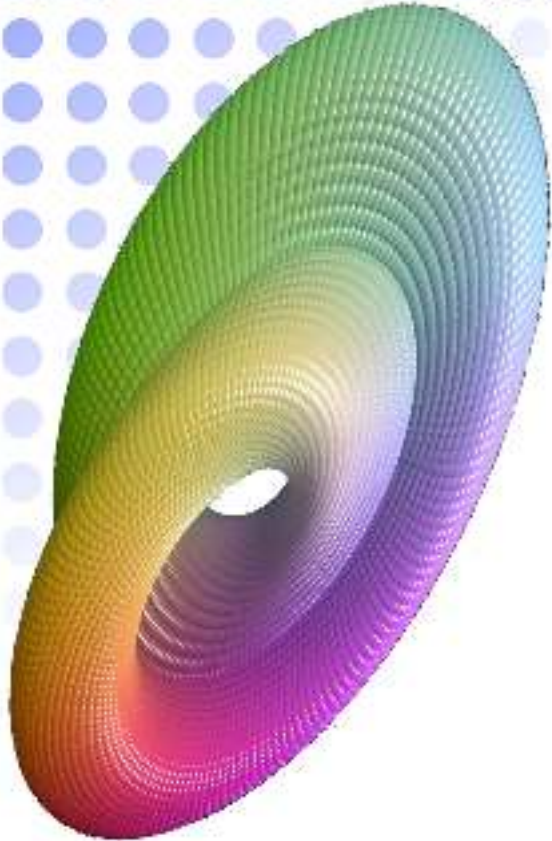


Michigan Math Club

Thursday at 4pm in the Nesbitt Room
Free Pizza and Pop



Rays, Waves and Caustics

Alejandro Uribe

Abstract for 8 October 2015

If you look down at a cup of coffee which is lit from a side you are likely to see an example of a caustic: a brightly lit region that seems to follow a curve with a cusp in the middle. This is created by light being reflected by the interior of the cup onto the surface of the liquid. In this talk we will study mathematically how such curves arise. We will look at two models for light: rays and waves. To explain the phenomenon using rays will lead us to interesting Differential Geometry; to describe it using waves we will need to look at oscillatory sums or oscillatory integrals.

