-sphere,
- visualize the Hopf fibration, and
- explore the importance of the Hopf fibration in the study of 3-manifolds and higher homotopy groups.

