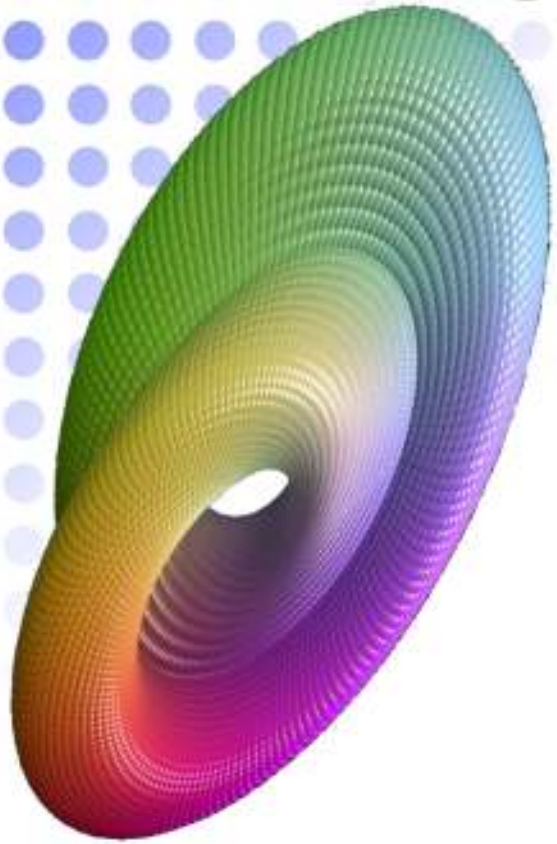
Michigan Math Club

Thursday at 4pm in the Commons

Free Pizza and Pop



The Seven Color Theorem

Stephen DeBacker

Abstract for 12 March 2015

Two countries on a map (on, for example, a sphere) are said to be adjacent provided that they have at least one common boundary. (A country is assumed to have one closed curve as a boundary; for example, Japan and the United States fail to be countries under this definition.) What is the smallest number of colors required to color the countries on the map so that adjacent countries have different colors?

It is a celebrated but (as far as I know) humanly impossible-to-verify fact (1976) that every map on a sphere is four-colorable. It turns out that for surfaces with holes (such as a donut), the question has an elegant solution. In this talk we shall discuss the fact (1890) that the one-holed surface is seven-colorable.