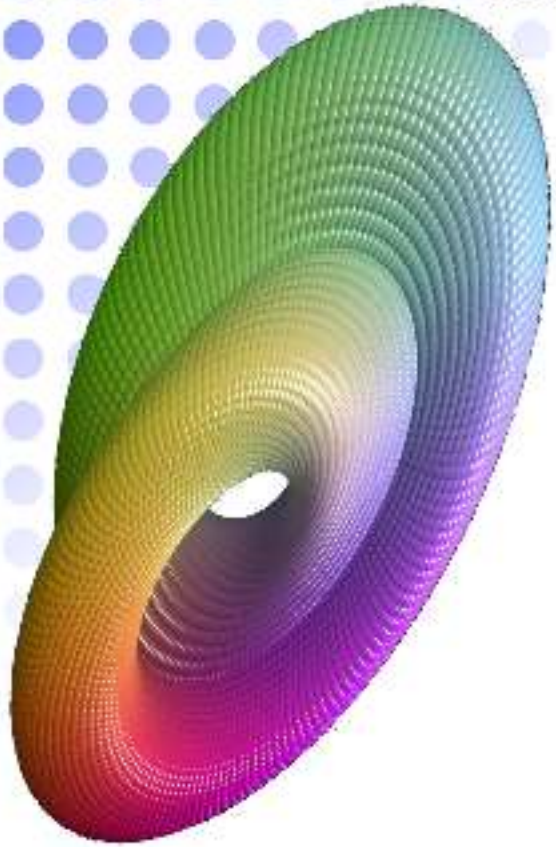
Michigan Math Club

Thursday at 4pm in the Founders Room of the Alumni Center



Singularities in Algebraic Geometry: How Many Times Does a Polynomial Vanish at a Point?

Robert Lazarsfeld

Abstract for 23 September 2010

One learns in high school how to count the number of times a polynomial in one variable vanishes at a root. But for polynomials in several variables, the analogous question becomes much more interesting. The most naive generalization from one to several variables leads to the multiplicity of a singular point on an algebraic curve or hypersurface, and I will review this beautiful chapter of classical algebraic geometry. In recent years a more subtle invariant, defined via considerations of integrability, has come into prominence. I will conclude by illustrating how this new invariant governs many analytic, arithmetic and geometric properties of a polynomial.