

Michigan Math Club

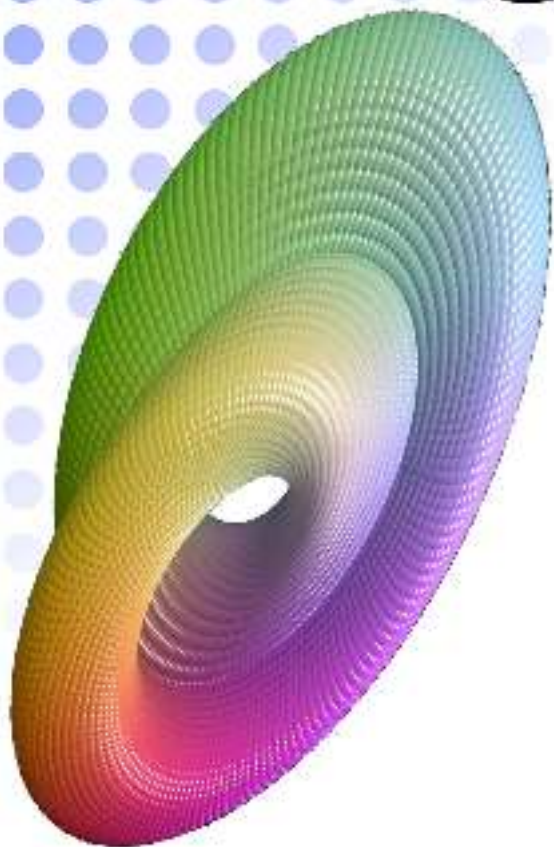
Thursday at 4pm in the Nesbitt Room

Free Pizza and Pop

Visualization of complex curves: a glimpse of algebraic geometry

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Abstract for 14 November



A plane algebraic curve can be described by a polynomial equation in two variables. To avoid funny cases (such as “empty curves”), in algebraic geometry we allow complex variables. But how do we visualize even the simplest curve, for example $x^2 + y^2 = 1$, with x and y complex numbers? Since a complex number has two real coordinates, the “curve” will look like a surface in 4 dimensions! I will show how, turning one dimension into time, these surfaces can be viewed as ordinary real curves moving in space. We will watch a few “movies” of such complex curves, and will learn how to determine their overall shape from the movie. We will also learn about the complex projective plane, and why it helps recover “missing points” on complex plane curves.