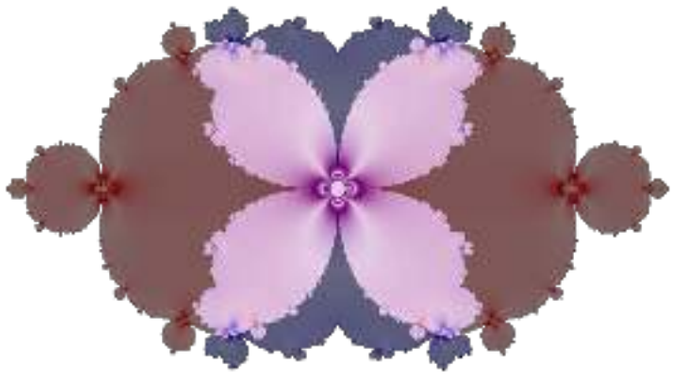
Michigan Math Club

Thursday at 4pm in the Nesbitt Room

Free Pizza and Pop

A snapshot of $\mathbb{C}$omplex dynamics near a fixed point



Sara Lapan, UC Riverside

Abstract for 12 September 2019

Complex dynamics is an area of mathematics that lies at the intersection of complex analysis and dynamical systems. In pop-culture, complex dynamics is known for its beautiful fractals, like the *Mandelbrot set* and *Julia sets*. This talk will be a gentle introduction to complex dynamics and, along the way, we will see and explore many fascinating fractals. More specifically, we will focus on polynomials $P(z)$ in one complex variable that fix 0. Every time we apply the polynomial P, 0 remains fixed, but what happens to points near 0? We will discuss some of the interesting behaviors that occur. This talk will build up to the famous *Leau-Fatou Flower Theorem*, describing the movement of points near the fixed point for a special type of polynomial. This theorem from the early 1900s serves as inspiration for research in higher dimensions.