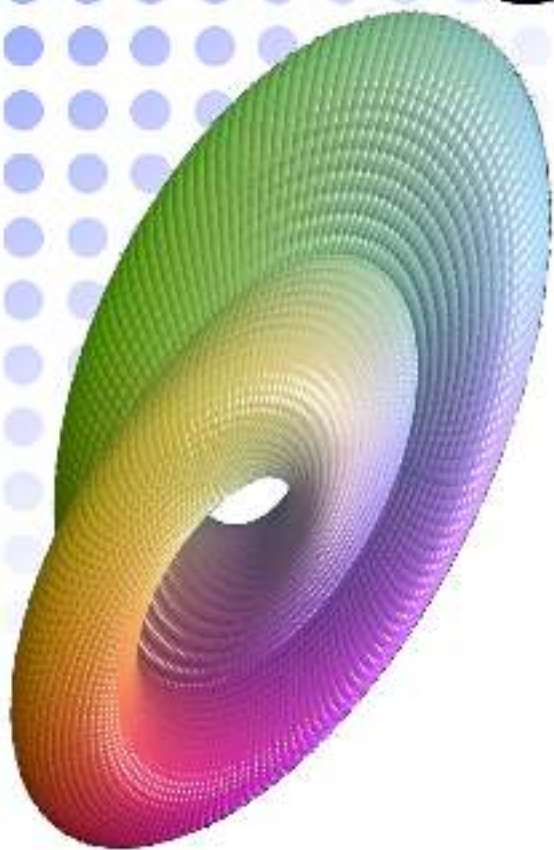


Michigan Math Club

Thursday at 4pm in the Nesbitt Room

Free Pizza and Pop



Polynomial Roots modulo Prime Perfect Squares

Robert Walker

Abstract for 12 October



Fix a univariate polynomial $f(x)$ with integer coefficients, and a prime integer P not dividing every coefficient of $f(x)$. Can you give a simple formula for the number of solutions to $f(x) = 0$ modulo P^k for any positive integer k ? When $k=1$, this is a benign task with ties to Fermat's Little Theorem. Until 2017, however, it was unknown whether this was feasible modulo P^2 (or P^3, P^4, \dots). Three REU students I advised figured out how to do this. The talk will work up to presenting their formula.