

Michigan Math Club

Thursday at 4pm in the Commons

Free Pizza and Pop

Measuring Singularities

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Abstract for 17 February 2011

Given a polynomial equation, we can consider its zero-locus. For example, in high school we study the parabola $y=x^2$. A more interesting example is the “cusp” $y^2=x^3$, which unlike the parabola is not a smooth shape, but has a singular point at the origin. Some singularities are more singular than others, as we can intuitively see when we draw these curves. Mathematicians from different branches of mathematics are working on precise ways to quantify how singular different polynomials are. In this talk, I hope to explain two of these approaches – the analytic using integration and the algebraic using arithmetic “mod p ” – and tell you about some theorems and open questions regarding their relationship. Some of these have been discovered or conjectured right here at Michigan!

