

Dynamics inside Fatou sets in higher dimension

MI HU

Abstract. In this paper, we investigate the behavior of orbits inside attracting basins in higher dimensions. Suppose $F(z, w) = (P(z), Q(w))$, where $P(z), Q(w)$ are two polynomials of degree $m_1, m_2 \geq 2$ on \mathbb{C} , $P(0) = Q(0) = 0$, and $0 < |P'(0)|, |Q'(0)| < 1$. Let Ω be the immediate attracting basin of $F(z, w)$. Then there is a constant C such that, for every point $(z_0, w_0) \in \Omega$, there exists a point $(\tilde{z}, \tilde{w}) \in \cup_k F^{-k}(0, 0)$, $k \geq 0$ so that $d_\Omega((z_0, w_0), (\tilde{z}, \tilde{w})) \leq C$, where d_Ω is the Kobayashi distance on Ω . However, for many other cases, this result is invalid.

Mathematics Subject Classification (2020): 32H50 (primary); 32F45, 32A19 (secondary).