Michigan Math Club

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

Measuring Singularities

Karen Smith

Abstract for 5 December

Mathematical objects (such as functions or spaces) can be well-behaved at most points, yet "singular" at others --- for example, a black hole can be described as a singularity for the curvature function on space-time. How can we measure how singular a function or a space is? In this talk, I will focus on singularities that come up in algebraic geometry. We will look at geometric objects called algebraic hypersurfaces (the zero set of one polynomial) and discuss how mathematicians might measure how singular it is from many points of view. These include analytically (using convergence of integrals), geometrically (by studying how one might "resolve" the singularity) and if time permits, even algebraically (by looking at what happens "mod p").