

Cornell Dynamical Systems Seminar

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n-dimensional analog of Fatou bifurcation

Let k be a positive integer and $f: (\mathbb{C}^n, 0) \rightarrow (\mathbb{C}^n, 0)$ be a germ of a holomorphic map such that zero is an isolated fixed point of the k -th iteration of f . Then by $N_k(f)$ we denote the maximal number of periodic orbits of period k that can be “born” from the fixed point zero by a small perturbation of the linear part of f at zero. Given the linearization matrix Λ of f at zero, we ask which sequences of numbers $N_1(f), N_2(f), \dots$ can be realized by some holomorphic map f . We restrict ourselves to the case when all eigenvalues of Λ are roots of unity of pairwise co-prime degrees and we give an explicit answer to the question when $n \leq 2$. We also show that the case when $n > 2$ is essentially different from the lower dimensional ones.

Friday, October 22, 2010, 2:15 pm, in 205 Malott Hall